

RE WAUBAUSHENE 3 SOLAR PROJECT

Natural Heritage
Environmental Impact Study

August 15, 2011

RECURRENT
ENERGY





RE Waubaushene 3 ULC

Natural Heritage
Environmental Impact Study

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Project Report

August 15, 2011

RE Waubaushene 3 ULC RE Waubaushene 3 Solar Project

Natural Heritage Environmental Impact Study

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1. Introduction

RE Waubaushene 3 ULC is proposing to develop and operate a 10-megawatt (MW) solar photovoltaic (Solar PV) facility, on an approximately 33-hectare (ha) parcel of land, located about 2 km northeast of Waverley, in the Township of Tay in the County of Simcoe (Figure 1.1); herein referred to as “RE Waubaushene 3” or the “Project”.

As stated in Sections 37 and 38 of Ontario Regulation (O. Reg.) 359/09 *Renewable Energy Approvals Under Part V.0.1 of the Act*, (herein referred to as the “REA Regulation”), an Environmental Impact Study (EIS) is required for all significant natural heritage features determined to be within a specified setback in order to obtain a Renewable Energy Approval (REA). The EIS identifies the potential negative environmental effects, documents the proposed mitigation measures, and describes the environmental effects monitoring plan for the natural heritage features.

1.1 Renewable Energy Approval Legislative Requirements

As per Section 4 of the REA Regulation, ground-mounted solar facilities with a nameplate capacity greater than 10 kilowatts (kW) are classified as Class 3 solar facilities and require an REA.

The REA process requires the preparation of several reports with respect to natural heritage features on and adjacent to the Project location, including the Records Review Report, Site Investigation Report, Evaluation of Significance, and if necessary, the EIS. The legislative requirements for these reports are summarized in the following sections.

1.1.1 Records Review Report

Section 35 of the REA Regulation requires proponents of Class 3 solar projects to undertake a natural heritage records review to identify “whether the project is

- a) in a natural feature
- b) within 50 m of an area of natural and scientific interest (earth science)
- c) within 120 m of a natural feature that is not an area of natural or scientific interest (earth science).” (O. Reg. 359/09, s. 25, Table).

Subsection 2 of Section 30 of the REA Regulation requires the proponent to prepare a report “setting out a summary of the records searched and the results of the analysis” (O. Reg. 359/09). The Natural Heritage Records Review Report (Hatch Ltd., 2010a) was prepared to meet these requirements.

1.1.2 Site Investigation Report

Section 26 of the REA Regulation requires proponents of Class 3 solar projects to undertake a natural heritage site investigation for the purpose of determining

- a) whether the results of the analysis summarized in the (natural heritage records review) report prepared under Subsection 25(3) are correct or require correction, and identifying any required corrections
- b) whether any additional natural features exist, other than those that were identified in the (natural heritage records review) report prepared under Subsection 30(2)

- c) the boundaries, located within 120 m of the Project location, of any natural feature that was identified in the records review or the site investigation
- d) the distance from the Project location to the boundaries determined under clause (c).

The Natural Heritage Site Investigations Report (Hatch Ltd., 2010b) was prepared to meet these requirements.

1.1.3 Evaluation of Significance Report

Section 27(1) of the REA Regulation requires proponents of Class 3 solar projects to undertake an evaluation of significance for natural heritage features identified during the records review and site investigation and prepare a report that sets out

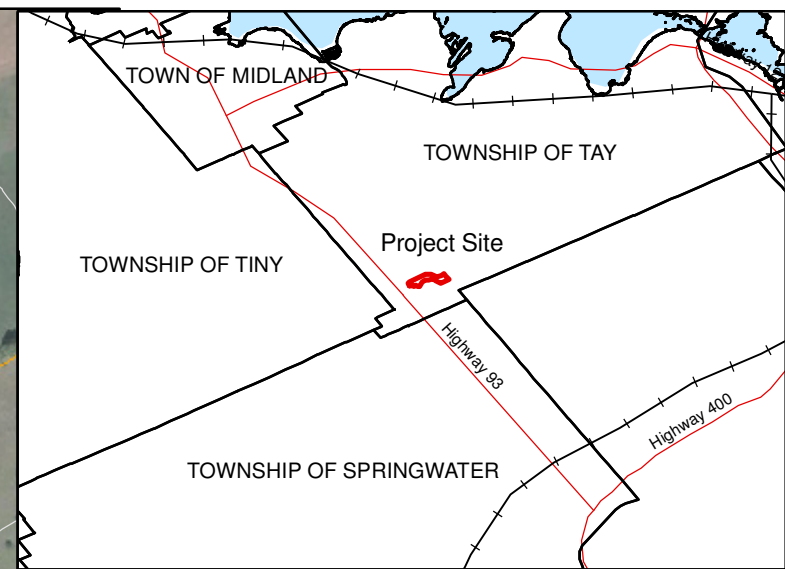
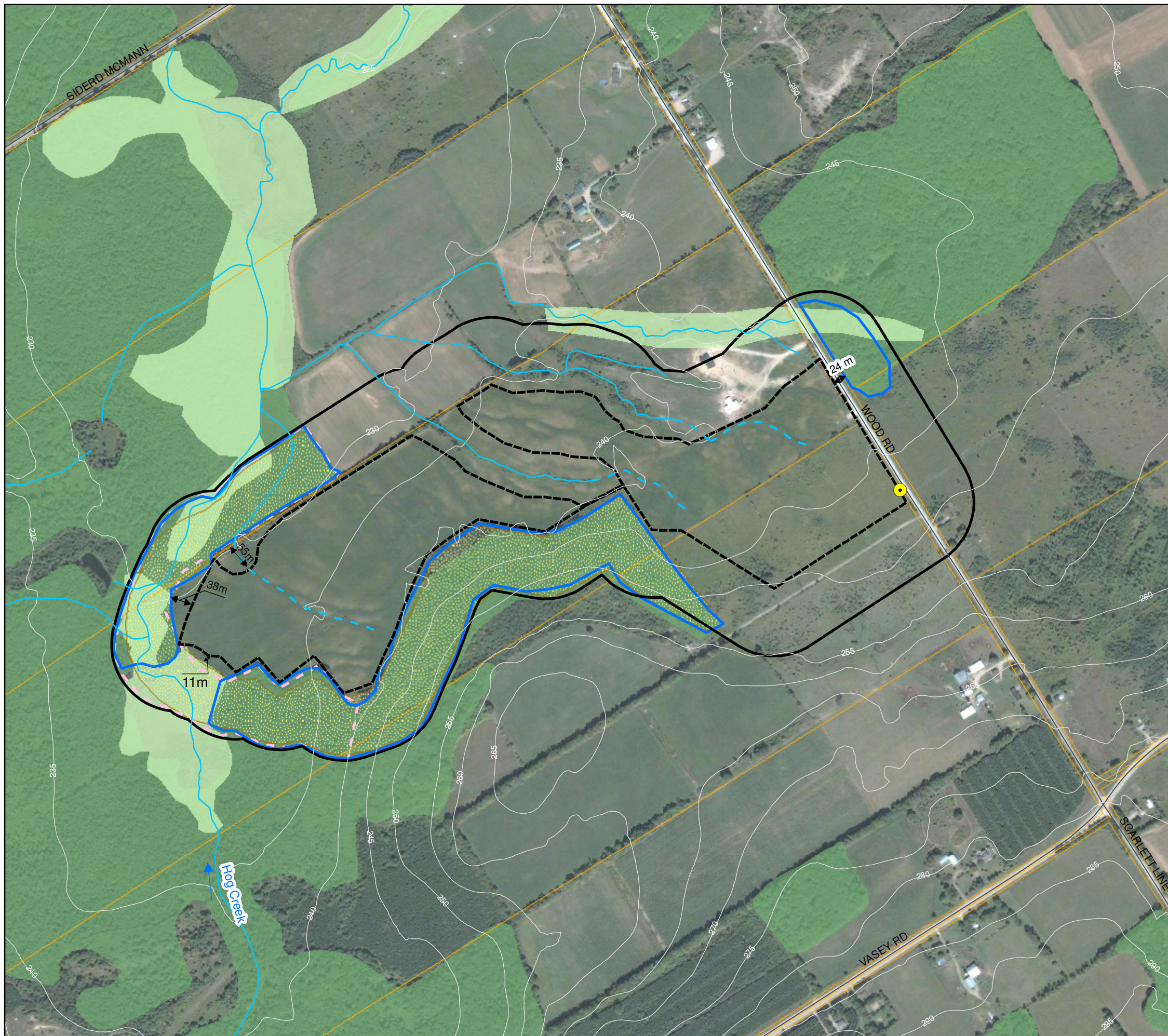
- a determination of whether the natural feature is
 - ◆ provincially significant
 - ◆ significant
 - ◆ not significant
 - ◆ not provincially significant
- a summary of the evaluation criteria or procedures used to make the determinations
- the name and qualifications of any person who applied the evaluation criteria or procedures.

The Evaluation of Significance Report (Hatch Ltd., 2010c) for the natural features identified within 120 m of the Project was prepared to meet these requirements.

1.1.4 Environmental Impact Study Report

Section 38(1) of the REA Regulation prohibits the construction, installation or expansion of any component of a solar project within the following locations:

- provincially significant northern wetland or within 120 m of a provincially significant northern wetland
- within 120 m of a provincially significant southern wetland
- within 120 m of a provincially significant coastal wetland
- a provincially significant area of natural and scientific interest (ANSI) (earth science) or within 50 m of a provincially significant ANSI (earth science)
- a provincially significant ANSI (life science) or within 120 m of a provincially significant ANSI (life science)
- a significant valleyland or within 120 m of a significant valleyland
- a significant woodland or within 120 m of a significant woodland
- a significant wildlife habitat or within 120 m of a significant wildlife habitat
- within 120 m of a provincial park
- within 120 m of a conservation reserve.



- Legend**
- Roads
 - Topographic Contour (5m Interval)
 - Watercourse
 - - - Tilled Portions of Tributaries
 - ▭ Parcels
 - ▭ Wetland
 - ▭ Woodland
- Significant Natural Heritage Features**
- ▭ Significant Woodland
 - ▭ Animal Movement Corridor
 - - - Woodlands Supporting Amphibian Breeding Habitat
- Project Components**
- Connection Point With Existing Distribution Line
 - - - Project Location
 - ▭ 120 m from Project Location



Notes:

1. Base OBM and NRVIS data downloaded from LIO-MNR with permission.
2. Spatial Referencing: UTM NAD 83
3. Satellite imagery obtained from Google Earth Pro.

Figure 1.1
 Recurrent Energy
RE Waubaushene 3
 Project Location
 and Significant
 Natural Heritage Features

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However, Section 38(2) allows proponents to construct within the locations noted above, subject to the completion of an EIS to assess negative effects and evaluate appropriate mitigation and monitoring measures.

Section 38(2) of the REA Regulation indicate that the EIS report must

- identify and assess any negative environmental effects of the projects on natural features, provincial parks or conservation reserves referred to in Section 38(1)
- identify mitigation measures in respect of any negative environmental effects
- describe how the environmental effects monitoring plan in the Design and Operations Report (RE Waubaushene 3 ULC, 2010a) addresses any negative environmental effects
- describe how the Construction Plan Report (RE Waubaushene 3 ULC, 2010b) addresses any negative environmental effects.

This EIS has been prepared to address these requirements for the construction of Project components within 120 m of significant natural heritage features noted in the following section. It has also been prepared in accordance with the Ministry of Natural Resource's Natural Heritage Assessment Guide for Renewable Energy Projects (December 2010).

1.2 Background Information on Natural Heritage Features

The Natural Heritage Records Review Report (Hatch Ltd., 2010a) and Natural Heritage Site Investigations Report (Hatch Ltd., 2010b) confirmed that the Project will be constructed within 120 m of several natural features. Of these natural features, several were identified as significant natural heritage features during the evaluation of significance (Hatch Ltd., 2010c). The natural heritage features that were classified as significant are

- woodlands supporting amphibian-breeding habitat
- animal movement corridor
- woodlands within 120 m of the Project location.

These significant natural heritage features and their locations in relation to the Project location are shown in Figure 1.1.

1.3 Environmental Impact Study Format

Section 1 of this Environmental Impact Study (EIS) has identified the legislative requirements for an EIS under the REA Regulation and identified the reasons why an EIS is required for the Project. Section 2 provides the methodology of the EIS. Section 3 summarizes the activities associated with project construction, operation and decommissioning, as described in the Construction Plan Report (RE Waubaushene 3 ULC, 2010b). Section 4 identifies and assesses negative environmental effects and the proposed mitigation measures to prevent/minimize the potential effects. Section 5 describes the environmental effects monitoring plan from the Design and Operations Report (RE Waubaushene 3 ULC, 2010a) and Section 6 describes how the Construction Plan Report (RE Waubaushene 3 ULC, 2010b) addresses the potential negative environmental effects. Section 7 summarizes the results of the EIS. References are included in Section 8.

2. Methodology

The following steps outline the methodology that was used to prepare this EIS:

1. Documentation of Project components and activities during all Project phases, including construction, operations and decommissioning, including identification of temporal and spatial boundaries.
2. Background data collection on the natural features within 120 m of the Project location through the Records Review and Site Investigation processes.
3. Identification of the effects that is likely to occur on the environmental components as result of implementing the Project.
4. Development of mitigation measures to eliminate, alleviate or avoid the identified negative effects.
5. Design of an environmental effects monitoring program to confirm the predicted effects and the effectiveness of mitigation measures.

3. Project Components and Activities

The following sections briefly describe the construction, operation and decommissioning phases of the Project. The summary information is taken from the Construction Plan Report (RE Waubaushene 3 ULC, 2010b). More detailed information can be found in the Construction Plan Report (RE Waubaushene 3 ULC, 2010b), Design and Operations Report (RE Waubaushene 3 ULC, 2010a) and Decommissioning Plan Report (RE Waubaushene 3 ULC, 2010c). The proposed Site Plan Layout from the Construction Plan Report, which depicts the solar panel, access road, inverter and transformer layout, is provided in Appendix A.

3.1 Construction

Construction is anticipated to occur over an approximately 6 to 9 month period. The activities associated with construction are summarized in Table 3.1.

Table 3.1 General Description of Construction Activities (From RE Waubaushene 3 ULC, 2010b)

Activity	Description
Temporary Power Installation	A temporary connection to the existing hydro system will be constructed to supply power for construction activities.
Survey and Stake Facility	The site will be surveyed and staked to delineate the outline of excavations, roads and foundation locations.
Laydown Area Preparation and Setup	Construction of the construction laydown/long-term parking area (~ 30 m by 50 m) will include <ul style="list-style-type: none"> • clearing and grubbing laydown area • stripping and removing all topsoil • shaping and proof-rolling subgrade • shaping ditches and swales • placing, shaping and compacting granular sub-base and base materials • revegetating ditches and swales.

Activity	Description
Access Road Construction	<p>Activities associated with construction of internal access roads will include</p> <ul style="list-style-type: none"> • clearing and grubbing laydown area • stripping and removing all topsoil • shaping and proof-rolling subgrade • shaping ditches and swales • placing, shaping and compacting granular sub-base and base materials • revegetating ditches and swales. <p>N.B. No crossings of watercourses will be required for the internal access road network.</p>
Water Well Installation	<p>A water well will be installed to supply water for construction purposes. Water extracted will not exceed 45,000 L/d. Water will be temporarily stored in a bladder tank on site.</p>
Solar PV Field Preparation	<p>Hedgerows in the solar PV field will be cleared (if necessary). Larger trees will be felled by chainsaw; smaller brush will be removed by a bulldozer with a brush rake. Material will be collected and removed to a licensed landfill. Minor grading will be undertaken as required.</p>
Substation Preparation	<p>The substation area (~ 20 m by 20 m) will be excavated for the transformer foundation and oil containment area. The substation site will be prepared and excavated for the footings required for the termination equipment and control house foundation pad.</p>
Array Foundation Installation	<p>Array foundations will consist of structural footings (e.g., structural piles, augured pre-cast concrete piers or direct bolting to bedrock) designed and installed depending on the geotechnical conditions.</p>
Foundations for Substation, Transformer and Inverters	<p>Foundations will be formed with plywood and reinforced with structural steel. Concrete will be poured from a ready-mix concrete truck to create foundations.</p>
Cable Trench and Conduit Installation	<p>Cable trench and conduits will be installed for the PV collection and aggregation system. Activities include</p> <ul style="list-style-type: none"> • trench excavation by backhoe • installation of levelled layer of compacted stone on base of trench • installation of conduit within trench • installation of cables within the conduit • burying of conduit a minimum of 46 cm below grade.
Dead End Structures	<p>Wood pole dead end structures consisting of wood poles and associated insulators and connectors will be installed to connect the substation to the distribution line.</p>
Control House Installation	<p>A pre-fabricated control house (approximately 6 m by 9 m) will be installed on the foundation pad in the substation area.</p>
Fencing	<p>A 2.7-m (9-ft) high chain-link security fence, with provision for topping with barbed wire, will be erected around the perimeter of the Project site.</p>
PV Array Installation	<p>Activities include</p> <ul style="list-style-type: none"> • installation of outdoor transformers and inverter units on the foundation pads • erection of PV support structures • installation of PV modules in the support structures • installation of combiner boxes on the rear of the finished PV arrays.

Activity	Description
Substation Installation	Installation of main power transformer, switchgear cells, metering, service transformer and disconnect switches in the substation area.
Commissioning	The substation equipment, inverters, collector system and PV array systems will be tested and commercial operations will commence. Activities will include testing, calibration and troubleshooting.
Rehabilitate Site	Once major construction has been completed, the site will be reseeded/revegetated.

3.2 Operation

The facility will operate 365 d/yr when sufficient solar radiation exists to generate electricity. The facility will be remotely monitored with no regular on-site employees. The facility requires periodic visits for maintenance during the operations phase, such as checking and replacing worn parts, checking electrical connections and maintaining vegetation below and around the solar panels. Panel cleaning will be undertaken approximately three times per year, depending on local dust accumulation loads. Operations and maintenance requirements are summarized in Table 3.2. It is anticipated that the facility will operate for at least 30 years.

Table 3.2 General Description of Operating Activities

Activity	Description
Expected Commercial Operation Date	April 2012
On-Site Employees	Zero (0) on-site employees
Periodic Inspection and Maintenance	Monthly inspections will be conducted with minor maintenance undertaken as required. Activities may include vegetation control, panel washing, transformer inspection, inspection of primary system components, replacement of air filters and other minor adjustments or maintenance as needed.
Major Maintenance	In the event of a component failure, all major maintenance can be performed utilizing existing roads and site access.
Cleaning of Panels	Approximately three times per year on average, utilizing water from the on-site well. Approximately 25,700 L of water over a 4 to 5 day period is anticipated for each cleaning event. Water only is used for cleaning – no cleaning solutions of any kind are used to wash the panels.
Fuel Consumption	None.
Solid Waste	None – the system does not produce waste of any type. All debris as a result of maintenance or cleaning will be removed from the site immediately by the contracted party.

3.3 Decommissioning

Decommissioning would occur when the decision has been made that it is no longer economically feasible to continue operation or refurbish generating equipment. As discussed in Section 3.2, it is anticipated that decommissioning would not occur until at least 2042.

All decommissioning and site restoration activities would adhere to the requirements of appropriate regulatory authorities and would be conducted in accordance with all applicable federal, provincial

and municipal permits and other requirements. The decommissioning and restoration process comprises the following activities:

- removal of aboveground structures (i.e., solar panels, upper racking, inverters, distribution line and interconnection equipment and access road materials)
- removal of below ground structures to a depth of at least 1.2 m (i.e., below ground racking, transformer/inverter pads and footings)
- site grading (to remove ditches, access road, etc) and restoration of topsoil to facilitate a return to agricultural conditions
- field ploughing to remove vegetation ground cover, and reseeding with agricultural crops as per the landowner's direction.

4. Potential Negative Environmental Effects and Proposed Mitigation Measures

This section describes the anticipated negative environmental effects on the identified significant natural features that could occur as a result of construction, operation and decommissioning phases of the Project (as described in Section 3).

Mitigation measures are proposed to minimize, eliminate or alleviate any negative effects. Potential negative effects are discussed by environmental component, where affects on the land could negatively affect the significant natural features. Relevant environmental components of the significant woodlands and wildlife habitat that may be impacted by the proposed Project include

- vegetation communities/wildlife habitat
- wildlife communities.

4.1 Vegetation Communities/Wildlife Habitat

Vegetation communities/wildlife habitat can be impacted by a number of activities, including the following:

- Direct encroachment on the feature – The removal of vegetation from the significant natural features would have an impact on the vegetation community as a whole and the wildlife habitat that is provided therein.
- Fugitive dust generation – Fugitive dust generation has the potential to impact vegetation communities within the significant natural features as heavy dust loads on the photosynthetic surfaces of plants can retard growth and ultimately result in loss of the individual.
- Changes in surface water runoff/groundwater levels altering the moisture regime of the feature – Alterations in surface water and groundwater movement from the Project location may impact the moisture regime of the receiving significant natural features. If the moisture regime of the receiving natural features was altered significantly, the composition of these communities may change as a result. This could affect the form and function of the adjacent significant features.

The potential negative effects and proposed mitigation measures associated with these activities are discussed by Project phase in the following sections.

Impacts are discussed below with respect to wildlife habitat, while impacts to the wildlife communities within the various habitats are addressed in Section 4.2.

4.1.1 Construction Phase

4.1.1.1 Direct Encroachment on the Natural Heritage Feature

There is no direct encroachment required on any of the significant natural features (i.e., the significant woodland, significant animal movement corridor, and significant woodland supporting amphibian breeding pond), as they are located entirely off of the Project location. In order to ensure that the boundaries of the Project location are respected, work areas will be clearly flagged and workers will be made aware not to work beyond the extent of the demarcated areas. Further, workers will be advised not to trespass beyond the bounds of the work areas, and natural areas (woodlands, wetlands) will be off-limits to the construction workforce. These features may be subject to indirect impacts which are addressed within other sections of this report.

This will ensure no impact on the form of the woodland, woodland supporting amphibian breeding pond or animal movement corridor, or the function of the woodland in terms of extent of landscape cover, contribution to riparian cover, or contribution to local nutrient cycling and food web interactions.

4.1.1.2 Fugitive Dust Generation

Dust may be mobilized due to vehicular traffic and heavy machinery use, drilling (if necessary for solar panel installation) and soil moving activities (e.g., excavation, trenching).

However, it is not anticipated that dust generation will result in adverse effects on the significant natural features since the potential impacts can be substantially mitigated through the use of standard construction site best management practices and mitigation measures. In this regard, the document entitled "Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities" (Cheminfo Services Inc., 2005) will be used as a guideline for contractors. Mitigation measures to be used, as required, to control dust include

- use of approved dust suppression (i.e., water or non-chloride based materials) on exposed areas including access roads, stockpiles and works/laydown areas as necessary
- hard surfacing (addition of coarse granular A material, free of fine soil particles) of access roads or other high-traffic working areas
- phased construction, where possible, to limit the amount of time soils are exposed
- avoid earth-moving works during excessively windy weather. Stockpiles to be worked (e.g., loaded/unloaded) from the downwind side to minimize wind erosion.
- stockpiles and other disturbed areas to be stabilized as necessary (e.g., tarped, mulched, graded, revegetated or watered to create a hard surface crust) to reduce/prevent erosion and escape of fugitive dust.

Visual monitoring of dust generation will occur during the construction period and if dust is observed to be of concern, additional mitigation will be implemented. Given the mitigation and monitoring proposed, it is anticipated that dust generation will be relatively low in magnitude and limited in duration and geographical area, such that no negative effects on the woodland and associated wildlife habitat will occur as a result of dust, and therefore there will be no impact to the woodlands function of contribution to local and regional water quality or contribution to nutrient cycling and food web interactions.

4.1.1.3 *Surface Water Runoff*

Activities that could occur during the construction phase that would have the potential to affect surface water runoff patterns and rates include

- land grading and ditching associated with access roads
- soil compaction due to heavy equipment or stockpiling
- vegetation removal.

The potential negative effects and proposed mitigation measures associated with these activities are discussed in the Waterbodies EIS (Hatch Ltd., 2010d). The study concluded that through the use of effective mitigation measures, there will be no significant change in surface water runoff as a result of Project construction. Measures (e.g., enhanced vegetated swales, filter strips) will be employed to ensure that surface water runoff patterns and rates remain similar to existing conditions. Therefore, no significant alterations in moisture regime in the adjacent woodlands are anticipated to occur, and therefore there will be no impact to the contribution of the woodland to local and regional water quality.

4.1.1.4 *Groundwater*

Groundwater may be potentially impacted by excavations on the Project location that intersect the groundwater table, withdrawal of groundwater from a new on-site well for construction purposes and adverse effects due to accidental spills. Potential negative effects and associated mitigation measures are discussed in the Waterbodies EIS (Hatch Ltd., 2010d). The study concluded that no significant negative effects on the groundwater table and recharge/discharge areas in the vicinity of the significant natural features are anticipated, and therefore, there will be no negative effects on the woodlands contribution to local and regional water quality.

4.1.2 **Operations Phase**

With the Project operating unmanned and regular maintenance only expected to occur periodically throughout the year, potential impacts on the significant natural features are expected to be limited to changes in surface water runoff.

4.1.2.1 *Surface Water Runoff*

Long-term site alterations associated with the operational phase of the Project that could potentially affect surface water runoff include

- long-term changes in land grading and ditches

- presence of impervious or less pervious surfaces
- changes in vegetation structure and density.

The potential negative effects and mitigation measures associated with these activities are discussed in the Waterbodies EIS (Hatch Ltd., 2010d). The study concluded that through the use of effective mitigation measures, there will be no significant change in surface water runoff as a result of Project operations. Measures will be employed to ensure that surface water runoff patterns and rates remain similar to existing conditions. Therefore, no alterations in moisture regime in the adjacent woodlands, and therefore to the function of the woodland's contribution to local and regional water quality, are anticipated to occur.

4.1.3 Decommissioning Phase

Certain decommissioning activities will be similar to those activities that occurred during the construction phase of the Project, and as such mitigation measures from the construction phase will be similar to those employed in the decommissioning phase.

4.1.3.1 Fugitive Dust Generation

The potential for dust generation during decommissioning will be the same as that previously discussed for construction (see Section 4.1.1.2). The mitigation measures previously identified with respect to construction will also be effective at mitigating potential impacts during decommissioning.

4.1.3.2 Surface Water Runoff

Short-term activities and long-term site alterations associated with the decommissioning of the Project that could potentially affect surface water runoff include

- long-term changes in land grading
- changes in vegetation structure and density.

The potential negative effects and mitigation measures associated with these activities are discussed in the following sections as well as the Waterbodies EIS (Hatch Ltd., 2010d). In general, it was concluded that these changes will restore the Project location to pre-existing conditions, and there will therefore be no effect on the form or function of the natural features.

4.2 Wildlife Communities

4.2.1 Construction Phase

In order to minimize the potential for incidental take of wildlife, vehicular speeds on access roads of the Project location will be restricted. Further, daily visual monitoring of the Project location and construction machinery will be completed to search for snakes and turtles to ensure that potential impacts to these species are minimized. In addition, the construction workforce will be made aware of the potential for wildlife occurring on the Project location and that measures should be taken to avoid wildlife wherever possible. If wildlife are observed on the Project location, they will be either allowed to pass freely through the Project location (preferred), directed off of the Project location by the worker (without the use of vehicles) or collected by a designated employee, who has been provided with protocols for the safe handling and transport of wildlife, and transported to the nearest

available location off site and released. The use of these mitigation measures will maximize potential avoidance of incidental take.

Should incidental take occur, it will be documented in the monthly environmental report. If a species of conservation concern is noted, work within the area will be ceased immediately, and the Ontario Ministry of Natural Resources (MNR) and Environment Canada (EC) will be contacted to make them aware of the occurrence. Work will not resume in the area until a survey is conducted by a trained biologist to ensure that there are no species of conservation concern present in the area.

The presence of the construction workforce and construction activities associated with the Project will also result in auditory and visual disturbance of local wildlife populations within the significant wildlife habitats within 120 m of the Project location. Impacts on the significant wildlife habitats are discussed by wildlife habitat type below.

- **Animal Movement Corridor** – An animal movement corridor is present within the woodland adjacent to the Project location. Though wildlife movement along the edge of the woodland community may be suppressed (i.e., movement of species sensitive to anthropogenic disturbances may be unlikely to occur within 100 m of the Project location when active construction is occurring within close proximity to the woodland), the size of the woodland (typically several hundred metres wide) will provide suitable habitat away from the sources of disturbance, and active construction adjacent to the woodland will occur for a small proportion of the construction phase, such that the function of the woodland as a corridor would not be significantly impacted.
- **Woodland Supporting Amphibian Breeding Habitat** – It is anticipated that construction will occur outside of the amphibian breeding period (generally April through May), such that there will be no potential disturbance of amphibian breeding. Further, if construction is required during this timeframe, as construction activities will be occurring during the day, while amphibian breeding occurs primarily at night, there is no disturbance of amphibian breeding anticipated. In addition, the wetland habitat which provides the amphibian breeding habitat is of such a size that only a small portion will be located in proximity to the construction activities, with the majority of the breeding habitat at least 30 m away from the Project location (as a result of required setbacks from high water mark of waterbodies). In addition, mitigation measures have been previously identified to ensure that there is no impact on the form of the woodland supporting amphibian breeding habitat, such as through surface water runoff protection measures (see Section 4.1.1.3)

4.2.2 Operations Phase

As regular maintenance is anticipated to occur periodically during the year, this would be consistent with existing disturbances on the Project location from agricultural operations. As the Projects are unmanned, and little noise disturbance is produced as a result of their operation, no impact on the form or function of significant natural features within 120 m is expected.

In order to minimize the potential for incidental take of wildlife, speeds on access roads of the Project location will be restricted and visual monitoring of the access roads will be completed. In addition, the construction workforce will be made aware of the potential for wildlife occurring on the Project location and that measures should be taken to avoid wildlife wherever possible. If wildlife

are observed on the Project location, they will be either allowed to pass freely through the Project location, directed off of the Project location by the worker (without the use of vehicles) or collected by a designated employee, who has been provided with protocols for the safe handling and transport of wildlife, and transported to the nearest available location off site and released.

Mowing of vegetation beneath and around the solar panels, if required, may result in incidental take. Known occurrences of incidental take will be reported, and the species impacted will be determined. If the species is determined to be a Species of Conservation Concern, work within the area will be ceased immediately, and the MNR/EC will be contacted to make them aware of the occurrence. Work in the area will remain ceased until a survey is conducted by a trained biologist to ensure that there are no further species of conservation concern present in the area.

The presence of the Project immediately adjacent to the woodland community may somewhat impair wildlife movement along the edge of the woodland; however, the corridor is of such a size that sufficient movement corridor habitat exists. Further, the fence and presence of the Project would not be expected to impact the movement of deer or other large mammals through the edge of the woodland. As a result, impacts to function of the movement corridor as a result of Project construction are considered to be negligible.

4.2.3 Decommissioning Phase

During the decommissioning phase, disturbances present in the area will be similar to those that may occur during the construction phase as described in Section 4.2.1. In order to minimize potential impacts to wildlife communities of the significant natural features, decommissioning will be scheduled to occur outside of breeding wildlife period. Though there may be some avoidance of the significant natural features near the Project location during decommissioning, these effects are temporary, and following decommissioning the site will be restored to pre-existing conditions.

5. Environmental Effects Monitoring Plan – Design and Operations Report

As discussed in the Design and Operations Report (RE Waubaushene 3 ULC, 2010a), environmental effects monitoring is proposed in respect of any negative environmental effects that may result from engaging in the Project. As per the REA Regulation, the monitoring plan identifies

- performance objectives in respect of the negative environmental effects
- mitigation measures to assist in achieving the performance objectives
- a program for monitoring negative environmental effects for the duration of the time the Project is engaged in, including a contingency plan to be implemented if any mitigation measures fail.

For the purposes of this EIS report, the effects monitoring measures with respect to negative effects on the significant natural features have been reproduced here, in Table 5.1.

Table 5.1 Summary of Environmental Effects Monitoring Requirements with Respect to Significant Natural Features

Negative Effect	Mitigation Strategy	Performance Objective	Monitoring Plan				Contingency Measures	
			Methodology	Monitoring Locations	Frequency	Rationale		Reporting Requirements
Construction Phase								
Project activities adjacent to significant wildlife habitats	Work areas clearly flagged and workers made aware not to work beyond the extent of the demarcated areas. Workers advised not to trespass beyond the bounds of the areas that had been previously flagged for vegetation removal.	Prevent impacts on significant wildlife habitats.	Visual monitoring of work areas.	On the Project location within 30 m of the significant wildlife habitats.	Daily during activities within 30 m of the significant wildlife habitats.	Visual monitoring will ensure work area boundaries are being respected.	Reported in monthly environmental report during construction	If work beyond the identified work areas is observed, site restoration activities will be undertaken immediately.
Dust generation and off-site transport	Standard construction site best management practices to prevent fugitive dust.	Minimize fugitive dust from the construction site.	Visual monitoring of visible dust plumes during construction.	Throughout construction site.	Periodically during all construction activities.	Visual dust monitoring would identify if dust plumes are an issue and where their source may be.	Reported in monthly environmental monitoring report during construction.	Dust control measures implemented as necessary to prevent/minimize dust generation.
Incidental take of wildlife	Daily visual monitoring of work areas and construction machinery prior to start of work. Speeds to be limited on Project location and construction workforce to be made aware of potential for wildlife on the Project location, as well as procedures if wildlife is encountered.	Minimize incidental take.	Occasions of incidental take to be reported as they are identified.	Throughout construction site.	Ongoing during construction.	Incidental take will be reported by construction workforce if incidents occur.	Reported in monthly environmental monitoring report during construction, unless the species is a species of conservation concern in which case reporting will be immediate to the MNR/EC.	If incidental take of species of conservation concern are recorded, work will be ceased until such time as a trained biologist can state that the species is no longer present in the area.
Operations Phase								
Incidental take of wildlife	Speeds to be limited on Project location and maintenance workforce to be made aware of potential for wildlife on the Project location.	Minimize incidental take.	Occasions of incidental take to be reported as they are identified.	Throughout Project location.	Ongoing during maintenance.	Incidental take will be reported by maintenance workforce if incidents occur.	No requirement; unless the incident involves a species of conservation concern in which case reporting will be immediate to the MNR/EC.	If incidental take of species of conservation concern are recorded, work will be ceased until such time as a trained biologist can state that the species is no longer present in the area.
Decommissioning Phase								
Dust generation and off-site transport	Standard site best management practices to prevent fugitive dust.	Minimize fugitive dust from the Project location.	Visual monitoring of visible dust plumes during construction.	Throughout Project location.	Periodically during all decommissioning activities.	Visual dust monitoring would identify if dust plumes are an issue and where their source may be.	Reported in monthly environmental monitoring report during decommissioning.	Dust control measures implemented as necessary to prevent/minimize dust generation.
Incidental take of wildlife	Daily visual monitoring of work areas and decommissioning equipment prior to start	Minimize incidental take.	Occasions of incidental take to be reported as they are identified.	Throughout decommissioning site.	Ongoing during decommissioning.	Incidental take will be reported by decommissioning workforce if incidents	Reported in monthly environmental monitoring report during decommissioning, unless	If incidental take of species of conservation concern are recorded, work will be ceased until such time as a trained biologist can state that the species is no longer present in the

Negative Effect	Mitigation Strategy	Performance Objective	Monitoring Plan				Contingency Measures	
			Methodology	Monitoring Locations	Frequency	Rationale		Reporting Requirements
	of work. Speeds to be limited on Project location and decommissioning workforce to be made aware of potential for wildlife on the Project location, as well as procedures if wildlife is encountered.					occur.	the species is a species of conservation concern in which case reporting will be immediate to the MNR/EC.	area.

The monitoring proposed in Table 5.1 will confirm that mitigation measures are functioning as designed to meet performance objectives. If monitoring shows that performance objectives are not being met, the contingency measures documented in Table 5.1 will be used to ensure that remedial action is undertaken as necessary to meet the performance objectives.

6. Construction Plan Report

The REA Regulation requires proponents of Class 3 solar projects to prepare a Construction Plan Report (CPR). RE Waubaushene 3 ULC prepared the CPR with technical assistance from Wardrop Engineering and input from Hatch Ltd. regarding potential negative effects and mitigation measures. The CPR is a stand-alone report (RE Waubaushene 3 ULC, 2010b) that will be included as part of the REA application.

The CPR details the construction and installation activities, location and timing of construction and installation activities, any negative environmental effects that result from construction activities within 300 m of the Project and mitigation measures for the identified negative environmental effects. The CPR addresses all potential effects of construction on natural features within 300 m of the Project location in a general manner. The mitigation proposed in the CPR with respect to preventing/minimizing negative effects on natural features is the same as that discussed in this EIS. Additional mitigation is proposed to address negative effects during construction not related to natural features. Therefore, the CPR and this EIS should be read in conjunction with each other, although all negative effects and mitigation requirements with respect to significant natural features are contained within this EIS and duplicated in the CPR.

7. Summary and Conclusions

As discussed in the Natural Heritage Records Review Report (Hatch Ltd. 2010a), the Natural Heritage Site Investigations Report (Hatch Ltd. 2010b) and the Evaluation of Significance (Hatch Ltd., 2010c), significant woodlands and wildlife habitat are present within 120 m of the Project location.

The EIS has been prepared to identify potential negative environmental effects that all phases of the Project may have on these significant natural features. Mitigation measures have been proposed to prevent these effects from occurring or minimize the magnitude, extent, duration and frequency in the event that they do occur to an acceptable level. The primary mitigation measure that will prevent adverse effects on the natural features is avoidance of direct encroachment onto the features themselves. Monitoring measures have been proposed to confirm that mitigation measures are having the intended effect and that performance objectives are being met.

8. References

Cheminfo Services Inc. 2005. Best Practices for the Reduction of Air Emissions From Construction and Demolition Activities. Prepared for Environment Canada. March 2005. 49 pp.

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<http://www.extension.umn.edu/distribution/cropsystems/DC3115.html>. Accessed November 28, 2007.

Hatch Ltd. 2010a. RE Waubaushene 3 – Natural Heritage Records Review Report. Prepared for RE Waubaushene 3 ULC.

Hatch Ltd. 2010b. RE Waubaushene 3 – Natural Heritage Site Investigations Report. Prepared for RE Waubaushene 3 ULC.

Hatch Ltd. 2010c. RE Waubaushene 3 – Evaluation of Significance Report. Prepared for RE Waubaushene 3 ULC.

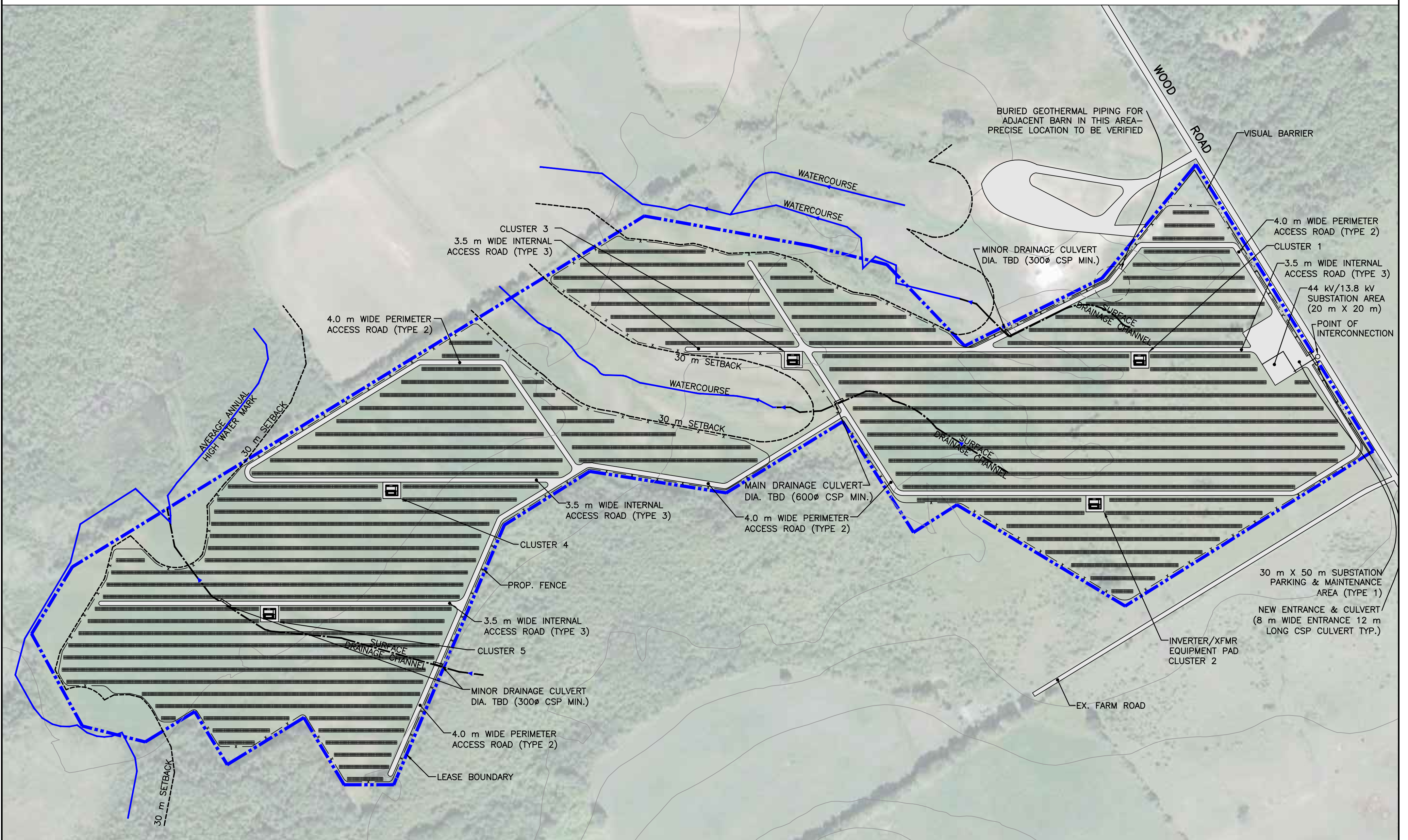
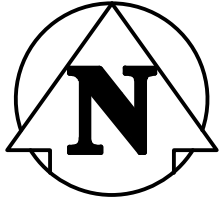
Hatch Ltd. 2010d. RE Waubaushene 3 – Waterbodies Environmental Impact Study. Prepared for RE Waubaushene 3 ULC.

RE Waubaushene 3 ULC. 2010a. RE Waubaushene 3 – Design and Operations Report.

RE Waubaushene 3 ULC. 2010b. RE Waubaushene 3 – Construction Plan Report.

RE Waubaushene 3 ULC. 2010c. RE Waubaushene 3 – Decommissioning Plan Report.

Appendix A
Site Layout
(From RE Waubaushene 3 ULC, 2010b)



**PRELIMINARY
DRAWING**

NOT TO BE
USED FOR
CONSTRUCTION

NOTES:

- AERIAL IMAGERY OBTAINED FROM GOOGLE EARTH PRO, IMAGERY DATE 2006
- ROAD CONSTRUCTION PROCEDURES
 - CLEAR & GRUB ALL AREAS PROPOSED FOR ROAD AND PARKING LOT CONSTRUCTION.
 - STRIP & REMOVE ALL TOPSOIL.
 - SHAPE & PROOF-ROLL SUBGRADE.
 - SHAPE & GRADE DITCHES & SWALES.
 - PLACE, SHAPE AND COMPACT GRANULAR SUBBASE AND BASE MATERIALS AS FOLLOW:
 - TYPE 1 - 300mm GRANULAR "B" SUBBASE, 150mm GRANULAR "A" BASE.
 - TYPE 2 - 200mm GRANULAR "B" SUBBASE, 150mm GRANULAR "A" BASE.
 - TYPE 3 - 150mm TO 200mm GRANULAR "A".
 - RE-VEGETATE DITCHES AND SWALES.

CULVERTS:

- CULVERT SHALL BE CORRUGATED STEEL PIPE OR RIBBED PVC PIPE INSTALLED IN ACCORDANCE WITH OPSD.
- MINIMUM CULVERT DIAMETER:
 - 300mm Min. Dia. FOR MINOR CULVERTS
 - 600mm Min. Dia. FOR MAIN CULVERTS
 REFER TO PLANS FOR CULVERT LOCATIONS.

APP. SCALE:

1:2000

LEGEND:

- INVERTER / XFMR EQUIPMENT PAD
- SOLAR ARRAY
- LEASE BOUNDARY
- ACCESS ROAD
- PROPOSED FENCE
- ADDITIONAL CONSTRUCTIBLE AREA THAT MAY BE USED FOR THE FACILITY

REFERENCE NO. 1088760100-DWG-E0008-04

REV.	DATE	DESCRIPTION	APPROVED BY
04	11.01.26	ISSUED FOR REVIEW	ENERGY
03	10.07.20	ISSUED FOR REVIEW	ENVIRO.
02	10.06.21	ISSUED FOR REVIEW	INFRAS.
01	10.05.21	ISSUED FOR REVIEW	STRUCT.

**RECURRENT ENERGY – WAUBAUSHENE 3
10MW AC**

SOLAR GENERATION FACILITY – SITE LAYOUT

WARDROP | A TETRA TECH COMPANY

