



Axio Power Canada Inc./
SunEdison Canada

Natural Heritage Assessment
Site Investigation Report

For

Norfolk Bloomsburg TS
Solar Energy Project

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November 25, 2011

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Project Report

November 25, 2011

**Axio Power Canada Inc./SunEdison Canada
Norfolk Bloomsburg - Solar Energy Project**

Natural Heritage Assessment Site Investigation Report

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1. Introduction

1.1 Project Description

As part of Ontario's Green Energy Plan, Axio Power Canada Inc./SunEdison Canada ("Axio/SunEdison") is proposing to develop a 10 megawatt (MW) solar photovoltaic project within the single tier municipality of Norfolk County, Ontario. The proposed Project Location¹ will be situated on 29 hectares of land located approximately 4 km northwest of Simcoe on Part of Lots 3 and 4, Concession 12, and within the St. Thomas Ecodistrict 7E-2.

1.2 Renewable Energy Approval Legislative Requirements

Ontario Regulation (O. Reg.) 359/09 – *Renewable Energy Approvals Part V.0.1 of the Act*, (herein referred to as the REA Regulation) made under the *Environmental Protection Act* identifies the Renewable Energy Approval (REA) requirements for renewable energy projects in Ontario. As per Section 4 of the REA Regulation, ground mounted solar facilities with a name plate capacity greater than 10 kilowatts (kW) are classified as Class 3 solar facilities and require an REA.

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 assessment 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 assessment records review) report prepared under subsection 25 (3)
- 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, and
- d) the distance from the Project Location to the boundaries determined under Clause (c).

Natural Features are defined in Section 1.1 of the REA Regulation to be all or part of:

- a) an area of natural and scientific interest (ANSI) (earth science)
- b) an ANSI (life science)
- c) a coastal wetland
- d) a northern wetland
- e) a southern wetland
- f) a valleyland

¹Project 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)).

- g) a wildlife habitat, or
- h) a woodland.

Subsection 3 of Section 26 of the REA Regulation requires the proponent to prepare a report setting out the following:

1. Determinations made as a result of conducting the site investigations under subsection (1).
2. Information relating to each natural feature identified in the records review and in the site investigations, including the type, attributes, composition and function of the feature.
3. A map showing:
 - i. the boundaries mentioned in Clause (1) (c)
 - ii. the location and type of each natural feature identified in relation to the Project Location, and
 - iii. the distance mentioned in Clause (1) (d).
4. The dates and times of the beginning and completion of the site investigation.
5. The duration of the site investigation.
6. The weather conditions during the site investigation.
7. A summary of methods used to make observations for the purposes of the site investigation.
8. The name and qualifications of any person conducting the site investigation.
9. Field notes kept by the person conducting the site investigation.

This *Natural Heritage Site Investigation Report* has been prepared to meet these requirements.

2. Site Investigation Methodology

2.1 Survey Methods

Ontario Base Maps and the natural feature layer from Land Information Ontario (LIO) mapping and satellite imagery were used to initially delineate habitat polygons and identify natural features on and adjacent to the Project Location. These features were verified and additional information collected during subsequent field trips.

In accordance with O. Reg. 359/09 Subsection 26(1) a physical site investigation was conducted to document the conditions of the air, land and water found on the Project Location. A physical examination of the site Project Location was conducted by the observers on foot in order to document natural features, look for wildlife species, especially species of conservation concern and identify specialized habitat. Initial field work was conducted during breeding season to record breeding birds using the Project Location. Habitat communities were identified using Ecological Land Classification criteria (Lee *et al.*, 1998). Photographs of the site were taken, bird songs were recorded and wildlife observations, vegetation, and natural features were documented. Criteria for consideration of natural features were obtained from the Ontario Ministry of Natural Resource's (MNR) *Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005* (NHRM) (MNR, 2010) and the *Significant Wildlife Habitat Technical Guide* (SWHTG) (MNR, 2000).

Subsection 26 (1.1) of Ontario Regulation (O. Reg.) 359/09 and amended by O. Reg. 521/10 allows for an alternative site investigation if it is determined that it is not reasonable to conduct a physical site investigation. As this was the situation for lands within 120 m of the Project Location, the following paragraphs outline the process of the alternative site inspection conducted by Hatch Ltd.

The alternative site inspection commenced with a thorough review of publically available information sources. These sources did not identify any natural features on or within 120 m of the Project Location. The information sources consulted are provided in the *Natural Heritage Assessment Records Review Report* (Hatch Ltd., 2011).

The desktop analysis component of the alternative site investigation was conducted by Paul Ashley. The analysis consisted of the interpretation of Google Earth satellite imagery (Imagery date, June 1, 2010, assessed in May 2011) to confirm the size of the natural features found within the 120 m setback. It was also determined that the majority of the lands surrounding the Project Location are used for agricultural purposes, specifically for the production of cash crops that do not qualify as natural features.

The natural features identified south and east of the Project Location (i.e. tallgrass prairie and woodland) were further assessed from observations taken from the Project Location and from the side of Conc. 13 (Townsend Road) at the time of the physical site investigations (Wednesday June 30, 2010 and Wednesday September 12, 2010). The time of day, weather conditions and the qualifications of the persons conducting the alternative site investigations are the same as those conducting the physical inspections on similar dates.

The observers used binoculars to conduct a visual survey of the natural features and to identify the dominant vegetation species. The entire area was also scanned for the presence of wildlife and calling birds were also listened for.

These techniques were used to help determine the vegetation community composition, attributes and functions of the natural features, as well as determine candidate significant wildlife habitat. The results of the alternative site investigation are presented in Section 3.

2.1.1 *Date, Time, and Duration and Weather Conditions of Site Investigation 1*

- Date: Wednesday June 30, 2010
- Start Time: 12:30 pm
- Duration: 6 hours
- Temperature: 21°C
- Beaufort Wind: 3 – Gentle breeze
- Cloud Cover: 15%

2.1.2 *Date, Time, and Duration and Weather Conditions of Site Investigation 2*

- Date: Wednesday September 12, 2010
- Start Time: 2:00 pm
- Duration: 2 hours
- Temperature: 15°C
- Beaufort Wind: 1 – Light breeze
- Cloud Cover: 15%

3. Site Investigation Results – Natural Features

3.1 Woodlands

Southwest woodland

Dry - Fresh Sugar Maple-Black Cherry Deciduous Forest Type (FOD5-7)

The *Natural Heritage Assessment Records Review Report* (Hatch Ltd., 2011) identified a woodland within 120 m Project setback near the southwest corner of the Project Location. (Figure 3.1). Site investigations and GIS analysis of the feature indicates that this woodland is approximately 3.4 ha, and is an elongated strip approximately 50 m wide with the northern 95 m of the 680 m length falling within 120 m of the Project Location. Approximately 0.5 ha is found within the 120 m Project setback. The feature is considered a woodland under Part 1 Section 1 of the REA regulations as it meets the criteria of a stocking density of approximately 250 20 cm trees/ha. This woodland strip is highly disturbed with an uneven stand age. Large (diameter at breast height (DBH) 20 cm) trees of sugar maple (*Acer saccharum ssp. saccharum*), black cherry (*Prunus serotina*), white pine, (*Pinus strobus*) red oak (*Quercus rubra*) are dominant with relatively little understory of tree species. There is a sporadic shrub layer and a weedy herbaceous component. Given the shape, dimensions and its open structure this woodland acts primarily as woodland edge. The ELC data sheets for this woodland are found in Appendix A.

Conclusion: This woodland meets the REA criteria for woodlands and will be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

Note: There are three narrow hedgerows on the Project Location (labeled Hedgerow 1, Hedgerow 2 and Hedgerow 3 on Figure 3.1). Because of their narrow width they do not meet the definition of a woodland natural feature as defined under the REA. However, the hedgerows will be investigated as candidate significant wildlife habitat, specifically as animal movement corridors.

Table 3.1 Characteristics of Hedgerows found at the Norfolk Bloomsburg TS Solar Energy Project Location.

<i>Feature</i>	<i>Ecological Characteristic</i>	<i>Description</i>
<i>Hedgerow 1</i>	<i>Type</i>	Wildlife habitat
	<i>Attributes</i>	This hedgerow is approximately 600 m long and 5 m wide. It begins at Cloet Road to the west and terminates along the edge of a field to the east. Agricultural land borders the hedgerow to the north and south.
	<i>Function</i>	Hedgerow planted to act as a windbreak
	<i>Composition</i>	White cedar
<i>Hedgerow 2</i>	<i>Type</i>	Wildlife habitat
	<i>Attributes</i>	Hedgerow 2 is approximately 5 m wide, 230 m long and runs parallel to and 140 m south of Hedgerow 1. This hedgerow is comprised of scotch pine (<i>Pinus sylvestris</i>). Buckthorn (<i>Rhamnus cathartica</i>) is also found along this hedgerow. Crop agricultural land borders the hedgerow to the north and south.
	<i>Function</i>	Hedgerow planted to act as a windbreak
	<i>Composition</i>	Scotts pine with some agricultural weedy components
<i>Hedgerow 3</i>	<i>Type</i>	Wildlife habitat
	<i>Attributes</i>	Hedgerow 3 originates north of Concession Road 18 and connects to Hedgerow 2. This hedgerow composed of eastern white cedar. It is approximately 340 m long and 3 m wide. Crop agricultural land borders the hedgerow to the east and west.
	<i>Function</i>	Hedgerow planted to act as a windbreak
	<i>Composition</i>	White cedar

Mixed deciduous trees are found bordering Cloet Road and Concession 13 with dominant species being sugar maple (*Acer saccharum ssp. saccharum*), American basswood (*Tilia americana*) and American elm (*Ulmus americana*). Other hardwood trees are associated with the six residences found within 120 m of the Project Location.

3.2 Wildlife Habitat

The REA (O. Reg. 359/09) defines wildlife habitat as areas “where plants, animals and other organisms live or have the potential to live and find adequate amounts of food, water, shelter and space to sustain their population, including an area where a species concentrates at a vulnerable point in its annual or life cycle and an area that is important to a migratory or non-migratory species.” In accordance with this definition, the site investigation was conducted to confirm the presence of wildlife habitat on and within 120 m of the Project Location.

The NHRM (MNR, 2009) and SWHTG (MNR, 2000) were used to determine the significance of wildlife habitat on and within 120 m of the Project Location. The SWHTG (MNR, 2000) identifies four main types of significant wildlife habitat: habitats of seasonal concentrations of animals, rare vegetation communities or specialized habitats for wildlife, habitats of species of conservation concern and animal movement corridors. Each of these types of wildlife habitat has been considered during the site investigation and is described in further detail below.

3.2.1 Habitats of Seasonal Concentrations of Animals

Habitats of seasonal concentrations of animals are areas where animals occur in relatively high densities for specific periods in their life cycles and/or in particular seasons (MNR, 2010). These areas are generally localized and relatively small in relation to the area of habitat used at other times of the year (MNR, 2010).

The criteria used to determine habitat of seasonal concentrations of animals are outlined in the SWHTG (MNR, 2000). The SWHTG (MNR, 2000) identifies many types of habitats of seasonal concentrations of animals, of which fourteen are identified below.

- **Winter Deer Yards**

To function as a winter deer yard, the SWHTG (MNR, 2000) identifies the following requirements: history of use by deer; absence of barriers to migration to and from the yard itself; suitable areas of cover, food and adjacent natural lands. Winter deer yards have three basic habitat components: core areas; core feeding areas; and staging areas. Deer spend the majority of the winter in core areas and core feeding areas. These areas are associated with coniferous and mixed forests which provide shelter (i.e. ≥ 60 % canopy cover) and an adequate supply of food (i.e. woody browse, fruits and nuts). Staging areas are located adjacent to winter deer yards and provide temporary habitat as deer move in and out of winter yards. Suitable staging areas include agricultural land and mast-producing woodlands where food is abundant.

A review of existing planning documents and available information from the MNR determined that there are no confirmed significant winter deer yards on or within 120 m of the Project Location (Hatch Ltd., 2011). The site investigation determined that suitable winter deer yard habitat does not occur on or within 120 m of the Project Location.

Conclusion: Winter deer yards will not be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

- **Moose Late Winter Habitat**

Moose require dense coniferous forest stands with trees at least 6 m in height and canopy cover $\geq 60\%$. Although moose are not as dependent on late winter habitat in the southern portion of their range, suitable areas include conifer forests dominated by hemlock, balsam fir and white spruce.

The Project Location is outside of moose range in Ontario and a review of existing planning documents and available information from the MNR determined that there are no confirmed significant moose late winter habitat on or within 120 m of the Project Location.

Conclusion: Moose late winter habitat will not be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

- **Colonial bird nesting sites**

Colonial bird nesting sites are locations where colonial species, such as herons, gulls, terns, and swallows traditionally nest in colonies of varying size. No colonial birds were observed during the site investigation, and further no heronries, marshlands or rocky areas suitable of supporting tern or gull populations, or potential swallow colonial breeding locations were identified.

Conclusion: Colonial bird nesting sites will not be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

- **Waterfowl stopover and staging areas**

Waterfowl traditionally congregate in larger wetlands and relatively undisturbed shorelines with vegetation during spring and fall migration. Further, during the fall migration, waterfowl may commonly congregate in feeding or roosting ponds. There is no significant waterfowl staging habitat on the Project Location.

Conclusion: Waterfowl stopover and staging areas will not be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

- **Shorebird Migratory Stopover Areas**

This habitat type includes shorelines of lakes, rivers, and wetlands, including beach areas, bars, and seasonally flooded shoreline, usually muddy and unvegetated. The site investigation did not identify any suitable habitat for shorebird migratory stopover areas on or within 120 m of the Project Location.

A review of existing planning documents and available information from the MNR determined that there are no confirmed significant shorebird migratory stopover areas on or within 120 m of the Project Location (Hatch Ltd., 2011).

Conclusion: Shorebird migratory stopover areas will not be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

- **Landbird Migratory Stopover Areas**

Landbird stopover areas are found along the Great Lakes shorelines and include traditionally-used sites to feed, rest and wait in poor weather conditions. To accommodate the habitat requirements of the diversity of landbird migratory species, stopover areas must include a variety of habitat types ranging from open fields to large woodlands that provide adequate food and shelter. The site investigation confirmed that there are no suitable landbird migratory stopover areas on or within 120 m of the Project Location.

A review of existing planning documents and available information from the MNR determined that there are no confirmed significant landbird migratory stopover areas on or within 120 m of the Project Location (Hatch Ltd., 2011).

Conclusion: Landbird migratory stopover areas will not be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

- **Raptor Winter Feeding and Roosting Areas**

This habitat type includes a combination of fields and woodlands that provide roosting, foraging and resting habitat for wintering raptors. These areas should have productive small mammal populations such as open fields, agricultural lands (i.e., hayfields, pasture) and meadows. Roosting sites for most raptor species include mature mixed or coniferous woodlands, although some species prefer grassy fields (i.e. Northern Harrier, Short-eared Owl). To be considered significant, raptor wintering sites need to be ≥ 20 ha and include both woodlands and upland vegetation community types (MNR, 2009).

The raptor species considered during the site investigations from information collected in the *Natural Heritage Assessment Records Review Report* (Hatch Ltd., 2011) include: American Kestrel, Common Nighthawk, Cooper's Hawk, Eastern Screech-Owl, Great Horned Owl, Long-eared Owl, Northern Goshawk, Northern Harrier, Northern Hawk Owl, Northern Harrier, Northern Saw-whet Owl, Osprey, Red-shouldered Hawk, Red-tailed Hawk, Sharp-shinned Hawk, Short-eared Owl and Turkey Vulture. A review of existing planning documents and available information from the MNR determined that there are no confirmed significant raptor winter feeding and roosting areas on or within 120 m of the Project Location (Hatch Ltd., 2011). Suitable habitat is absent on or within 120 m of the Project Location.

Conclusion: Raptor winter feeding and roosting areas will not be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

- **Wild Turkey Winter Range**

Similar to winter deer yards, optimal Wild Turkey winter range includes dense coniferous forest stands that provide adequate cover and that are adjacent to feeding areas such as old fields and agricultural lands. This habitat type does not occur on or within 120 m of the Project Location.

A review of existing planning documents and available information from the MNR determined that there is no confirmed significant Wild Turkey winter range on or within 120 m of the Project Location (Hatch Ltd., 2011).

Conclusion: Wild Turkey winter range will not be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

- **Turkey Vulture Summer Roosting Areas**

Turkey Vulture summer roosting areas traditionally consist of cliff faces and large snags. These features were not observed during the site investigation. A review of existing planning documents and available information from the MNR determined that there are no confirmed significant Turkey Vulture summer roosting areas on or within 120 m of the Project Location (Hatch Ltd., 2011).

Conclusion: Turkey Vulture summer roosting areas will not be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

- **Reptile Hibernacula**

Some species of snakes migrate to wooded areas in the fall where they find areas to hibernate such as animal burrows, log piles, and rock crevices. Woodlands ≥ 30 ha are favourable as they provide interior forest habitat with more moderate environmental conditions. No interior conditions suitable as hibernacula sites are found within the 120 m setback. Snake hibernacula are also found on man-made sites such as old stone fences, crumbling foundations and old wells. Such features are not found on the Project Location.

A review of existing planning documents and available information from the MNR determined that there are no confirmed significant reptile hibernacula on or within 120 m of the Project Location (Hatch Ltd., 2011). The woodlands within 120 m of the Project Location do not provide suitable reptile hibernacula.

Conclusion: Reptile hibernacula will not be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

- **Bat Hibernacula / Winter Roosts and Maternal Colonies**

Bat hibernacula are found in caves, abandoned mine shafts and underground foundations. Maternal colonies are often found in trees with loose bark, tree cavities/hollow trees and buildings (buildings are not considered significant wildlife habitat). Bat hibernacula, winter roosts and maternal colonies are generally known within the planning area. A review of existing planning documents and available information from the MNR determined that there are no confirmed significant bat hibernacula on or within 120 m of the Project Location (Hatch Ltd., 2011; MNR, 2010). There were no caves or suitable bat hibernacula, winter roosts and maternal colonies observed on or within 120 m of the Project Location.

Conclusion: Bat hibernacula / winter roosts and maternal colonies will not be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

- **Bullfrog Concentration Areas**

Bullfrog habitat includes areas where there is permanent water near shorelines of lakes, marshes and slow-moving rivers. Suitable breeding areas have extensive emergent vegetation along the shoreline and stable water levels. A review of existing planning documents and available information from the MNR determined that there are no confirmed significant bullfrog concentration areas on or within 120 m of the Project Location (Hatch Ltd., 2011). Suitable bullfrog concentration habitat was not observed on or within 120 m of the Project Location.

Conclusion: Bullfrog concentration areas will not be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

- **Amphibian Breeding Habitat (Wetland)**

Wetland amphibian breeding habitat is essential for several species of frogs and salamanders in the area. Even small and ephemeral wetlands may be important for maintaining species diversity. Significant sites often contain shrubs and logs as they provide vertical structure useful for calling, foraging and escape and concealment from predators.

There are no wetlands on or within 120 m of the Project Location, however, there is an irrigation pond (dugout pond) found within 120 m of the Project Location. The pond was dry when visited during the late spring (June 30, 2010) and autumn (September 12, 2010) site investigations. This pond may temporarily hold water in the spring and provide amphibian breeding habitat for species such as the American toad and leopard frog.

Conclusion: Amphibian breeding habitat (wetland) will be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

Note: Woodlands Supporting Amphibian Breeding Ponds is discussed under Specialized Habitat for Wildlife, following the format of the SWHTG (MNR, 2000).

- **Migratory Butterfly Stopover Areas**

Butterfly stopover areas are found within fields and woodlands located within 5 km of Lake Ontario. The butterfly species that are considered important in determining the significance of this habitat type include: monarch butterfly, painted lady and white admiral.

Migratory butterfly stopover areas are generally known within the planning area. A review of existing planning documents and available information from the MNR determined that there are no confirmed significant migratory butterfly stopover areas on or within 120 m of the Project Location (Hatch Ltd., 2011). The site investigation determined that there is no suitable migratory butterfly stopover habitat on or within 120 m of the Project Location.

Conclusion: Habitat for migratory butterfly stopover areas will not be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

- **Songbird Migratory Stopover Area**

Songbird migratory stopover areas are found within woodlands located within 5 km of Lake Ontario. The Project Location is more than 5 km from the shoreline of Lake Ontario and does not provide suitable songbird migratory stopover habitat.

Conclusion: Songbird migratory stopover areas will not be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

Accordingly, of the *Habitats of Seasonal Concentrations of Animals*, none will be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

3.2.2 Rare Vegetation Communities or Specialized Habitats for Wildlife

Rare Vegetation Communities

Rare vegetation communities include alvars, tallgrass prairies, savannahs, rare forest types, talus slopes, rock barrens, sand barrens and Great Lakes dunes.

An alternative site investigation was completed for lands adjacent to and within 120 m of the Project Location. A tallgrass prairie vegetation community was identified within 120 m of the Project Location based on observations made from Concession Road 13 (Figure 3.1). This prairie has been established on retired agricultural land. It is composed entirely of native species with few alien and invasive species common to rural agricultural landscapes notes around the periphery. The prairie is approximately 19.5 ha with 0.5 ha within the 120 m Project setback.

Conclusion: The tallgrass prairie is a rare vegetation community and will be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

Specialized Habitats for Wildlife

Specialized habitats for wildlife include: areas that support species that have highly specific habitat requirements, areas with high species and community diversity and, areas that provide habitat that greatly enhances species' survival.

There are many habitat types that may meet these definitions; those that were considered during the site investigations as they had the potential to be present in the area, and the discussion of their potential occurrence on the Project Location are addressed below:

- **Habitat for area-sensitive species** – Appendix C of the SWHTG (MNR, 2000) and the *Draft Significant Wildlife Habitat Ecoregion Criteria Schedules* (MNR, 2009) were used to obtain information on area-sensitive species; those species requiring large areas to complete their life cycle requirements. The Project Location is actively used for the production of row crops (i.e. soybean-corn rotation) and includes three hedgerows functioning as windbreaks. The surrounding lands (i.e. within the 120 m setback) include a woodland, grassland and agricultural fields. The agricultural lands on and within 120 m of the Project Location are used for the production of cash crops which is not suitable habitat for area-sensitive species that prefer agricultural and rural landscapes. Habitat for area-sensitive forest species was assessed within the woodland located southwest of the Project Location. Area-sensitive species typically prefer larger woodlands (> 30 ha) with interior forest habitat (MNR, 2000). The woodland is an elongated strip of trees approximately 50 m wide and approximately 3.4 ha and does not provide suitable habitat for area-sensitive forest species (See Section 3.1). However, suitable habitat for area-sensitive grassland species was observed within the tallgrass prairie habitat located southwest of the Project Location. Area-sensitive grassland species potentially occurring in this habitat include: Eastern Meadowlark, Grasshopper Sparrow, Savannah Sparrow, Short-eared Owl, Northern Harrier and Upland Sandpiper. It should be noted that these species are also considered species of conservation concern and will be discussed further in Section 3.2.3.

Conclusion: Habitat for area-sensitive grassland species will be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

- **Forests providing a high diversity of habitats** – These forests typically have a variety of vegetation communities and dominant tree cover which supports a high diversity of plant and wildlife species. There is no forest of this type in the vicinity of the Project Location.

Conclusion: Forests providing a high diversity of habitats will not be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

- **Old-growth or mature forest stands** – Old-growth forest is a forest which contains trees which have attained great age with a large proportion of trees in older age classes, many of them 120 to 140 years old. Such forests exhibit unique ecological features and are often home to rare species, threatened species, and endangered species of plants and animals, making them ecologically significant. Similar to the above, there is no forest of this type within 120 m of the Project Location.

Conclusion: Old-growth or mature forest stands were not observed on or within 120 m of the Project Location and will not be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

- **Foraging areas with abundant mast** – These areas are identified by an abundance of beech and oak trees, species which serve as a primary food source for black bears, and other species. These specialized habitats are not found in the vicinity of the Project Location.

Conclusion: Foraging areas with abundant mast will not be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

- **Woodlands supporting amphibian breeding ponds** – These ponds are used for breeding by several species of frogs and salamanders. Such water bodies may be small and ephemeral but nevertheless, important to local amphibian populations. No amphibian breeding ponds were found within 120 m of the Project Location.

Conclusion: Woodlands supporting amphibian breeding ponds will not be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

- **Turtle nesting habitat** – Turtle nesting sites are areas where soft substrates, such as sand or fine gravel, are found that permit turtles to excavate their nests, and are located in open, sunny areas. Such substrates were not recorded on or within 120 m of the Project Location during the site investigation.

Conclusion: Turtle nesting and overwintering habitat will not be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

- **Specialized raptor nesting habitat** – Several raptors, including ospreys, those nesting and hunting in forests, and several other woodland and grassland raptors require somewhat specialised nesting habitat for their long-term survival. These habitats, identified in Section 5.4.2.7 of the SWHTG (MNR, 2000) are not found on the Project Location.

Conclusion: Specialized raptor nesting habitat will not be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

- **Mineral licks** – Mineral licks occur most frequently in areas of sedimentary and volcanic bedrock. They rarely occur on granitic bedrock, except where the site is overlain by calcareous glacial till. There is no mineral licks on the vicinity of the Project Location.

Conclusion: Mineral licks will not be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

- **Mink, otter, marten, and fisher denning sites** – Marten and fisher both require large unbroken tracts of coniferous or mixed forest with abundant large trees for maternal denning sites and Otter prefer large unbroken shorelines. These habitats do not occur on the Project Location and denning sites for these members of the weasel family were not recorded on or within 120 m of the Project Location during the site investigation.

Conclusion: Mink denning sites will not be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

- **Highly diverse areas** – The habitats present on and within 120 m of the Project Location were considered in respect of diversity. The Project Location is situated in a highly fragmented and disturbed agricultural landscape which supports primarily cash crops, and cannot be considered to be highly diverse.

Conclusion: Highly diverse areas will not be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

- **Cliffs and caves** – These features were not identified on or within 120 m of the Project Location during the site investigation.

Conclusion: Cliffs and caves will not be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

- **Seeps and springs** – The site investigation did not indicate and seeps or springs within 120 m of the Project Location. This feature will not be considered during the *Natural Heritage Assessment Evaluation of Significance Report*.

Conclusion: Seeps and springs will not be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

As a result, for *Rare Vegetation Communities or Specialized Wildlife Habitat*, tallgrass prairie will be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

3.2.3 **Habitats of Species of Conservation Concern**

Species of conservation concern often have specific habitat requirements that are uncommon on the landscape requiring greater protection. These species are designated under the Ontario *Endangered Species Act* (ESA) or the *Species at Risk Ontario* (SARO) list (formally referred to as “Vulnerable” in the SWHTG (MNR, 2000). Species of conservation concern also includes those species identified as nationally Endangered or Threatened by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) or by the federal *Species at Risk Act* (SARA), and are not protected in regulation under Ontario’s ESA.

The MNR also considers species that are rare or substantially declining, or have a high percentage of their global population in Ontario to be of conservation concern. In general, these species have a Conservation Rank of S3 (Vulnerable) or lower.

The Norfolk Bloomsburg *Natural Heritage Assessment Records Review Report* (Hatch Ltd., 2011) identified several species of conservation concern that may potentially occur on or within the Project Location. Their presence and the availability of suitable habitat within and adjacent to the Project Location was assessed during the site inspection and are discussed in the following sections.

As requested by the MNR, those species that may occur within the vicinity of the Project Location and listed as Threatened or Endangered under ESA are not discussed herein and will be discussed in a separate document under the requirement of the ESA.

Amphibians

- **Jefferson x blue-spotted salamander** (*Ambystoma jeffersonianum x laterale* "complex") (Jefferson dominated genome) – S-rank: S2; Not a listed species by COSEWIC and on the SARO list. The habitat requirements for this species include deciduous and mixed woodlands and breeding ponds (i.e. vernal pools) (Government of Canada, 2010e). A variety of habitat types are used during migratory movements between breeding ponds and terrestrial habitats including woodlands, plantations, agricultural fields, successional areas and across roads. In Ontario, these species have been found to reside in suitable habitat within 300 m of their breeding pond (Jefferson Salamander Recovery Team, 2010). Suitable habitat does not exist on or within 120 m of the Project Location, and therefore this species is not expected to occur.

Conclusion: The site investigation confirmed that the Project Location does not provide habitat for the Jefferson x blue-spotted salamander (Jefferson dominated genome). Therefore, this species will not be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

Birds

The following breeding birds are found in North American Bird Conservation Region (BCR) 13 (Lower Great Lakes/St. Lawrence Plain) and have been known to occur within map square 17NH54 which overlaps the Project Location (Bird Studies Canada *et al.*, 2006).

Forest Habitat

- **Canada Warbler** (*Wilsonia canadensis*) – Listed as Threatened by COSEWIC and Special Concern on the SARO list. This species is also identified as a Priority Species in BCR 13 that is of continental and regional concern and has been assigned a conservation objective of Reverse Decline (has declined to a less desirable level) (Ontario Partners in Flight, 2008).
- **Cerulean Warbler** (*Dendroica cerulea*) – Listed as Endangered by COSEWIC and Special Concern on the SARO list. This species is also identified as a Priority Species in BCR 13 that is of continental and regional concern and has been assigned a conservation objective of Assess Status (poorly monitored) (Ontario Partners in Flight, 2008).
- **Common Nighthawk** (*Chordeiles minor*) – Listed as Threatened by COSEWIC and as Special Concern on the SARO list.
- **Hooded Warbler** (*Wilsonia citrina*) – Listed as Threatened by COSEWIC and Special Concern on the SARO list. This species is also identified as a Priority Species in BCR 13 and has been assigned a conservation objective of Recovery (species is already the subject of a Species at Risk recovery strategy) (Ontario Partners in Flight, 2008).
- **Red-headed Woodpecker** (*Melanerpes erythrocephalus*) – Listed as Threatened by COSEWIC and as Special Concern on the SARO list. This species is also identified as a Priority Species in BCR 13 that is of continental and regional concern and has been assigned a conservation objective of Reverse Decline (has declined to a less desirable level) (Ontario Partners in Flight, 2008).

Conclusion: The site investigations confirmed lands on and within 120 m of the Project Location provides limited forest habitat for these avian species of conservation concern. The open woodland within 120 m of the Project Location is not suitable habitat for these warbler species however the mature trees may provide roosting and nesting sites for the Red-headed Woodpecker (Figure 3.1). The habitat of this species will be carried forward as Candidate Significant Wildlife Habitat to the *Natural Heritage Assessment Evaluation of Significance Report*. Significant habitat for the Common Nighthawk was considered to be their preferred nesting habitats which are gravel stretches preferably near water. Suitable habitat was not identified during the site investigation and this species will not be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

Grassland/Agricultural Habitat

- **American Kestrel** (*Falco sparverius*) – Identified as a Priority Species (Breeding) in BCR 13 that is of regional concern and has been assigned a conservation objective of Halt Decline (has declined but is still at an acceptable level) (Ontario Partners in Flight, 2008).
- **Eastern Kingbird** (*Tyrannus tyrannus*) – Identified as a Priority Species (Breeding) in BCR 13 that is of regional concern and has been assigned a conservation objective of Halt Decline (has declined but is still at an acceptable level) (Ontario Partners in Flight, 2008).
- **Eastern Meadowlark** (*Sturnella magna*) – Identified as a Priority Species (Breeding) in BCR 13 that is of regional concern and has been assigned a conservation objective of Halt Decline (has declined but is still at an acceptable level) (Ontario Partners in Flight, 2008).
- **Grasshopper Sparrow** (*Ammodramus savannarum*) – Identified as a Priority Species (Breeding) in BCR 13 that is of regional management interest (evidence of substantial local declines in abundance or distribution, combined with elevated threats to future conditions) and has been assigned a conservation objective of Halt Decline (has declined but is still at an acceptable level) (Ontario Partners in Flight, 2008).
- **Savannah Sparrow** (*Passerculus sandwichensis*) – Identified as a Priority Species (Breeding) in BCR 13 that is of regional concern and has been assigned a conservation objective of Halt Decline (has declined but is still at an acceptable level) (Ontario Partners in Flight, 2008).
- **Short-eared Owl** (*Asio flammeus*) – Listed as Special Concern by COSEWIC and on the SARO list. This species is also identified as a Priority Species in BCR 13 that is of continental and regional concern and has been assigned a conservation objective of Assess Status (poorly monitored) (Ontario Partners in Flight, 2008).
- **Northern Harrier** (*Circus cyaneus*) – Identified as a Priority Species (Breeding) in BCR 13 that is of regional concern and has been assigned a conservation objective of Maintain Current (species appears to be stable or increasing) (Ontario Partners in Flight, 2008).
- **Upland Sandpiper** (*Bartramia longicauda*) – Identified as a species of conservation concern and assigned a Medium Priority rating in southern Ontario and High Priority rating for BCR 13 (Ross *et al.*, 2003).

Conclusion: The site investigations determined that Candidate Significant Wildlife Habitat for grassland bird species occurs within the tallgrass prairie community located southwest of the Project Location. An assessment on whether suitable habitat exists for this avian guild will be discussed in the *Natural Heritage Assessment Evaluation of Significance Report*.

Shrub/Successional Habitat

- **Golden-winged Warbler** (*Vermivora chrysoptera*) – Listed as Threatened by COSEWIC and Special Concern on the SARO list. This species is also identified as a Priority Species in BCR 13 that is of continental and regional concern and has been assigned a conservation objective of Maintain Current (appears to be stable or increasing) (Ontario Partners in Flight, 2008).

Conclusion: The site investigations did not identify shrub/successional habitat on or within 120 m of the Project Location. Therefore, this species is not expected to occur and will not be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

Insects

- **Cyrano darner - dragonfly** (*Nasiaeschna pentacantha*) – S-rank: S3. The NHRR (Hatch Ltd., 2011a) reported sightings (no date) of this insect from a 1 km radius surrounding the Project Location. This species of dragonflies favor boggy or marshy ponds, sometimes slow-moving streams. It may be found feeding along woodland edges and grassy lots. Since these habitat types are absent from the area, they are unlikely to occur in the vicinity of the Project Location.

Mammals

- **Eastern pipistrelle** (*Pipistrellus subflavus*) – S-rank: S3?. The eastern pipistrelle was observed in 1977 within 1 km of the Project Location (Hatch Ltd., 2011). It forages along forest edges and over ponds and waterways for small insects. The site investigation confirmed that habitat of this type is not available in the vicinity of the Project Location and the species is unlikely to occur there.
- **Northern long-eared bat** (*Myotis septentrionalis*) – S-rank: S3?. The northern long-eared bat hunt over small ponds, forest clearings and forest edges. The site investigation confirmed that habitat of this type is not available in the vicinity of the Project Location and the species is unlikely to occur there.
- **Woodland vole** (*Pitymys microtus*) – Listed as Special Concern by COSEWIC and on the SARO list. Woodland vole prefers mature deciduous forests (Government of Canada, 2010a). Since this habitat type is absent from the area, the woodland vole is unlikely to occur in the vicinity of the Project Location.

Conclusion: The site investigation confirmed that the Project Location provides little to no habitat for these mammal species of conservation concern, and they will not be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

Plants

- **Broad beech fern** (*Phegopteris hexagonoptera*) – Listed as Special Concern by COSEWIC and on the SARO list. The broad beech fern is typically found in maple-beech forests (Government of Canada, 2010b) which do not occur on the Project Location. Furthermore, this species was not observed during the site investigation.

The Natural Heritage Information Center (NHIC) database, reviewed during the NHRR (Hatch Ltd., 2011) identified the following list of plants with records in the area of the Project Location. Most of these sightings are historical and they were not encountered during the site investigation.

- **Harlberd-leaved tearhurr** (*Persicaria arifolia*) – S-rank: S3. Seen in 1985.
- **Pignut hickory** (*Carya glabra*) – S-rank: S3. Seen in 1940 and 1961.
- **Puttyroot** (*Aplectrum hyemale*) – S-rank: S2. Seen in 1971.

Reptiles

- **Eastern ribbonsnake** (*Thamnophis sauritus*) – The eastern ribbonsnake (Great Lakes Population) is listed as Special Concern by COSEWIC and on the SARO list. It is commonly found in wet areas, including weedy shorelines (Government of Canada, 2010c). The site investigation confirmed that habitat of this type is not available in the vicinity of the Project Location and the species is unlikely to occur there.
- **Milksnake** (*Lampropeltis triangulum*) – Listed as Special Concern by COSEWIC and on the SARO list. This species lives in open woodlands, fields and farm buildings (Government of Canada, 2010d, McKenney *et al.*, 2007). We considered significant milksnake habitat to include, rock piles, dense brush piles, old manure piles and interior forest habitat. Suitable significant habitat was not found on or within 120 m of the Project Location and habitat for this species will not be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.
- **Northern map turtle** (*Graptemys geographica*) – Listed as Special Concern by COSEWIC and on the SARO list. As there are no permanent waterbodies in the vicinity of the Project Location that would provide habitat for this species. As a result, this species is not expected to occur.
- **Snapping turtle** (*Chelydra serpentina*) – Listed as Special Concern by COSEWIC and on the SARO list. As there are no permanent waterbodies in the vicinity of the Project Location that would provide habitat for this species. As a result, this species is not expected to occur.

Conclusion: The site investigations confirmed that the Project Location does not provide habitat for these reptile species of conservation concern, and they will not be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

3.2.4 Animal Movement Corridors

Animal movement corridors are described in the SWHTG (MNR, 2000) as “elongated, naturally vegetated parts of the landscape used by animals to move from one habitat to another. They exist at different scales and frequently link or border natural areas.” The following two types of animal movement corridors are identified as candidate significant wildlife habitat within Ecoregion 7E

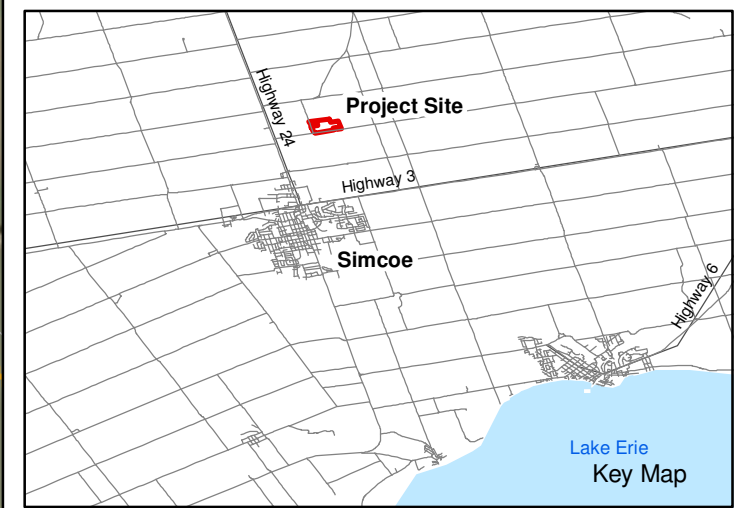
according to Schedule 3 of the *Draft Significant Wildlife Habitat Ecoregion Criteria Schedules* (MNR, 2009).

- **Amphibian Movement Corridors** – Amphibian movement corridors provide a linkage between aquatic breeding habitat (includes both wetland and woodlands) (i.e., spring) and terrestrial habitat (i.e. summer and fall). The site investigation confirmed that there is no wetland habitat on or within 120 m of the Project Location. However, there is potential amphibian breeding habitat associated with the irrigation pond (i.e. dugout pond) within 120 m of the Project Location. While hedgerows may act as marginal amphibian movement corridors they need to provide a link between seasonal habitat types. The three hedgerows found on the Project Location (see Figure 3.1) do not provide a linkage between seasonal habitats used by amphibians.

For example, they do not provide a link between any wetland or forest habitats. Hedgerow 1 is the closest hedgerow to the irrigation pond but is more than 100 m away and does not provide a linkage to the pond. Furthermore, these narrow hedgerows are composed primarily of white cedar and scotch pine and do not provide a microclimate favourable by amphibians. Therefore since the hedgerows do not provide any linkages or habitat for amphibians, amphibian movement corridors will not be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

- **Bat Migration Corridors** – Suitable bat migration corridors include areas along shorelines of large lakes or areas of high elevation (i.e. escarpment). The site investigation concluded that these habitat requirements do not exist on or within 120 m of the Project Location and therefore bat migration corridors will not be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*.

Conclusion: Amphibian movement corridors and bat migration corridors will not be carried forward as candidate significant wildlife habitat to the *Natural Heritage Assessment Evaluation of Significance Report*.



LEGEND

- R Residence
- Road
- Topographic Contour (5 m interval)
- Parcel
- Project Location
- 120 m from Project Location
- Project Site

Candidate Significant Woodland

- Woodland

Candidate Significant Wildlife Habitat

Habitats of Seasonal Concentrations of Animals

- Amphibian Breeding Habitat (Wetland)

Rare Vegetation Communities

- Tallgrass Prairie

Specialized Habitats for Wildlife

- Area-sensitive Grassland Bird Species
 - Eastern Meadowlark, Grasshopper Sparrow, Northern Harrier, Savannah Sparrow, Short-eared Owl, Upland Sandpiper

Habitats of Species of Conservation Concern

- Grassland Bird Species of Conservation Concern
 - American Kestrel, Eastern Kingbird, Eastern Meadowlark, Grasshopper Sparrow, Northern Harrier, Savannah Sparrow, Short-eared Owl, Upland Sandpiper
- Forest Bird Species of Conservation Concern
 - Red-headed Woodpecker

ELC Codes

- AG - Agricultural Field
- FOD5-7 - Dry - Fresh Sugar Maple - Black Cherry Deciduous Forest
- TP01-1 - Dry Tallgrass Prairie

Notes:

1. OBM and NRVIS data downloaded from LIO, with permission.
2. Spatial Referencing UTM NAD 83, August 2010
3. Satellite imagery from Google Earth Pro, April 2009.

0 50 100 200 Metres NORTH
Scale 1:5,000

Figure 3.1

4. Summary of Site Investigation Results

4.1 Corrections Required in the Natural Heritage Assessment Records Review Report

Subsection 26 (3) of the REA Regulation requires that the *Natural Heritage Assessment Site Investigation Report* include a summary of any corrections to the *Natural Heritage Assessment Records Review Report* (Hatch Ltd., 2011) and the determinations made as a result of conducting the site investigation. The following table identifies the corrections required (if any) and determinations made for the natural features identified in the *Natural Heritage Assessment Records Review Report* (Hatch Ltd., 2011) and documented during the site investigation (Table 4.1).

Table 4.1 Summary of Corrections Required in the Norfolk Bloomsburg TS Solar Energy Project Natural Heritage Assessment Records Review Report.

Determination to be Made as a Result of Conducting the Site Investigation	Yes/No	Corrections Required
Is the Project Location in or within 120 m of a provincial park or conservation reserve?	No	The results of the site investigation determined that there are no provincial parks or conservation reserves on or within 120 m of the Project Location. Therefore, there are no corrections required to the <i>Natural Heritage Assessment Records Review Report</i> (Hatch Ltd., 2011) with respect to this feature.
Is the Project Location in a natural feature?	No	The <i>Natural Heritage Assessment Records Review Report</i> (Hatch Ltd., 2011) indicated there was potential wildlife habitat for species of conservation concern on the Project Location. The results of the site investigation determined that there is no wildlife habitat or any other natural feature on the Project Location. Therefore, corrections are required to the <i>Natural Heritage Assessment Records Review Report</i> (Hatch Ltd., 2011).
Is the Project Location within 50 m of an ANSI (earth science)?	No	The results of the site investigation determined that there are no earth science ANSIs on or within 50 m of the Project Location. Therefore, there are no corrections required to the <i>Natural Heritage Assessment Records Review Report</i> (Hatch Ltd., 2011) with respect to this feature.

Determination to be Made as a Result of Conducting the Site Investigation	Yes/No	Corrections Required
Is the Project Location within 120 m of a natural feature that is not an ANSI (earth science)?	Yes	The <i>Natural Heritage Assessment Records Review Report</i> (Hatch Ltd., 2011) identified potential wildlife habitat for species of conservation concern and a woodland within 120 m of the Project Location. The results of the site investigation determined that no corrections are required for wildlife habitat for species of conservation concern or the woodland. However, a tallgrass prairie, a rare vegetation community, was identified within 120 m of the Project Location. This wildlife habitat type was not identified in the <i>Natural Heritage Assessment Records Review Report</i> (Hatch Ltd., 2011).

4.2 Candidate Significant Natural Features

The findings from this report identified the following candidate significant natural features:

- **Woodland** – The site investigations confirmed that the woodland within 120 m of the Project Location meets the stocking density and definition of a woodland in subsection 1 (1) of the REA Regulation. The significance of this woodland will be assessed in the *Natural Heritage Assessment Evaluation of Significance Report*.
- **Wildlife Habitat** – The site investigations confirmed the absence of wildlife habitat on the Project Location. However, the following candidate significant wildlife habitat types have been identified within 120 m of the Project Location and will be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*:
 - ◆ Habitats of Seasonal Concentrations of Animals: *Amphibian breeding habitat (wetland)*.
 - ◆ Rare Vegetation Communities: *Tallgrass prairie*.
 - ◆ Specialized Habitats for Wildlife: *Habitat for grassland/agriculture area-sensitive bird species* (Eastern Meadowlark Grasshopper Sparrow, Savannah Sparrow, Short-eared Owl, Northern Harrier and Upland Sandpiper).
 - ◆ Habitats of Species of Conservation Concern: forest habitat (Red-headed Woodpecker) and grassland habitat (American Kestrel, Eastern Kingbird, Eastern Meadowlark Grasshopper Sparrow, Savannah Sparrow, Short-eared Owl, Northern Harrier and Upland Sandpiper).

Therefore, the candidate significant natural features identified above will be carried forward to the *Natural Heritage Assessment Evaluation of Significance Report*. A map showing the locations of these habitat types is provided on Figure 3.1.

5. Next Steps

- A *Natural Heritage Assessment Evaluation of Significance Report* will be prepared for the candidate significant natural features identified in this report.
- A *Natural Heritage Assessment Environmental Impact Study Report* will be prepared to discuss the potential negative environmental effects to the candidate significant natural features located within 120 m of the Project Location and recommend mitigation measures to ensure the long-term ecological health and integrity of those features.
- As discussed in the *Natural Heritage Assessment Records Review Report* (Hatch Ltd., 2011), species that are identified on the SARO list and designated as Endangered or Threatened under the ESA will be discussed under separate cover in the *Approval and Permitting Requirements Document for Renewable Energy Projects*.

6. Names and Qualifications of Persons Conducting Site Investigation

Evaluations of wildlife habitat were completed by Caleb Coughlin and Paul Ashley of Hatch Ltd.

Caleb is an environmental technologist with experience in resource management studies focusing on terrestrial and aquatic ecosystems including sustainable forestry practises, assessments of avian populations, large mammals, furbearers and aquatic invasive species. Caleb also has extensive experience in fisheries management.

Paul Ashley, MSc. a senior ecologist with Hatch Ltd. Paul has wide-ranging experience working in terrestrial and wetland landscapes. He has led many management and rehabilitation projects related to forests, savannahs, wetlands and riparian corridors. While doing so he has worked with representatives from all tiers of government, non government organizations, universities and the private sector. Paul joined Hatch Ltd. in 2010 and is actively involved in the Renewable Energy Approval process.

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Appendix A

Site Investigation Field Notes



Site Investigation Field Notes

Project Identification

Project Name: Axio Power Canada Inc. - Norfolk Bloomsburg TS - Solar Energy Project

Site Information

Address: N/A

Lot Number: Part of lot 3 and 4

Concession Number: Concession 12

Municipality: N/A

County: Norfolk County (single tier)

Location: 4 km northwest of Simcoe

UTM: 17T 557 381, 77 m E 4747 187, 63 m N elev 230m
or

Latitude: 42 ° 52 ' 30.26" N

Longitude: 80 ° 17 ' 50.97" W

Investigator Information

Name: Caleb Coughlin

Title: Environmental Technologist

Company Name: Hatch Ltd

Address: 4342 Queen St, Suite 500, Niagara Falls
ON, L2E 7J7

Phone: 905-374-0701

General Information

Date (Day of the week, m/d/y): Wednesday, June 30th, 2010

Investigation Start Time: 12:30 pm

Duration: 6 hours

Weather Conditions

Temperature: 21 °C

Beaufort Wind: 3 - Gentle breeze

Cloud Cover: 15 %

Rain: Y N

Other: N/A

Summary of Features from Records Review

Natural Features¹ to be all or part of:

- a) ANSI² (earth science): Y N _____
- b) ANSI (life science) Y N _____
- c) Coastal wetland Y N _____
- d) Northern wetland Y N _____
- e) Southern wetland Y N _____
- f) Valleyland Y N _____
- g) Wildlife habitat Y N _____
- h) Woodland Y N _____

¹ Natural Features are defined in Section 1.1 of the REA Regulation

² Area of natural and scientific interest

Species of Conservation Concern Identified in the Record Review

Amphibians				
Species	Individual	Call	Other Evidence	Location
Fowler's toad	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/> N/A <input type="checkbox"/>	_____	_____
Jefferson blue spotted salamander	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	_____	_____
	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/> N/A <input type="checkbox"/>		
	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/> N/A <input type="checkbox"/>		
	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/> N/A <input type="checkbox"/>		
	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/> N/A <input type="checkbox"/>		
Birds				
Species	Individual	Call	Other Evidence	Location
Acadian Flycatcher	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/> N/A <input type="checkbox"/>	_____	_____
Bobolink	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/> N/A <input type="checkbox"/>	_____	_____
Canada Warbler	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/> N/A <input type="checkbox"/>	_____	_____
Cerulean Warbler	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/> N/A <input type="checkbox"/>	_____	_____
Chimney Swift	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/> N/A <input type="checkbox"/>	_____	_____
Common Nighthawk	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/> N/A <input type="checkbox"/>	_____	_____
Golden-winged Warbler	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/> N/A <input type="checkbox"/>	_____	_____
Hooded Warbler	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/> N/A <input type="checkbox"/>	_____	_____
Red-headed Woodpecker	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/> N/A <input type="checkbox"/>	_____	_____
	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/> N/A <input type="checkbox"/>		
	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/> N/A <input type="checkbox"/>		
	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/> N/A <input type="checkbox"/>		
	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/> N/A <input type="checkbox"/>		
	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/> N/A <input type="checkbox"/>		
	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/> N/A <input type="checkbox"/>		
	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/> N/A <input type="checkbox"/>		
Insects				
Species	Individual	Call	Other Evidence	Location
Clamp-tipped emerald dragonfly	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	_____	_____
Cyrano darner dragonfly	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	_____	_____
Painter Skimmer dragonfly	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	_____	_____
	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/> N/A <input type="checkbox"/>		
	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/> N/A <input type="checkbox"/>		
	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/> N/A <input type="checkbox"/>		
Mammals				
Species	Individual	Tracks	Other Evidence	Location
American badger	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/> N/A <input type="checkbox"/>	_____	_____
Eastern pipistrelle	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	_____	_____
Northern long-eared bat	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	_____	_____
Woodland vole	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/> N/A <input type="checkbox"/>	_____	_____
	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/> N/A <input type="checkbox"/>		
	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/> N/A <input type="checkbox"/>		
	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/> N/A <input type="checkbox"/>		

Plants					
Species	Seen on site	Location	Species	Seen on site	Location
American chesnut	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	—		Y <input type="checkbox"/> N <input type="checkbox"/>	
Autumn coral-root	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	—		Y <input type="checkbox"/> N <input type="checkbox"/>	
Bird's-foot violet	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	—		Y <input type="checkbox"/> N <input type="checkbox"/>	
Broad beech fern	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	—		Y <input type="checkbox"/> N <input type="checkbox"/>	
Dwarf chinquapin oak	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	—		Y <input type="checkbox"/> N <input type="checkbox"/>	
Harlberd-leaved tearhurr	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	—		Y <input type="checkbox"/> N <input type="checkbox"/>	
Moss phlox	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	—		Y <input type="checkbox"/> N <input type="checkbox"/>	
Pignut hickory	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	—		Y <input type="checkbox"/> N <input type="checkbox"/>	
Puttyroot	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	—		Y <input type="checkbox"/> N <input type="checkbox"/>	
Sundial lupine	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	—		Y <input type="checkbox"/> N <input type="checkbox"/>	
Yellow corydalis	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	—		Y <input type="checkbox"/> N <input type="checkbox"/>	
Yellow ladies'-tresse	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	—		Y <input type="checkbox"/> N <input type="checkbox"/>	
	Y <input type="checkbox"/> N <input type="checkbox"/>			Y <input type="checkbox"/> N <input type="checkbox"/>	
	Y <input type="checkbox"/> N <input type="checkbox"/>			Y <input type="checkbox"/> N <input type="checkbox"/>	
	Y <input type="checkbox"/> N <input type="checkbox"/>			Y <input type="checkbox"/> N <input type="checkbox"/>	

Reptiles					
Species	Individual	Tracks	Other Evidence	Location	
Eastern fox snake	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	—	—	
Eastern hog-nose snake	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	—	—	
Gray ratsnake	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	—	—	
Milksnake	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	—	—	
Queensnake	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	—	—	
Blanding's turtle	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/> N/A <input type="checkbox"/>	—	—	
Map turtle	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/> N/A <input type="checkbox"/>	—	—	
Snapping turtle	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/> N/A <input type="checkbox"/>	—	—	
Spotted turtle	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/> N/A <input type="checkbox"/>	—	—	
	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/> N/A <input type="checkbox"/>			
	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/> N/A <input type="checkbox"/>			
	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/> N/A <input type="checkbox"/>			
	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/> N/A <input type="checkbox"/>			
	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/> N/A <input type="checkbox"/>			

Others			
Species	Seen on site	Notes	Location
	Y <input type="checkbox"/> N <input type="checkbox"/>		
	Y <input type="checkbox"/> N <input type="checkbox"/>		
	Y <input type="checkbox"/> N <input type="checkbox"/>		
	Y <input type="checkbox"/> N <input type="checkbox"/>		
	Y <input type="checkbox"/> N <input type="checkbox"/>		
	Y <input type="checkbox"/> N <input type="checkbox"/>		
	Y <input type="checkbox"/> N <input type="checkbox"/>		

Site Investigation Observations

Map ID #: 1

Location (UTM): 17T 557380, 19 m E 4747187.62 m N

Notes: Entire farm is soybeans

Map ID #: 2

Location (UTM): 17T 557163.55 m E 4747379.61 m N

Notes: Northwest Hedge Row → 100% White Cedar

Map ID #: 3

Location (UTM): 17T 557679.95 m E 4747345.59 m N

Notes: Northeast Hedge Row → Scotts Pine
Buckthorn

Map ID #: 4

Location (UTM): 17 557803.35 m E 4747220.91 m N

Notes: Eastern Hedge Row → 100% White Cedar

Map ID #: 5

Location (UTM): 17T 557668.35 m E 4747020.43 m N

Notes: Around house :
- Blue Spruce
- Black Walnut
- Hard Maple
- Basswood

Site Investigation Observations Cont'

Map ID #: 6

Location (UTM): 17T 555130.01 mE 4747224.94 mN

Notes: Irrigation Pond → Dry
Talke to farmer → Fills as needed

Map ID #: 7

Location (UTM): N/A

Notes: Neighbourgh growing carrots

Map ID #: 8

Location (UTM): 17T 556922.28 mE 4747268.95 mN

Notes: Culvert

Map ID #: 9

Location (UTM): N/A

Notes: Hedge Row west: Sparse Hard Maple

Map ID #: _____

Location (UTM): _____

Notes: _____

Species Not at Risk Observed

Amphibians				
Species	Individual	Call	Other Evidence	Location
N/A	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
Birds				
Species	Individual	Call	Other Evidence	Location
Robins	Y <input checked="" type="checkbox"/>	Y <input type="checkbox"/>		
Morning Doves	Y <input checked="" type="checkbox"/>	Y <input type="checkbox"/>		
Sparrow sp.	Y <input checked="" type="checkbox"/>	Y <input type="checkbox"/>		
Tree swallows	Y <input checked="" type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
Insects				
Species	Individual	Call	Other Evidence	Location
N/A	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
Mammals				
Species	Individual	Tracks	Other Evidence	Location
Deer	Y <input type="checkbox"/>	Y <input checked="" type="checkbox"/>		along edge field
Coyote	Y <input type="checkbox"/>	Y <input checked="" type="checkbox"/>		along hedge row
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		

Plants			
Species	Location	Species	Location
Soy beans	1	meadow timothy	} Hedge Rows
White Cedar	2 & 4	wild oat	
Scotts Pine	3	mullein	
Blue Spruce	5	buttercup sp.	
Black Walnut	5	mustard.	
Hard Maple	5 & 9		
Basswood	5		
Buckthorn	3		
Kentucky bluegrass	} Hedge Rows		
Orchard grass			
Reed canary grass			
Goldenrod			
Milkweed-common			
Burdock			
wild carrot			
Spring vetch			

Reptiles				
Species	Individual	Tracks	Other Evidence	Location
N/A	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		
	Y <input type="checkbox"/>	Y <input type="checkbox"/>		

Others		
Species	Notes	Location
N/A		

Identification of Significant Wildlife Habitat

Did you identify potentially significant wetlands? Y N

Did you identify potentially significant woodland? Y N

Site Investigation Summary of Features - Wildlife Habitat³

Habitat of Seasonal Concentration of Animals	Found during Site Investigation		Notes (location / size)
Winter deer yards	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	_____
Moose late winter habitat	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	_____
Colonial bird nesting sites	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	_____
Waterfowl stopover and staging areas	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	_____
Waterfowl nesting	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	_____
Landbird / Shorebird migratory stopover areas	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	_____
Raptor winter feeding and roosting areas	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	_____
Wild Turkey winter range	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	_____
Turkey Vulture summer roosting areas	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	_____
Reptile hibernacula	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	_____
Bat hibernacula	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	_____
Bullfrog concentration areas	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	_____
Migratory butterfly stopover areas	Yes <input type="checkbox"/>	No <input type="checkbox"/>	_____

Site Investigation Summary of Features – Rare Vegetation Communities³

Rare Vegetation Communities	Found during Site Investigation		Notes
Alvars	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	_____
Tall-grass prairies	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	_____
Savannahs	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	_____
Talus slopes	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	_____
Rock barrens	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	_____
Sand barrens	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	_____
Great Lakes dunes	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	_____

³ As identified by the Ontario Ministry of Natural Resources – Significant Wildlife Habitat Technical Guide (October, 2000).

Site Investigation Summary of Features – Specialized Habitat for Wildlife⁴

Specialised habitats for wildlife	Found during Site Investigation	Notes
Habitat for area-sensitive species	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Forests providing a high diversity of habitats	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Old-growth or mature forest stands	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Foraging areas with abundant mast	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Woodlands supporting amphibian breeding ponds	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Turtle nesting habitat	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Specialized raptor nesting habitat	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Moose calving and aquatic feeding areas	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Mineral licks	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Mink, otter, marten, and fisher denning sites	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Highly diverse areas	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Cliffs and caves	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Seeps and springs	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

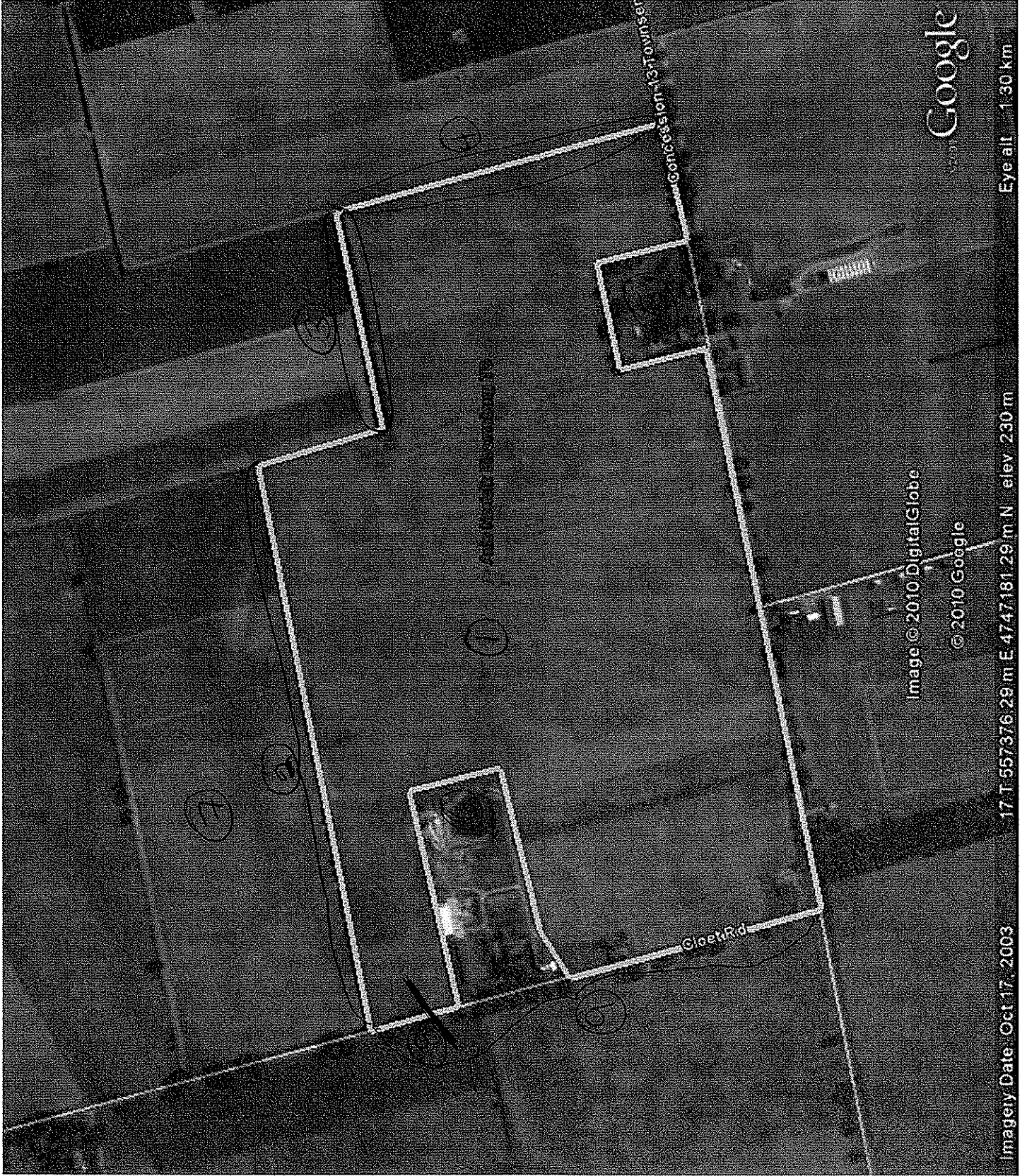
Next Step

Is there need for further assessment? Y N

If yes which feature? N/A

⁴ As identified by the Ontario Ministry of Natural Resources – Significant Wildlife Habitat Technical Guide (October, 2000).

Norfolk Bloomburg TS.



Imagery Date: Oct 17, 2003

17. T. 557376. 29 m. E. 4747181. 29 m. N. elev 230 m

Image © 2010 DigitalGlobe

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Eye alt 1.30 km

Google

Concess on 13 Towns

Cleet Rd



Site Investigation Field Notes

1. Project Identification

Project Name: Norfolk-Bloomsburg Solar Energy Project

Site Information

Lot Number: 3 &4

Concession Number: 12

Municipality: _____

County: Norfolk

Location: 4 km northwest of Simcoe

UTM: 17T 57126_ E 476721 N
or

Latitude: _____ ° _____ ' _____ "N

Longitude : _____ ° _____ ' _____ "W

2. Investigator Information

Name: Paul Ashley

Title: Terrestrial Biologist

Company Name: Hatch Ltd.

Address: 4342 Queen Street, Suite 500, Niagara Falls, ON, L2E 7J7

Phone: 905-374-0701 x 5239

3. General Information

Date (Day of the week, m/d/y): Sunday September 12, 2010

Investigation Start Time: 1400 hrs and 1600 hours

Duration: 2.0 hours

4. Weather Conditions

Temperature: 15°C

Beaufort Wind: 1

Cloud Cover: 15 % Rain: Y N

Other: _____

ELC		SITE: <i>Norfolk - Bloomsburg</i>			
MANAGEMENT / DISTURBANCE		POLYGON: <i>1</i>			
		DATE: <i>Sept 12/10</i>			
		SURVEYOR(S): <i>P. Ashley</i>			
DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	<u>5 - 15 YRS</u>	0 - 5 YEARS	<i>2</i>
INTENSITY OF LOGGING	NONE	FUEL WOOD	<u>SELECTIVE</u>	DIAMETER LIMIT	<i>2</i>
EXTENT OF LOGGING	NONE	<u>LOCAL</u>	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	<u>NONE</u>	LIGHT	MODERATE	HEAVY	<i>0</i>
EXTENT OF OPERATIONS	<u>NONE</u>	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	<u>INTERMEDIATE</u>	LARGE	<i>2</i>
EXTENT OF GAPS	NONE	<u>LOCAL</u>	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	<u>NONE</u>	LIGHT	MODERATE	HEAVY	<i>0</i>
EXTENT OF LIVESTOCK	<u>NONE</u>	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	<u>OCCASIONAL</u>	ABUNDANT	DOMINANT	<i>1</i>
EXTENT OF ALIEN SPECIES	NONE	<u>LOCAL</u>	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	<u>NONE</u>	OCCASIONAL	ABUNDANT	DOMINANT	<i>0</i>
EXTENT OF PLANTING	<u>NONE</u>	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	<u>NONE</u>	FAINT TRAILS	WELL MARKED	TRACKS OR	<i>0</i>
EXTENT OF TRACKS/TRAILS	<u>NONE</u>	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	<u>NONE</u>	LIGHT	MODERATE	HEAVY	<i>0</i>
EXTENT OF DUMPING	<u>NONE</u>	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	<u>NONE</u>	LIGHT	MODERATE	HEAVY	<i>0</i>
EXTENT OF DISPLACEMENT	<u>NONE</u>	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	<u>NONE</u>	LIGHT	MODERATE	HEAVY	<i>0</i>
EXTENT OF RECR. USE	<u>NONE</u>	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	<u>SLIGHT</u>	MODERATE	INTENSE	<i>2</i>
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	<u>LIGHT</u>	MODERATE	HEAVY	<i>1</i>
EXTENT OF DISEASE / DEATH	NONE	<u>LOCAL</u>	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	<u>LIGHT</u>	MODERATE	HEAVY	<i>1</i>
EXTENT OF WIND THROW	NONE	<u>LOCAL</u>	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	<u>LIGHT</u>	MODERATE	HEAVY	<i>1</i>
EXTENT OF BROWSE	NONE	<u>LOCAL</u>	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	<u>NONE</u>	LIGHT	MODERATE	HEAVY	<i>0</i>
EXTENT OF BEAVER	<u>NONE</u>	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	<u>NONE</u>	LIGHT	MODERATE	HEAVY	<i>0</i>
EXTENT OF FLOODING	<u>NONE</u>	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	<u>NONE</u>	LIGHT	MODERATE	HEAVY	<i>0</i>
EXTENT OF FIRE	<u>NONE</u>	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	<u>NONE</u>	LIGHT	MODERATE	HEAVY	<i>0</i>
EXTENT OF ICE DAMAGE	<u>NONE</u>	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC		SITE: <i>Norfolk - Bloomsburg</i>	
WILDLIFE		POLYGON: <i>1</i>	
		DATE: <i>Sept 12/10</i>	
		SURVEYOR(S): <i>P. Ashley</i>	
		START TIME: <i>1400</i>	END TIME: <i>1600</i>

TEMP (°C): *15* CLOUD (10th): *15* WIND: *1* PRECIPITATION: *NIL*

CONDITIONS: *GOOD / CLEAR*

POTENTIAL WILDLIFE HABITAT:

VERNAL POOLS	<i>NO</i>	SNAGS	<i>RARE</i>
HIBERNACULA	<i>NO</i>	FALLEN LOGS	<i>RARE</i>

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#	TY	SP. CODE	EV	NOTES	#
B	<i>Blue Jay</i>	<i>OB</i>		<i>1</i>					
B	<i>Downy Woodpecker</i>	<i>OB</i>		<i>1</i>					
B	<i>A. Robin</i>	<i>OB</i>		<i>1</i>					
B	<i>House Finch</i>	<i>OB</i>		<i>1</i>					
M	<i>W-T Deer</i>	<i>TK</i>	<i>field</i>	<i>1</i>					

FAUNAL TYPE CODES (TY):

B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:
SH = SUITABLE HABITAT

SM = SINGING MALE

BREEDING BIRD - PROBABLE:

T = TERRITORY
A = ANXIETY BEHAVIOUR

D = DISPLAY
N = NEST BUILDING

P = PAIR
V = VISITING NEST

BREEDING BIRD - CONFIRMED:

DD = DISTRACTION
NE = EGGS
AE = NEST ENTRY

NU = USED NEST
NY = YOUNG

FY = FLEDGED YOUNG
FS = FOOD/FAECAL SACK

OTHER WILDLIFE EVIDENCE:

OB = OBSERVED
DP = DISTINCTIVE PARTS
TK = TRACKS
SI = OTHER SIGNS (specify)

VO = VOCALIZATION
HO = HOUSE/DEN
FE = FEEDING EVIDENCE

CA = CARCASS
FY = EGGS OR YOUNG
SC = SCAT

Appendix B

Site Investigation Wildlife Observations

1. Birds

During the site survey, several species of birds were directly observed (Table B1) and the presence of mammals were noted by their tracks or other sign.

Table B1 Bird species observed on the Norfolk Bloomsburg TS Solar Energy Project Location

Species		Conservation Rank ²		At Risk Status		
Common Name	Scientific Name	Global GRANK ⁴	Ontario SRANK ³	COSEWIC	SARA	SARO/ESA
American Robin	<i>Turdus migratorius</i>	G5	S5B	-	-	-
Mourning Dove	<i>Zenaida macroura</i>	G5	S5	-	-	-
Tree swallow	<i>Tachycineta bicolor</i>	G5	S4B	-	-	-
Blue jay	<i>Cyanocitta cristata</i>	G5	S5			
House Finch	<i>Carpodacus mexicanus</i>	G5	SNA			
Song Sparrow	<i>Melospiza melodia</i>	G5	S5B	-	-	-

¹ As determined from potential climatic domain maps in McKenney *et al.* (2007) and range maps provided in Oldham and Weller (2000).

² Accessed from NHIC, 2010.

³ Nature Conservancy Ranking (NHIC, 2010); 1 = Critically Imperiled, 2 = Imperiled, 3 = Vulnerable, 4 = Apparently Secure, 5 = Secure, B = Breeding, E = Exotic, G = Global Level, H = Historical Occurrence, N = National Level, NAR = Not At Risk, S = Sub-national Rank (Ontario), SNA = Species Not Applicable (A conservation status rank is not applicable because the species is not a suitable target for conservation activities), R = Local Status not available, U = Unknown, X = Extinct, ? = Rank Uncertain.

2. Mammals

White-tailed deer (*Odocoileus virginianus*) tracks were observed in the sand along the edge of fields. White-tailed deer are expected to occasionally use the property as they move through the area. The Project Location provides little habitat for white-tailed deer although deer may use waste agricultural grain on the property. Coyote (*Canis latrans*) tracks were observed along hedgerows. Coyotes are found throughout this agricultural landscape and would be using the fencerows as areas to hunt for mice and other food sources.

There were no observations or indications of reptile or amphibian species during the survey.



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