KINGSTON SOLAR LP
Sol-Luce Kingston Solar PV Energy Project

NHA Site Investigation Addendum

Prepared by Dillon Consulting Limited

December 13, 2013

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1. Introduction

Kingston Solar LP proposes to develop a solar facility with a name plate capacity of 100 MW (AC), partially within the City of Kingston boundaries and partially within Loyalist Township (**Figure 1** and **2**). The renewable energy facility will be known as Sol-luce Kingston Solar PV Energy Project and will be rated as a Class 3 solar facility. Kingston Solar LP has received a contract from the Ontario Power Authority (OPA) for the purchase of electricity generated by this renewable energy facility through the Province's Feed-in-Tariff (FIT) program (enabled by the *Green Energy and Green Economy Act)*. The project is seeking approval under *Ontario Regulation 359/09 – Renewable Energy Approval* (*REA* or *Ontario Regulation 359/09*) under Section V.0.1 of the *Ontario Environmental Protection Act.* For clarity, this report fulfils the requirements of *Ontario Regulation 359/09* as it was in force prior to November 1, 2012.

The Renewable Energy Approval (REA) application was originally submitted for this project on September 18, 2012 and has received the 'deemed complete' status by the Ministry of the Environment (MOE) on February 12, 2013. The project was undergoing technical review by the MOE when the review was stopped to accommodate an amendment for the project. The need for an amendment was based on consultation with the host municipalities and was in response to their issued guidelines for Class 3 solar facilities (see Project Modifications Document for more details).

In general, the amendment removed some properties originally proposed for development and included other new sites. The nature of this amendment therefore necessitates further natural environment studies and addendum reports to be drafted. This Natural Heritage Assessment (NHA) Site Investigation Addendum Report is to be read in tandem with the original NHA prepared by AMEC (June 2012) and approved by the Ministry of Natural Resources (MNR) by issue of a confirmation letter on June 11, 2012. It is expected that the Ministry of Natural Resources will provide an updated confirmation letter that addresses both the original and addendum reports for the NHA so the project can ultimately be resubmitted and the MOE's technical review process resumed.

Ontario Regulation 359/09 requires that all renewable energy projects conduct a site investigation for all natural heritage features that fall within the project location or the prescribed setback area (*REA* Section 26). This NHA Site Investigation Addendum Report was completed in partial fulfilment of the regulatory requirements for the *REA* process. Additional details regarding the significance of natural features, potential impacts and mitigation measures required to protect these features will be provided in separate reports, including the Evaluation of Significance (EOS) and Environmental Impact Study (EIS) Reports. These reports will be submitted to the MNR for review and comment, as required in *Ontario Regulation 359/09* and will provide for the protection of natural features within and adjacent to the project location. Discussion of species at risk, fish habitat and other information needs, as outlined in the MNR's Approval and Permitting Requirements Document for Renewable Energy (MNR 2009), are discussed in a separate report, under direction from the MNR and in compliance with the *REA*.

Figure 1: General Location of Sol-luce Kingston Solar PV Energy Project in Ontario

2. The Proponent

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

Contact information for the Proponent is as follows:

Full Name of Company:	*Kingston Solar LP*
Address:	*55 Standish Court, 9th Floor, Mississauga, Ontario, L5R 4B2*
Telephone:	*(905) 501-5658*
Prime Contact:	*A. José De Armas*
Email:	*Jose.DeArmas@samsung.com*

Dillon Consulting Limited is the prime contractor for the preparation of this *NHA Site Investigation Addendum Report*. The contact at Dillon is:

Full Name of Company:	*Dillon Consulting Limited*
Address:	*235 Yorkland Blvd, Suite 800, Toronto, Ontario, M2J 4Y8*
Telephone:	*(416) 229-4647 ext 2432*
Fax:	*(416) 229-4692*
Prime Contact:	*Jennifer Petruniak, REA Project Manager*
Email:	*jpetruniak@dillon.ca*

3. Project Location

The proposed Class 3 solar facility is located at several addresses along Unity Road and Mud Lake Road near the City of Kingston in Loyalist Township. Overall, the project location is bounded by Quabbin Road to the North, Mud Lake Road/County Road 19 to the west, Highway 401 to the south, and Highway 38 to the east and is located within the municipal boundaries of the City of Kingston and Loyalist Township. **Figure 1** shows the general location of the project. The planned solar facility will occur primarily within lands currently zoned as "rural area".

Figure 2 shows the entire project location (as defined in Ontario Regulation 359/09 to be the location encompassing all projects components) and distinguishes between the previously studied lands that were included in the original NHA and the amended project location. All project components, including solar modules and electrical facilities such as inverters, transformers, substations and electrical lines, will be located on private land or municipal rights-of-way. Specifically, a 34.5 kV collector system of underground and/or overhead power lines and fibre optic cabling will transport outgoing power along access roads on PV array sites and the municipal road allowance to the transformer (substation) or the adjacent switch yard. The substation will connect the project to a 230 kV Hydro One transmission line.

This addendum report solely focuses on the new lands added to the project location (see **Figure 2**) as part of the recent revisions made in response to stakeholder consultation (see Project Modification Document for more information). Amendments to the original NHA (AMEC 2012) are outlined in the NHA Modifications Document.

The three properties added to the Sol-luce Kingston Solar PV Energy Project that are the focus of this NHA Addendum Report are: Site 2, 25a, and 25b (**Figure 2**). Collectively, these are referred to as the amended project location. Within the City of Kingston, Site 2 is north of Rock Road and is to the south of the area previously indicated for development; Sites 25a and 25b are located on Unity Road, approximately 2.2 km east of Quabbin Road.

Sol-luce Kingston Solar PV Energy Project

Figure 2
Project Location

Area of Addendum

Site 25b & 25a

Site 2

CITY OF KINGSTON

TOWNSHIP OF LOYALIST

SIMMONS ROAD

FLORIDA ROAD

CHIPMUNK RIDGE ROAD

QUABBIN ROAD

VAN ORDER ROAD

HIGHWAY 38

ROCK ROAD

UNITY ROAD

RAYMOND ROAD

SMITH ROAD

WESTBROOK ROAD

COUNTY ROAD 19

HEGADORN ROAD

HOWES ROAD

BUR BROOK ROAD WEST

RADAGE ROAD

KERNS ROAD

GENGE ROAD

BRULE ROAD

NEILROAD

SHANE STREET

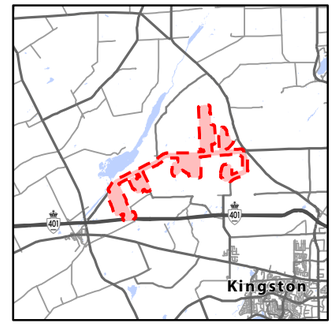
401

Legend

- Freeway
- Expressway / Highway
- Arterial Road
- Collector Road
- Local Road
- Project Location
- Amended Project Location
- 120 m Project Location Setback
- 300 m Project Location Setback
- 120 m Amended Project Location Setback
- 300 m Amended Project Location Setback
- Municipal Boundary

Project Components

- Solar Panels
- Inverters
- Access Road
- Fence
- Substation



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4. Results of Records Reviews

As shown on **Figure 3** a records review was completed according to Section 25 of *Ontario Regulation 359/09*. A summary of the determinations made during the record review is outlined in **Table 1.**

Table 1: Summary of Natural Heritage Assessment Records Review Determinations

Natural Feature ID	Source of Information	Evaluation Status	Distance Relative to Project Location
Provincial Parks and Conservation Reserves			
Not applicable to project location			
ANSI, Life Science			
Not applicable to project location			
ANSI, Earth Science			
Not applicable to project location			
Valleylands			
Not applicable to project location			
Southern Wetlands			
Unevaluated Wetland 2	LIO Mapping	Unevaluated	Within Site 2 and 120 m setback
Unevaluated Wetland 3 (WTL 30*)	LIO Mapping	Unevaluated	Within 120 m setback for Site 25a
Unevaluated Wetland 4	LIO Mapping	Unevaluated	Within Site 25a and 120 m setback
Unevaluated Wetland 5	LIO Mapping	Unevaluated	Within Site 25b
Unevaluated Wetland 6	LIO Mapping	Unevaluated	Within Site 25a and 25b and 120 m setback
Unevaluated Wetland 7	LIO Mapping	Unevaluated	Within Site 25b and 120 m setback
Unevaluated Wetland 8	LIO Mapping	Unevaluated	Within 120 metre setback for Site 25a and 25b
Unevaluated	LIO Mapping	Unevaluated	Within 120 metre

Natural Feature ID	Source of Information	Evaluation Status	Distance Relative to Project Location
Wetland 9			setback for Site 25a
Unevaluated Wetland 10	LIO Mapping	Unevaluated	Within 120 metre setback for Site 25a
Woodlands			
Woodland A (WDL 18*)	LIO Mapping	Unevaluated	Within project location for Sites 25a and 25b and 120 m setback
Woodland B	LIO Mapping	Unevaluated	Within project location for Site 2 and 120 m setback
Woodland C (WDL 22*)	LIO Mapping	Unevaluated	Within 120 metre setback for Site 2
Wildlife Habitat			
Seasonal Concentration Areas			
No known features identified within the project location or adjacent lands within 300 metres			
Rare Vegetation Communities			
No known features identified within the project location or adjacent lands within 300 metres			
Specialised Wildlife Habitat			
No known features identified within the project location or adjacent lands within 300 metres			
Habitat of Species of Conservation Concern			
No known features identified within the project location or adjacent lands within 300 metres; Species with the potential to occur in the general area are identified in **Appendix C1**.			
Animal Movement Corridors			
Not applicable to project location			
Provincial Plan Areas			
None located within project location			

* Indicates identifier used in original NHA (AMEC 2012)

Sol-luce Kingston Solar PV Energy Project

Figure 3 NHA Records Review Addendum

QUABBIN ROAD

VAN ORDER ROAD

HIGHWAY 38

ROCK ROAD

UNITY ROAD

SMITH ROAD

WESTBROOK ROAD

Glenvale Creek

8

A
(WDL18*)

7

6

10

4

5

9

3
(WTL 30*)

Site
25b & 25a

B

2

Site
2

C
(WDL22*)

Legend

- Expressway / Highway
- Arterial Road
- Collector Road
- Local Road
- Potential Stream
- Fence Line
- Project Location
- Amended Project Location
- 120 m Project Location Setback
- 300 m Project Location Setback
- 120 m Amended Project Location Setback
- 300 m Amended Project Location Setback
- Potential Water Body (MNR)
- 1 Unevaluated Wetland (MNR)
- A Woodland (MNR)

*Identifiers in parentheses refer to the original AMEC prepared NHA reports (June, 2012)

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5. Site Investigation Purpose

This site investigation addendum report was completed to analyze the accuracy of the determinations made in the records review. It is consistent with Section 26 of O. Reg. 359/09, which states that a person who proposes to engage in a renewable energy project shall ensure that a physical investigation of the air, land and water within 120 m of the project location is conducted for the purpose of determining:

- whether the results of the analysis summarized in the report prepared under subsection 25 (3) [Records Review Report] are correct or require correction, and identifying any required corrections;
- whether any additional natural features exist, other than those that were identified in the report prepared under subsection 25 (3) [Records Review];
- the boundaries, located within 120 metres of the project location, of any natural feature that was identified in the records review or the site investigation; and
- the distance from the project location to the boundaries [of the natural feature].

Species at risk listed under the federal *Species at Risk Act* and provincial *Endangered Species Act*, 2007, with the potential to interact with the project location and/or adjacent lands, are being considered in consultation with the appropriate agency. Reporting related to the protection of these species at risk is being provided to the appropriate agency under separate cover.

6. Site Investigation Methodology

Based on analysis of the resources and records searched in the NHA Records Review Addendum Report, the determinations made with respect to natural features were the subject of multiple site investigations of the amended project location. These site investigations were also conducted to identify natural features not identified during the records review. Where possible, site investigations also included those areas within 120 m of project components and areas of increased sensitivity.

Table 2 outlines the method and/or procedure followed in order to determine the presence, absence and/or extent of a natural feature in the project location or 120 m setback. An outline of these methods is provided in greater detail in **Sections 6.1 to 6.5.**

Table 2: Overview of Methods Employed During the Site Investigation of Natural Features

Feature	Source of Information/Data				
	Consultation / Records Review	ELC	Wetland Delineation	Wildlife Habitat Mapping	Incidental Wildlife
Provincial Parks and Conservation Reserves	✓				
ANSI, Life Science	✓				
ANSI, Earth Science	✓				
Wetlands	✓	✓	✓	✓	
Woodlands	✓	✓		✓	
Wildlife Habitat	✓	✓		✓	✓
Rare Vegetation Communities	✓	✓	✓	✓	

6.1 Ecological Land Classification

During field investigations, vegetation was characterized using the Ecological Land Classification System (ELC) for Southern Ontario (Lee *et al*. 1998). Where present, vegetation community boundaries were determined through the review of aerial photography, and then further refined through on-site field studies. Field studies involved identifying the dominant species for each vegetation cover type based on visual estimates of species abundances. The ELC system methodology recommends that a vegetation community be a minimum of 0.5 ha in size before it is defined.

Vegetation communities have been mapped on aerial photography according to ELC nomenclature to graphically represent the specific spatial pattern in the vegetation cover according to species composition, physiognomy, and physical site characteristics. Areas of anthropogenic uses such as agriculture and urban land uses were also mapped to provide a complete account of existing conditions within the project location. Where site access was restricted, classification of vegetation communities was completed to the ecosite level.

Soil profiles for ELC involved the examination of a 120 cm hand auger soil profiles. This allowed for the description of soil texture and site moisture characteristics which influence plant distributions and the resulting vegetation communities. Other physical traits such as topography and slope aspect were also noted within each community.

6.2 Wetland Boundary Delineation

Southern wetlands found within the amended project location were surveyed using protocols outlined in the Southern Manual of the Ontario Wetland Evaluation System (MNR 2002) and were carried out by a certified evaluator. Wetland boundaries were delineated using the tracking function of a GPS unit. The wetland boundaries were delineated by following wetland indicator species and were classified according to dominant vegetation form. Where access to adjacent lands within 120 m of the amended project location was not available during the site investigations, a combination of aerial photography review and observations from property lines and road rights-of-way were used, as applicable.

6.3 Wildlife Habitat Identification Survey

The potential presence of wildlife habitat in the amended project location and adjacent lands, applicable to Ecoregion 6E, was assessed using the criteria outlined in the Significant Wildlife Habitat Ecoregion 6E Criterion Schedule (MNR 2012) and, Sections 4 – 7 and Appendix M, N, and Q of the Significant Wildlife Habitat Technical Guide (MNR 2000). Boundaries for wildlife habitat were determined on the basis of ELC mapping as well as other field visits conducted to the project location. These additional studies were used to further characterize the presence of necessary habitat structure (e.g., permanent open water for green frogs, etc.) as well as habitat of appropriate size and shape (e.g., interior forest) reasonably required for candidate significant wildlife habitat to occur.

6.3.1 Assessment of Candidate Bat Maternity Habitat

In late fall, a survey for candidate wildlife trees (i.e., trees with snags and cavities) were searched for following the protocols outlined in the MNR's *Bats and Bat Habitats: Guide for Wind Power Projects* (2011). Briefly, the survey consisted of 10 point counts (radius = 12.6 m) within potential bat habitat and the results extrapolated to allow for the determination of snag/cavity trees per ha. Areas with more than 10 trees with a dbh greater than 25 cm are considered candidate habitat.

6.3.2 Incidental Wildlife Surveys

Incidental observations of wildlife species included birds, herpetozoa, mammal and invertebrate species and were recorded during all phases of fieldwork in the amended project location. This supplemental information was used to assist in the identification of wildlife habitat.

6.4 Names and Qualifications of Site Investigators

The names and qualifications of all site investigators are outlined in **Table 3** below. All site investigators identified in **Table 3** became involved with the Sol-luce Kingston Solar PV Energy Project at the time when the MOE technical review was put on hold and these addendum studies were initiated for the new Sites included in the amended project location. All those

listed below have been involved in numerous renewable energy projects that have been approved under *Ontario Regulation 359/09*.

Table 3: Names and Qualifications of Site Investigators

Name	Degrees and Professional Designations	Years of Experience	Project Role	Certifications
Baxter, Richard	- B.Sc. (Resource Management- Fish and Wildlife), University of Northern British Columbia (2007) - Fish and Wildlife Technician Diploma, Sir Sandford Fleming College (2001) - ISA Certified Arborist (member- Ontario Chapter) - Affiliated with Ontario Field Ornithologists, Ontario Field Botanists, and Ontario Nature	6 (over 30 renewable energy projects)	-ELC -Wildlife Habitat -Wetland Delineation -Incidental Wildlife	- Ecological Land Classification for Southern Ontario (2009) - Ontario Wetland Evaluation System Certification (2011) - MNR Bat Maternity Colony Training (2012) - MNR Renewable Energy Approvals Natural Heritage Process Workshop (2011) - MNR Wind Energy and Bats Seminar (2010)
Harris, Jonathan	- Fish and Wildlife Technician Diploma, Sir Sandford Fleming College (2008) - Adv. Diploma, Fish and Wildlife Technology, Sir Sandford Fleming College (2009)	5 (over 20 renewable energy projects)	-ELC -Wildlife Habitat Surveys -Wetland Delineation -Incidental Wildlife	- Ecological Land Classification for Southern Ontario (2011) - Ontario Wetland Evaluation System Certification (2012)
Wolosinecky, Mike	- B.E.S. (Environment and Resource Studies), University of Waterloo (2010) - Graduate Certification (Ecosystem Restoration), Niagara College, 2012)	3 (5 renewable energy projects)	-ELC -Wildlife Habitat Assessment -Incidental Wildlife	- Ecological Land Classification for Southern Ontario (2012)

7. Site Investigation Results

In addition to assessing if the results outlined in the NHA Records Review Addendum were correct, information relating to each natural feature within the amended project location and surrounding 120 metres was collected, including the type, attributes, composition, and function of the features. Site Investigation information presented in the sections below details the presence, absence, or non-detection of natural features, species, and habitat identified during the records review as well as the potential for additional natural features. All field notes from the site investigation work are included in **Appendix A**.

7.1 Site Investigation Dates, Times, Duration and Weather Conditions

As outlined in **Table 4**, numerous site investigations of the amended project location were undertaken over a period of six days. The details of each site investigation, in accordance with REA Section 26(3), are provided in **Table 4** and should be read concurrently with **Table 3**.

Table 4: Site Investigation Dates, Times, Duration and Weather Conditions

Date	Survey Type	Site Investigator(s)	Time	Duration (hours)	Weather Conditions		
					Air Temp. (°C)	Wind (Beaufort Scale)	Cloud Cover
October 1, 2013	-ELC -Wildlife Habitat	Mike Wolosinecky	14:00-18:00	4	18	2	40%
October 2, 2013	-ELC -Wetland Delineation -Wildlife Habitat	Mike Wolosinecky Jonathan Harris	08:00-17:00	9	18	1	30%
October 3, 2013	-Wetland Delineation -Wildlife Habitat	Jonathan Harris	07:30-10:30	3	13	0	20%
October 11, 2013	-ELC -Wetland Delineation	Richard Baxter	14:00-18:00	4.0	5	1	20%

Date	Survey Type	Site Investigator(s)	Time	Duration (hours)	Weather Conditions		
					Air Temp. (°C)	Wind (Beaufort Scale)	Cloud Cover
	-Wildlife Habitat						
October 12, 2013	-ELC-Wetland Delineation -Wildlife Habitat	Richard Baxter	08:00-15:00	7.0	15	1	20%
November, 28, 2013	-Wildlife Habitat	Richard Baxter	15:00-16:30	1.5	-5	2	10%
November 29, 2013	-Wildlife Habitat	Richard Baxter	11:00-14:00	3.0	-5	1	>10%
Total Duration of Field Work				31.5 hours			

7.1.1 Access to Adjacent Lands

As outlined in Ontario Regulation 359/09, all lands within 120 m of a project component must be assessed for natural features and resources. In the case of the Sol-luce Kingston Solar PV Energy Project Facility, access was not available to some lands located within 120 metres of the amended project location (see **Appendix B**). Some of the lands surrounding the amended project location for Sites 2, 25a, and 25b were not accessed at the time of the site investigations. Natural features located on adjacent lands were assessed from property lines and road rights-of-way, where applicable. This alternative site investigation was conducted in accordance with *Ontario Regulation 359/09*.

7.2 Natural Features

Based on the site investigation, the presence of natural features is documented below. **Figure 4** displays the results of the ELC surveys within 120 m of the project location and is the basis for determining the type of natural feature present and its boundaries. The consideration of features 300 m from the project location has been included to meet the requirements of the Construction Plan Report. The Construction Plan Report will be required as part of the revised and complete REA Application.

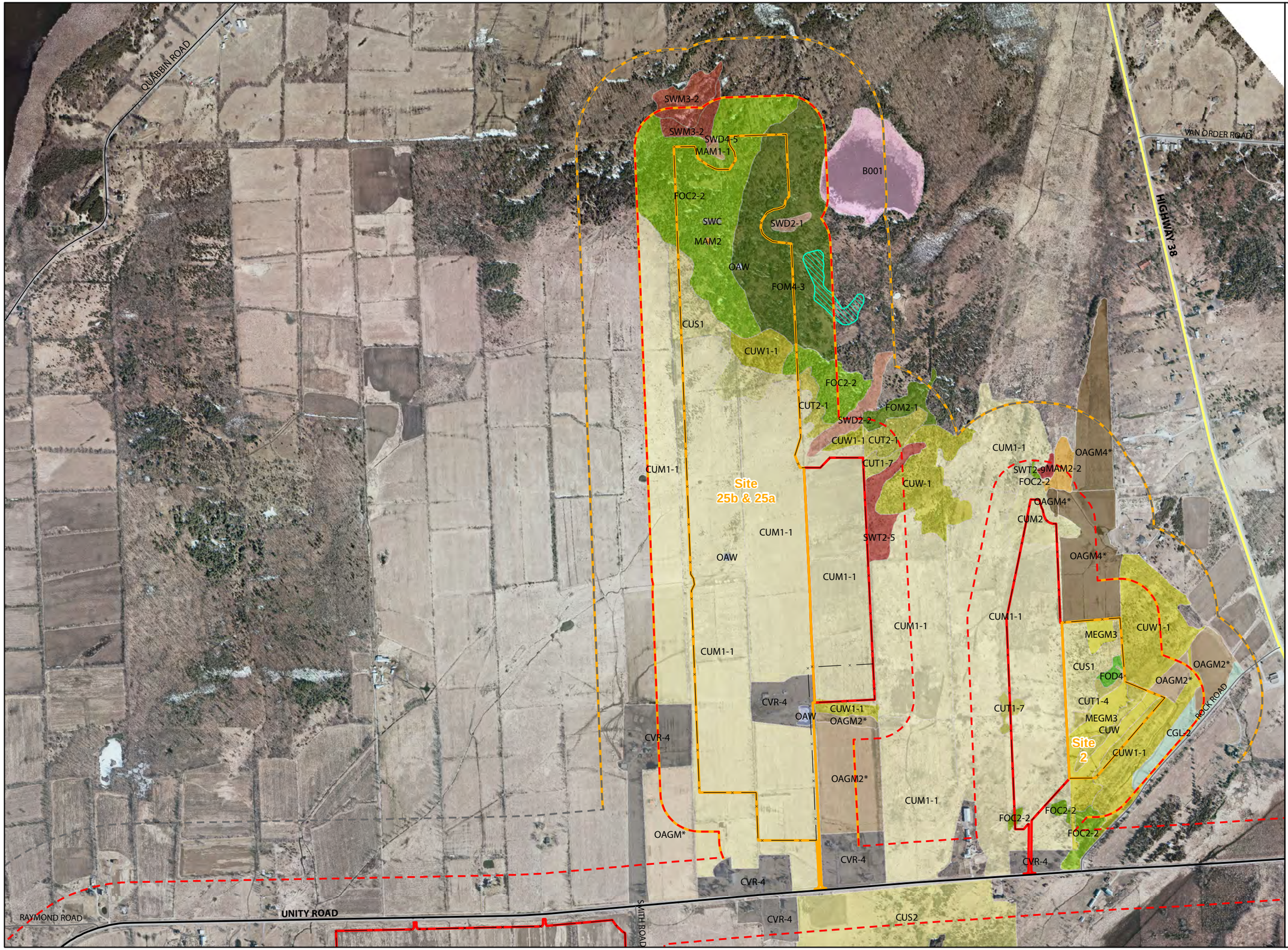
7.2.1 Ecological Land Classification Results

A total of 24 natural vegetation communities were observed within 120 m of the amended project location. **Figure 4** overviews the ELC for the various areas in and adjacent to the amended project location. For completeness, this figure includes the ELC mapping included in the original NHA (AMEC 2012). However, only the amended project location (i.e., the areas within Sites 2, and 25a/25b and the surrounding 120 m) were the focus of this NHA Site Investigation Addendum Report.

Overall, the major land use within the amended project location and surrounding 120 m is naturalizing agricultural lands. **Table 5** outlines the communities documented during the 2013 ELC surveys and associated with amended project location (Sites 2 and 25a/b). The results of this work were used to further confirm the extent of natural features within the amended project location and surrounding 120 metres. Field notes are attached in **Appendix A**.

Sol-luce Kingston Solar PV Energy Project

Figure 4
Ecological Land Classification Map



Legend

- Expressway / Highway
- Arterial Road
- Collector Road
- Local Road
- Fence Line
- Project Location
- Amended Project Location
- 120 m Project Location Setback
- 300 m Project Location Setback
- 120 m Amended Project Location Setback
- 300 m Amended Project Location Setback
- Assumed Wetland

Ecological Land Classification

- B001
- CGL-2
- CUM1-1
- CUM2
- CUS1
- CUS2
- CUT1-4
- CUT1-7
- CUT2-1
- CUW
- CUW-1
- CUW1-1
- CVR-4
- FOC2-2
- FOD4
- FOM2-1
- FOM4-3
- MAM1-1
- MAM2
- MAM2-2
- MEGM3
- OAGM*
- OAGM2*
- OAGM4*
- OAW
- SWC
- SWD2-1
- SWD2-2
- SWD4-5
- SWM3-2
- SWT2-5
- SWT2-9

*Indicates that code was not included in the first approximation ELC

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Table 5: Description of ELC Communities* Documented in the Sol-luce Kingston Solar PV Energy Project within 120 m of the Project Location

ELC Code	Classification	Vegetation	Comments
B001	Graminoid Open Bog Type	Access was not provided at the time of the site investigation	This community is located with the eastern 120 metre setback of the amended project location (Site 25a). See **Photo 14** in **Appendix C**
CGL-2	Private Parkland	See original NHA report (Appendix B Table 3-4	This community is located within the southeast 120 metre setback of the amended project location (Site 2). It occurs along Rock Road. See original NHA report (Appendix B Table 3-4
CUM1-1	Dry-Moist Old Field Meadow Type	See original NHA report (Appendix B Table 3-4	This community occurs throughout the entire general amended project area (i.e., project location and 120 m setback). See original NHA report (Appendix B Table 3-4
CUM2	Bedrock cultural meadow ecosite	See original NHA report (Appendix B Table 3-4)	Community is located within the project location previously reviewed and confirmed by the MNR and is not subject to revision through this addendum. It is outside of the 120 metre setback

ELC Code	Classification	Vegetation	Comments
			areas for the amended project location area (Site 25 a and b, and Site 2and was included on **Figure 4** for completeness and to assist with comprehension.
CUS1	Mineral Cultural Savannah	This cultural Savannah is dominated by Red Cedar (*Juniperus virginiana*) with occasional Gray Dogwood (*Cornus racemosa*), Gray Goldenrod (*Solidago nemoralis*), Heath Aster (*Symphyotrichum ericoides*), and various graminoid species.	This community occurs within the amended project location (Sites 25 a/b, and Site 2). See **Photo 8** in **Appendix C**
CUS2	Bedrock Cultural Savannah Type	See original NHA report (Appendix B Table 3-4)	This community occurs to the south of Unity Road within 120 m of the access route for Sites 25 a/b and collector line routing.
CUT1-4	Gray Dogwood Cultural Thicket Type	This community is dominated by Gray Dogwood with occasional Prickly Ash (*Zanthoxylum americanum*), Common Buckthorn (*Rhamnus cathartica*) and Staghorn Sumac (*Rhus typhina*).	This community occurs within the amended project location for Site 2. See **Photo 1** in **Appendix C**
CUT1-7	Red-osier Dogwood Cultural Thicket	See original NHA report (Appendix B Table 3-4)	This community occurs within the 120 m setback to the project location and is not subject to revision through this addendum. For clarity, it is included in this table and mapped on **Figure** 4. This area was previously reviewed and confirmed by the MNR. For clarity, it occurs within 300 m to the east of Site 25a and overlaps with the project location boundary on the

ELC Code	Classification	Vegetation	Comments
			portion of the project west of Site 2 See original NHA report
CUT2-1	Common Juniper Cultural Alvar Thicket Type	See original NHA report (Appendix B Table 3-4)	This community occurs within the eastern 120 metre setback of the amended project location (Site 25a) and a portion of the project location previously confirmed by the MNR as part of the original NHA and not subject to revision through this addendum. See original NHA report (Appendix B Table 3-4
CUW	Cultural Woodland	This community consists primarily of White Elm (*Ulmus americana*) in the canopy with occasional Green Ash (*Fraxinus pennsylvanica*). The understory is comprised of Staghorn Sumac and Prickly Ash. The ground layer is dominated by Reed Canary Grass (*Phalaris arundinacea*).	This community occurs within the project location of Site 2. See **Photo 9** in **Appendix C**
CUW-1	Mineral cultural woodland ecosite	See original NHA report (Appendix B Table 3-4)	This community occurs within the 120 m setback to the project location and is not subject to revision through this addendum. For clarity, it is included in this table and mapped on **Figure** 4. This area was previously reviewed and confirmed by the MNR. For clarity, it occurs within 300 m to the east of Site 25a.
CUW1-1	Red Cedar Cultural Woodland Type	This community is dominated by Red Cedar (with occasional occurrences of Eastern White Cedar	This community occurs within the amended project location and the

ELC Code	Classification	Vegetation	Comments
		(*Thuja occidentalis*), Trembling Aspen (*Populus tremuloides*), Prickly Ash and several species of fern and sedge species.	eastern and northern 120 metre setback (Site 2). It also occurs within the amended project location (Site 25a) and in the 120 m setback of the amended project location (Site 25a) and the previously confirmed project location. See **Photo 2** in **Appendix C**
CVR-4	Rural Property	See original NHA report (Appendix B Table 3-4)	Rural Properties occur throughout the project area, both in the amended project location and within the 120 m setback.
FOC2-2	Dry-Fresh White Cedar Coniferous Forest Type	This community is dominated by Eastern White Cedar in the canopy and understory. Other associate species included White Birch (*Betula papyifera*), Balsam Fir (*Abies balsamea*).	This community occurs within the amended project location and 120 m setback (Site 25a and Site 25b) and the southern 120 metre setback for another portion of the amended project location (Site 2). See **Photo 3** in **Appendix C**
FOM2-1	Dry-Fresh White Pine-Oak Mixed Forest Type	See original NHA report (Appendix B Table 3-4)	This community occurs within the 120 m setback to the project location and is not subject to revision through this addendum. For clarity, it is included in this table and mapped on **Figure** 4. This area was previously reviewed and confirmed by the MNR.

ELC Code	Classification	Vegetation	Comments
FOD4	Dry-Fresh Upland Deciduous Forest	This community is dominated by Basswood (*Tilia americana*) and Hop Hornbeam (*Ostrya virginiana*) in the canopy. The understory primarily consisted of Prickly Ash and Common Buckthorn.	This community occurs within the project location for Site 2. See **Photo 4** in **Appendix C**
FOM4-3	Dry-Fresh White Cedar-Hardwood Mixed Forest Type	This community is dominated by conifers such as Eastern White Cedar, Balsam Fir and Eastern Hemlock (*Tsuga canadensis*) and hardwoods like Sugar Maple (*Acer saccharum*), Red Maple (*Acer rubrum*), and Hop Hornbeam.	This community occurs within the project location for 25a. See **Photo 5** in **Appendix C**
MAM1-1	Reed Canary Grass Bedrock Meadow Marsh	This community is comprised primarily of herbaceous species like Reed Canary Grass, Black Bulrush (*Scirpus atrovirens*), Kentucky Bluegrass (*Poa pratensis*), Closed Gentian (*Gentiana andrewsii*), Common Yarrow (*Achillea millefolium*), and Curled Dock (*Rumex crispus*). There are rare occurrences of woody vegetation such as White Elm (*Ulmus americana*) and Bebb's Willow (*Salix bebbiana*).	This community occurs within 120 m of the amended project location (north of Site 25a). See **Photo 16** in **Appendix C**
MAM2	Mineral Meadow Marsh	This small community consists of emergent species like Reed Canary Grass and associated herbaceous species such as Tall Buttercup (*Ranunculus acris*), and Spinulose Wood Fern (*Dryopteris carthusiana*).	This community occurs within Site 25b and is surrounded by FOC2-2. See **Photo 6** in **Appendix C**
MAM2-2	Reed Canary Grass Mineral Meadow Marsh Type	**See original NHA report (Appendix B Table 3-4)**	This community occurs within the 120 m setback to the project location and is not subject to revision through this addendum. For clarity, it is included in this table and mapped on **Figure** 4. This area was previously reviewed and

ELC Code	Classification	Vegetation	Comments
			confirmed by the MNR.
MEGM3	Dry-Fresh Graminoid Meadow Ecosite	Meadow community is comprised of Brome species *(Bromus sp.),* Common *Milkweed (Asclepis syricea)*, New England Aster *(Symphyotrichum novae-angliae)*, and Tall Goldenrod *(Solidago canadensis var. scabra*).	This community occurs within the amended project location (Site 2). The community is occasionally mechanically mown by the landowner. See **Photo 7** in **Appendix C**
OAGM	Annual Row Crop	See original NHA report (Appendix B Table 3-4)	This community occurs within the southwest 120 metre setback for the amended project location (Site 25b). See original NHA report
OAGM2	Perennial Cover Crop	See original NHA report (Appendix B Table 3-4)	This community occurs within the southeast and northeast 120 metre setbacks for the amended project location (Site 25a and Site 2). See original NHA report
OAGM4	Open Pasture	See original NHA report (Appendix B Table 3-4)	This community occurs within the 120 metre setback for the amended project location (Site 2). See original NHA report (Appendix B Table 3-4
OAW	Open Water	Shallow or dug farm ponds with water used for livestock.	These communities occur within the amended project location (Site 25a and 25b).

ELC Code	Classification	Vegetation	Comments
			See **Photo 15**, **22**, and **23** in Appendix C
SWC	Coniferous Swamp	This small swamp community is comprised of woody vegetation such as Eastern White Cedar, Balsam Fir, Trembling Aspen, and Black Ash (*Fraxinus nigra*). Herbaceous species present include Sensitive Fern (*Onoclea sensibilis*), Northern Water-horehound (*Lycopus uniflorus*), and various mosses.	This community occurs within the amended project location (Site 25a). See **Photo 17** in **Appendix C**
SWD2-1	Black Ash Mineral Deciduous Swamp	This swamp community is comprised of Black Ash, Eastern White Cedar in the canopy with Red-osier Dogwood (*Cornus sericea*) and Dwarf Raspberry (*Rubus pubescens*) in the understory. The ground layer contains Tall Buttercup, Northern Water-horehound and Panicled Aster (*Symphyotrichum lanceolatum*).	This community occurs within the 120 m setback of the amended project location (Site 25a). See **Photo 18** in **Appendix C**
SWD2-2	Green Ash Mineral Deciduous Swamp Type	See original NHA report (Appendix B Table 3-4)	This community occurs within the 120 m setback of the amended project location (Site 25a). See **Photo 13** in **Appendix C**
SWD4-5	Poplar Mineral Deciduous Swamp	This swamp community is comprised of Trembling Aspen, White Elm, and White Spruce (*Picea glauca*) in the canopy layers with Bebb's Willow and Red-osier Dogwood in the understory. The ground layer consists of Elecampane (*Inula helenium*), Northern Water-horehound, Tall Buttercup, Wool Grass (*Anthephora pubescens*), Black Bulrush, and various mosses.	This community occurs within the northern 120 metre setback for the amended project location (Site 25b). See **Photo 19** in **Appendix C**
SWM3-2	Poplar Conifer Mineral	This swamp community is comprised of Trembling	This community occurs within the

ELC Code	Classification	Vegetation	Comments
	Mixed Swamp	Aspen, White Elm, Black Ash, Bur Oak (*Quercus macrocarpa*), and Balsam Fir in the canopy layers. The understory consists of Common Buckthorn, Winterberry (*Ilex verticillata*), Bebb's Willow, Red-osier Dogwood, Narrow-leaved Meadowsweet (*Spiraea alba*), and Dwarf Raspberry. Herbaceous species observed include Elecampane, Northern Water-horehound, Spotted Joe-pyeweed (*Eutrochium maculatum*), and Common Hop Sedge (*Carex lupulina*).	northern 120 metre setback for the amended project location (Site 25b). See **Photo 20** in **Appendix C**
SWT2-5	Red-osier Dogwood Mineral Deciduous Thicket Swamp Type	See original NHA report (Appendix B Table 3-4)	This community occurs within the 120 m setback to the project location and is not subject to revision through this addendum. For clarity, it is included in this table and mapped on **Figure** 4. This area was previously reviewed and confirmed by the MNR.
SWT2-9	Gray Dogwood Mineral Deciduous Thicket Swamp Type	See original NHA report (Appendix B Table 3-4)	This community occurs within the 120 m setback to the project location and is not subject to revision through this addendum. For clarity, it is included in this table and mapped on **Figure** 4. This area was previously reviewed and confirmed by the MNR.
"Assumed Wetland"	Swamp wetland community	Access was not provided at the time of the site investigation	This area was mapped as a wetland community as part of the records review (Source: MNR mapping). In the absence of direct data through the site

ELC Code	Classification	Vegetation	Comments
			investigation, the extent of this wetland area will remain as mapped by the MNR. It is referenced as Wetland #9 in the NHA Addendum for this project.

*ELC field notes found in **Appendix A**.

†ELC communities reported in the original NHA reports did not include soils.

7.2.2 Provincial Parks and Conservation Reserves

A search and analysis of the records and resources outlined in **Table 2** did not identify any provincial parks or conservation reserves in the project location or within the surrounding 300 m. The results of the site investigation verified this determination.

7.2.3 ANSI, Life Science

A search and analysis of the records and resources outlined in **Table 2** did not identify any Life Science ANSIs in the project location or within the surrounding 300 m. The results of the site investigation verified this determination.

7.2.4 ANSI, Earth Science

A search and analysis of the records and resources outlined in **Table 2** did not identify any Earth Science ANSIs in the project location or within the surrounding 300 m. The results of the site investigation verified this determination.

7.2.5 Valleylands

A search and analysis of the records and resources outlined in the NHA Records Review Report did not identify any valleylands in the project location or within the surrounding 300 m. The results of the site investigation verified this determination.

7.2.6 Wetlands

As detailed in the NHA Records Review Addendum Report, a search and analysis of the records and resources outlined identified southern wetlands within 120 m of the project location. Please note, all mention of wetlands in the remainder of this report refer to southern wetlands.

The focus of the wetlands site investigation was to determine the boundaries of wetland features as presented in **Figure 3** and associated with Sites 2 and 25a/b (i.e., within the Site or within 120 m) to determine if any additional wetlands were identified. Where wetland features were identified using ELC, delineation of the communities was undertaken using OWES

protocol. The boundaries of all wetlands associated with the Sites of focus are identified are shown on **Figure 5**. **Table 6** outlines the attributes, composition and function of each wetland unit and confirms if the wetland was included in the records review or was identified as a result of these site investigations (**Figure 5**). **Table 6** also outlines the project components that fall within 120 m of each wetland boundary. Note, areas identified as open water (OAW) were visited by field investigators and did not meet the criteria to be assessed as wetlands due to the surrounding vegetation communities and because they are dug farm ponds (further information is provided in the *Water Addendum Report*).

7.2.7 Woodlands

As detailed in the NHA Records Review Addendum Report, a search and analysis of the records and resources outlined identified woodlands within 120 m of the project location. The focus of the woodlands site investigation was to determine the boundaries of woodland features as presented in **Figure 3** and associated with Sites 2 and 25a/b (i.e., within amended project location or within 120 m) and to determine if any additional woodlands were identified.

Table 7 outlines the project components that fall within 120 m of the woodland boundary. **Table 7** also outlines the attributes, composition and function of the woodlands within 120 m of a project component and confirms if the woodland was included in the records review or was identified as a result of these site investigations; **Figure 6** outlines the boundaries of the woodlands associated with the amended project location.

Sol-luce Kingston Solar PV Energy Project

Figure 5
Wetlands

QUABBIN ROAD

VAN ORDER ROAD

HIGHWAY 38

8

10

5

11

9

Site
25b & 25a

Site
2

ROCK ROAD

Glenvale Creek

UNITY ROAD

SMITH ROAD

WESTBROOK ROAD

Legend

- Expressway / Highway
- Arterial Road
- Collector Road
- Local Road
- Potential Stream
- Fence Line
- Project Location
- Amended Project Location
- 120 m Project Location Setback
- 300 m Project Location Setback
- 120 m Amended Project Location Setback
- 300 m Amended Project Location Setback
- 1 Dillon Delineated Wetland
- Woodland (MNR)
- Dug Farm Pond

*Identifiers in parentheses refer to the original AMEC prepared NHA reports (June 2012)

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Table 6: Summary of Wetlands Within 120m of the Amended Project Location

Wetland ID	Wetland Identified during Records Review?	Attributes		Composition		Function		Project Components within 120 m
		Size (hectares)	Distance to nearest wetland unit	Relevant Species	ELC Communities and OWES wetland type	Associated Candidate Wildlife Habitat*	Hydrologic Connection	
2	Yes	Not observed during Site Investigation. Vegetation indicative of a wetland community was absent from the area of the mapped wetland during ELC survey.						
4	Yes	Not observed during Site Investigation. Vegetation indicative of a wetland community was absent from the area of the mapped wetland during ELC survey.						
5 (split in to 5 and 11)	Yes	0.06	43 m to Wetland 11	Eastern White Cedar, Balsam Fir, Trembling Aspen, Black Ash, Sensitive Fern, Northern Lady Fern, Northern Water-horehound, Moss species	Coniferous Swamp (SWC) Swamp (OWES wetland type)	Woodland Amphibian Breeding Habitat	None apparent	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence
8	Yes	9.79	183 m to Wetland 5	Trembling Aspen, White Elm, White Spruce, Bebb's Willow, Red-osier Dogwood, Elecampane, Northern Water-horehound, Tall Buttercup, Wool Grass, Black Bulrush, Moss species; Reed Canary Grass, Black Bulrush, Kentucky Bluegrass, Closed Gentian, Common Yarrow, Curled Dock; Black Ash, Bur Oak, Balsam Fir, Common Buckthorn,, Winterberry, Narrow-leaved Meadowsweet, Elecampane, Dwarf Raspberry, Northern Water-horehound, Spotted Joe-pye-weed, Common Hop Sedge	Poplar Conifer Mineral Mixed Swamp (SWM3-2), Poplar Mineral Deciduous Swamp (SWD4-5), and Reed Canary Grass Bedrock Meadow Marsh (MAM1-1). Swamp and Marsh (OWES wetland type)	Woodland Amphibian Breeding Habitat Waterfowl Stopover and Staging Area (Aquatic) Waterfowl Nesting Area Marsh Breeding Bird Habitat Reptile Hibernaculum Raptor Wintering Area Woodland Raptor Nesting	Likely connected by overland flow to adjacent wetlands to west	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence
9	Yes	1.39	64 m to Wetland 10	Access not obtained at the time of site investigation. The extent of this feature is as defined by the MNR source data and presented in the NHA Records Review Report Addendum. Identified as "Assumed Wetland" on **Figure 4.**		Woodland Amphibian Breeding Habitat Reptile Hibernaculum Marsh Breeding Bird Habitat	n/a	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence

Wetland ID	Wetland Identified during Records Review?	Attributes		Composition		Function		Project Components within 120 m
		Size (hectares)	Distance to nearest wetland unit	Relevant Species	ELC Communities and OWES wetland type	Associated Candidate Wildlife Habitat*	Hydrologic Connection	
10 (revised boundary)	Yes	34.72	64 m to Wetland 9	Black Ash, Eastern White Cedar, Red-osier Dogwood, Dwarf Raspberry, Tall Buttercup, Northern Water-horehound, Panicled Aster, Green Ash, American Elm, Freeman's Maple, Grey Dogwood, Willow sp.	Black Ash Mineral Deciduous Swamp Type (SWD2-2); Green Ash Mineral Deciduous Swamp Type (SWD2-2); Open Bog (BOO1) Swamp and Marsh (OWES wetland type)	Woodland Amphibian Breeding Habitat Reptile Hibernaculum Waterfowl Stopover and Staging Area (Aquatic) Waterfowl Nesting Area Woodland Raptor Nesting Marsh Breeding Bird Habitat	Connected by overland flow to water body to north east.	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence
11 (new)	No	0.03	43 m to Wetland 5	Reed Canary Grass, Tall Buttercup, Spinulose Wood Fern	Mineral Meadow Marsh (MAM2) Marsh (OWES wetland type)	Woodland Amphibian Breeding Habitat	None apparent	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence

*Note – candidate wildlife habitat is based on the presence of potential habitat features only. Evaluation of significance assessment is required to determine if the wildlife habitat is being utilized by species and meets the criteria for significance

Sol-luce Kingston Solar PV Energy Project

Figure 6
Woodland Identification

QUABBIN ROAD

VAN ORDER ROAD

HIGHWAY 38

A
(WDL18*)

Site
25b & 25a

B

Site
2

C
(WDL22*)

ROCK ROAD

Glenvale Creek

UNITY ROAD

SMITH ROAD

WESTBROOK ROAD

Legend

- Expressway / Highway
- Arterial Road
- Collector Road
- Local Road
- Potential Stream
- Fence Line
- Project Location
- Amended Project Location
- 120 m Project Location Setback
- 300 m Project Location Setback
- 120 m Amended Project Location Setback
- 300 m Amended Project Location Setback
- Dug Farm Pond
- A — Dillon Delineated Woodland
- Woodland (MNR)

*Identifiers in parentheses refer to the original AMEC prepared NHA reports (June 2012)

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Table 7: Woodlands in the Amended Project Location and Surrounding 120 m

Woodland ID	Identified During Records Review?	Tree Crown Cover a)over 60% OR b)over 10% + minimum stem count	Attributes		Composition		Function		Project Components within 120 m
			Size (ha)	Interior habitat** (ha)	Woodland diversity including vegetative communities and species present	Contains or is adjacent to sensitive features	Contains or adjacent to known significant natural features, fish habitat, source water protection area	Linkage function	
A (18*) (See full extent of feature in **Appendix A**).	Yes	Yes	175.57	32.08	This feature is a mixture of woodland (mixed and coniferous) ecosites with mixed swamp. The coniferous woodland is consistent with a FOC2-2 forest type. Eastern White Cedar shares dominance with White Spruce in the canopy, while Eastern White Cedar dominates the sub-canopy and understory with White Spruce as an associate. The mixed forest is comprised of White Pine and oak (Dry-Fresh White Cedar-Hardwood Mixed Forest Type; FOM4-3). The swamp ecosite is dominated by Green Ash, with sparse willow species in the understory; bulrush and sedges comprise the ground layer.	The woodland is large and provides abundant interior forest habitat The feature functions to provide habitat for forest dependent and migrating birds Swampland with a large rectangular man-made pond is within the natural feature. Amphibian woodland breeding habitat present during spring flooding. Snags were occasional, but small in diameter at breast height. Rock fissures were present in the bed rock in several locations.	Large Open Bog with stick nests is contained within forest. Contains candidate wildlife habitat (see **Table 8**). Several wetland units are located in the woodland.	Woodland may play a role in providing linkage function to Odessa Lake in the west and large woodland to the east.	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence
B	Yes	Yes	8.06	0	This feature is a mix of Fresh-Moist Deciduous Woodland Ecosite, Dry-Fresh Basswood Deciduous Forest Type, and Red Cedar Cultural Woodland.	The woodland is small and contains no interior habitat.	Contains candidate wildlife habitat (see **Table 8**).	Woodland does not provide a linkage to other natural features. Note, that the narrow strip of CUW1-1 connecting Woodland B and C is not wide enough to be considered woodland (Oak Ridges Moraine Conservation Plan Technical Paper Series, 2013)..	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence
C (22*)	Yes	Yes	6.10	0	See original NHA reports (Appendix B Table 3-5). Also revised to include: white elm	The woodland is small and contains no interior habitat.	Contains candidate wildlife habitat (see **Table 8**).	Woodland does not provide a linkage to other natural features.	▪ Solar Panels ▪ Inverters ▪ Access Roads

Woodland ID	Identified During Records Review?	Tree Crown Cover a)over 60% OR b)over 10% + minimum stem count	Attributes		Composition		Function		Project Components within 120 m
			Size (ha)	Interior habitat** (ha)	Woodland diversity including vegetative communities and species present	Contains or is adjacent to sensitive features	Contains or adjacent to known significant natural features, fish habitat, source water protection area	Linkage function	
					(*Ulmus americana*) with some green ash (*Fraxinus pennsylvanica*). staghorn sumac (*Rhus typhina*), reed canary grass (*Phalaris arundinacea*), prickly ash (*Zanthoxylum americanum*) (WODM5).				▪ Fence

* Indicates identifier used in original NHA; **Interior forest is defined as woodland more than 100 m from the edge.

7.2.8 Wildlife Habitat

An overall review of known wildlife habitat that has been identified in the area of the amended project location was completed in the NHA Records Review Addendum Report. The records review information has been augmented by the results of the site investigation work. Based on this information, candidate wildlife habitats in the area surrounding the amended project location were determined. **Table 8** outlines wildlife habitat applicable to Ecoregion 6E and summarizes if it is applicable to the amended project location and adjacent area(s) for Sites 2 and 25a/b. The boundaries and location of each candidate wildlife habitat is described in **Table 8** and mapped on **Figures 7 – 10** (Wildlife Habitats)**.**

Species of Conservation Concern were identified according to the definition provided in the Significant Wildlife Habitat Technical Guide (MNR 2000) with exception to species that have been identified as *Threatened* and *Endangered* species in Ontario. Therefore, species listed in **Appendix D** with an SRANK of S1, S2 or S3, *Special Concern* in Ontario or only have a status of Threatened or Endangered federally, denote species of conservation concern. Species of Conservation Concern with the potential to occur in the project location are discussed in **Table 8** below. Reporting related to the protection of Ontario species at risk is being provided to the appropriate agency under separate cover.

Of the wildlife habitat reviewed during the site investigation work, the following habitat has been identified as candidate significant wildlife habitat in the project location and surrounding 120 m ("*" indicate identifiers used in original AMEC NHA reports; Dillon identified habitats have been denoted with a "D"):

<u>Seasonal Concentration Areas</u>

- Waterfowl Stopover and Staging Area (Aquatic) (WSSAT D1-D3)
- Raptor Wintering Area (RWA D1[WR6*])
- Bat Maternity Colonies (BMC D1)
- Reptile Hibernaculum (SH D1 and SH D2)

<u>Rare Vegetation Communities</u>

- No candidate habitats identified

Specialised Wildlife Habitat

- Waterfowl Nesting Area (WNA D1 and D2)
- Woodland Raptor Nesting Habitat (RN1*)
- Amphibian Breeding Habitat (Woodland) (ABF D1)

Habitat of Species of Conservation Concern

- Marsh Breeding Bird Habitat (MBB D2)
- Open Country Breeding Bird Habitat (OCBB D1 [OCBB9*])
- Shrub/Successional Breeding Bird Habitat (SBB 4*)
- Habitat for Giant Swallowtail (GS 2*)
- Habitat for Common Nighthawk (CN D1)

Animal Movement Corridors

- No candidate habitats identified

All other wildlife habitat that are located entirely outside of the amended project location associated with Sites 2 and 25a/b, but occur at least partially within 120 metre setback area and are not likely to be affected by project components typically found within a solar facility, will be categorized as "Generalized Candidate Significant Wildlife Habitat", as outlined in Appendix D of the Natural Heritage Assessment Guide for Renewable Energy Projects (MNR 2012), and will be treated as significant in the subsequent NHA Environmental Impact Study (EIS). The following habitat based on Table 19 in Appendix D of the Natural Heritage Assessment Guide for Renewable Energy Projects (MNR 2012), have been categorized together as Generalized Candidate Significant Wildlife Habitat:

- Turtle Wintering Areas (TWA D1)
- Colonially Nesting Bird and Breeding Habitat (Tree/Shrubs) (CNBH D1)
- Marsh Breeding Bird Habitat (MBB D1, and D3)

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Figure 7
Candidate Wildlife Habitat - Seasonal Concentration Areas

QUABBIN ROAD

VAN ORDER ROAD

HIGHWAY 38

WSSA D2

TWA D1

CNBH D1

WSSA D1

SH D1

BMC D1

WSSA D3

RWA D1 (WR6*)

Site 25b & 25a

Site 2

SH D2

ROCK ROAD

Glenvale Creek

WESTBROOK ROAD

UNITY ROAD

SMITH ROAD

Legend

- Expressway / Highway
- Arterial Road
- Collector Road
- Local Road
- Potential Stream
- Fence Line
- Project Location
- Amended Project Location
- 120 m Project Location Setback
- 300 m Project Location Setback
- 120 m Amended Project Location Setback
- 300 m Amended Project Location Setback
- Dug Farm Pond
- Woodland (MNR)

Seasonal Concentration Areas

- Raptor Wintering Area (RWA)
- Bat Maternity Colony (BMC)
- Waterfowl Stopover and Staging Area (Aquatic) (WSSA)
- Reptile Hibernaculum (SH)

Generalized Candidate Significant Wildlife Habitat

- Turtle Wintering Area (TWA) / Colonially Nesting Bird Breeding Habitat (Trees/Shrubs) (CNBH)

*Identifiers in parentheses refer to the original AMEC prepared NHA reports (June 2012)

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Figure 8
Candidate Wildlife Habitat - Specialised Wildlife Habitat

QUABBIN ROAD
VAN ORDER ROAD
HIGHWAY 38
WNA D1
RN 1*
ABF D1
WNA D2
Site
25b & 25a
Site
2
ROCK ROAD
Glenvale Creek
WESTBROOK ROAD
UNITY ROAD
SMITH ROAD

Legend

- Expressway / Highway
- Arterial Road
- Collector Road
- Local Road
- Potential Stream
- Fence Line
- Project Location
- Amended Project Location
- 120 m Project Location Setback
- 300 m Project Location Setback
- 120 m Amended Project Location Setback
- 300 m Amended Project Location Setback
- Dug Farm Pond
- Woodland (MNR)

Specialised Wildlife Habitat

- Amphibian Breeding Habitat (Woodland) (ABF)
- Waterfowl Nesting Area (WNA)
- Woodland Raptor Nesting Habitat (RN)

*Identifiers in parentheses refer to the original AMEC prepared NHA reports (June 2012)

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Sol-luce Kingston Solar PV Energy Project

Figure 9
Candidate Wildlife Habitat - Species of Conservation Concern

QUABBIN ROAD
VAN ORDER ROAD
HIGHWAY 38
MBB D3
MBB D1
MBB D2
CN D1
Site 25b & 25a
OCBB D1 (9*)
GS 2*
Site 2
SSB 4*
ROCK ROAD
Glenvale Creek
WESTBROOK ROAD
UNITY ROAD
SMITH ROAD

Legend

- Expressway / Highway
- Arterial Road
- Collector Road
- Local Road
- Potential Stream
- Fence Line
- Project Location
- Amended Project Location
- 120 m Project Location Setback
- 300 m Project Location Setback
- 120 m Amended Project Location Setback
- 300 m Amended Project Location Setback
- Potential Water Body (MNR)
- Woodland (MNR)

Species of Conservation Concern

- Habitat for Giant Swallowtail (GS)
- Marsh Breeding Bird Habitat (MBB D2)
- Habitat for Common Nighthawk (CN)
- Open Country Bird Breeding Habitat (OCBB)
- Shrub/Early Successional Bird Breeding Habitat (SSB)

Generalized Candidate Significant Wildlife Habitat

- Marsh Breeding Bird Habitat (MBB D1, MBB D3)

*Identifiers in parentheses refer to the original AMEC prepared NHA reports (June 2012)

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Table 8: Wildlife Habitat in the Project Location and Surrounding 120 metres based on Records Review and Site Investigation Information

Wildlife Habitat	Definition of Habitat[1]	Habitat Composition: Attributes, Condition and Function	Photo Record (Appendix C)	Location		Status				Rationale for Status	Main Project Components within 120 metres	Distance to Nearest Project Component (metres)
				Within Project Location	Within 120 m of Project Location	Not Applicable	Candidate	Previously Evaluated Significant	Generalized Candidate Significant Wildlife Habitat*			
Seasonal Concentration Areas												
Waterfowl Stopover and Staging Areas (Terrestrial)	Fields with sheet water from spring melt and run-off which provide invertebrate foraging habitat for migrating waterfowl. Can be found in any Meadow (ME) or Thicket (TH) that are maintained through anthropogenic disturbances (i.e., planting or agriculture, clearing, recreation, soil movement, grazing or mowing). Agricultural fields with waste grains are commonly used by waterfowl, these are not considered SWH. CUM1 and CUT1 ELC ecosites are to be considered.	Potential habitat does not exist within the project location or 120 metre setback.	n/a	---	---	✓	---	---	---	Much of the project area is comprised of Cultural thicket, meadow communities and maintained fields. The presence of sheet water from spring melt and run-off has not been observed by the landowner.	n/a	n/a
Waterfowl Stopover and Staging Areas (Aquatic) WSSA D1	Ponds, marshes, lakes, bays, coastal inlets and watercourses used during migration can be significant wildlife habitat for local and migrant waterfowl populations during migration. Sewage treatment ponds and storm water ponds do not qualify as a significant wildlife habitat; however, a reservoir managed as a large wetland or pond/lake does qualify. These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water). Can be found in the following community types: Meadow Marsh (MAM), Shallow Marsh (MAS), Shallow Aquatic (SA), Deciduous Swamp (SWD).	Potential habitat exists in a 7.92 ha Open Bog (B001) and 0.35 ha area consisting of Black Ash Mineral Deciduous Swamp (SWD2-1). The habitat includes a 100 m buffer that includes woodland habitat. Total size is 26.22 ha. The nearby ELC communities consisting of 0.03 ha Mineral Meadow Marsh (MAM2) too small to support aggregations of 100 or more waterfowl individuals that would be required for significance. Therefore, these ELC communities have not been considered as candidate habitat.	Photo 14	✓	✓	---	✓	---	---	The Open Bog and Swamp may be used by waterfowl as a stopover and staging area. Waterfowl species were identified in the Records Review, Appendix C.	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence	0

Wildlife Habitat	Definition of Habitat[1]	Habitat Composition: Attributes, Condition and Function	Photo Record (Appendix C)	Location		Status				Rationale for Status	Main Project Components within 120 metres	Distance to Nearest Project Component (metres)
				Within Project Location	Within 120 m of Project Location	Not Applicable	Candidate	Previously Evaluated Significant	Generalized Candidate Significant Wildlife Habitat*			
Waterfowl Stopover and Staging Areas (Aquatic) WSSA D2		Potential habitat exists in 9.79 ha area consisting of Poplar Conifer Mineral Mixed Swamp (SWM3-2), Poplar Mineral Deciduous Swamp (SWD4-5), and Reed Canary Grass Bedrock Meadow Marsh (MAM1-1). The potential habitat also includes a 100 m buffer that includes the surrounding woodland habitat. Total size is 15.94 ha.	Photos 16, 19 and 20	✓	✓	---	✓	---	---	Marsh and swamp communities may be used by waterfowl as a stopover and staging area. Waterfowl species were identified in the Records Review, Appendix C.	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence	0
Waterfowl Stopover and Staging Areas (Aquatic) WSSA D3		Potential habitat exists in a 1.65 ha Green Ash Mineral Deciduous Swamp (SWD2-1) plus a 100m buffer that includes the surrounding woodland and meadows. Total size is 14.13 ha.	See original NHA report	✓	✓	---	✓	---	---	Swamp community may be used by waterfowl as a stopover and staging area. Waterfowl species were identified in the Records Review, Appendix C.	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence	0
Shorebird Migratory Stopover and Staging Areas	Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats. Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores, are extremely important for migratory shorebirds in May to mid-June and early July to October. Sewage treatment ponds and storm water ponds do not qualify as a significant wildlife habitat. Can be found within the following ELC habitat types: Meadow Marsh (MAM), Sand Dune (SD), Beach Bar (BB).	Potential habitat does not exist within the project location or 120 metre setback.	n/a	---	---	✓	---	---	---	Potential muddy and un-vegetated shoreline habitat was not observed within the project location or 120 metre setback. In addition, Sand Dune, and Beach Bar communities were not observed within the project location or 50 metre setback.	n/a	n/a

Wildlife Habitat	Definition of Habitat[1]	Habitat Composition: Attributes, Condition and Function	Photo Record (Appendix C)	Location		Status				Rationale for Status	Main Project Components within 120 metres	Distance to Nearest Project Component (metres)
				Within Project Location	Within 120 m of Project Location	Not Applicable	Candidate	Previously Evaluated Significant	Generalized Candidate Significant Wildlife Habitat*			
Raptor Wintering Area RWA D1 (WR6*) Includes habitat for Short-eared Owl	The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. Least disturbed sites, idle/fallow or lightly grazed field/meadow habitats with adjacent woodlands may be considered significant wildlife habitat. Habitat includes any Forest (FO), in addition to one of the following Community Types: Meadow (CUM), Thicket (CUT), Savannah (CUS), Woodland (CUW) (<60% cover). Raptor wintering sites need to be >20 ha. Species of Conservation Concern: Short-eared Owl	This large area (224.3 ha) consists of a variety of cultural open country community types. Dry-moist old field meadow and open pasture are both present and hay fields dominate. Broad-leaved sedge mineral meadow marsh was also identified within this habitat. Rural properties occur in the southern portion and a large open dug-out pond (man-made) is located at the centre of the habitat. A number of hedgerows are situated between fields. Forested lands border the east and west boundaries of this winter raptor area. Forest communities dry-fresh White Cedar coniferous forest, dry-fresh White Pine-Sugar Maple mixed forest, Green Ash Mineral deciduous swamp, Common Juniper cultural alvar thicket, Red-osier Dogwood cultural thicket, Dry-Fresh White Cedar Coniferous Forest Type, White Cedar-Hardwood Mixed Forest Type, White Pine Coniferous Savannah Type, Dry-Fresh Red Cedar Coniferous Woodland Type and Red Cedar cultural woodland.	Photo 3, 5,and 8	✓	✓	---	✓	---	---	A combination of Forest with adjacent, Thicket, Savannah, or Woodland, greater than 20 hectares in areas, was observed within the project location and the 120 metre setback. This habitat was identified and mapped in the original NHA (AMEC 2012; Appendix A Figure 3-5 and Appendix B Table 3-8).	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence	0

Wildlife Habitat	Definition of Habitat[1]	Habitat Composition: Attributes, Condition and Function	Photo Record (Appendix C)	Location		Status				Rationale for Status	Main Project Components within 120 metres	Distance to Nearest Project Component (metres)
				Within Project Location	Within 120 m of Project Location	Not Applicable	Candidate	Previously Evaluated Significant	Generalized Candidate Significant Wildlife Habitat*			
Bat Hibernacula	Hibernacula may be found in abandoned mines, underground foundations, karsts, or one of the following ELC communities: Crevice (CCR) or Cave (CCA). SWH does not include buildings. The locations of bat hibernacula are relatively poorly known.	Potential habitat does not exist within the project location or 120 metre setback.	n/a	---	---	✓	---	---	---	The project location does not contain habitat (such as abandoned mines, underground foundations, karsts, crevices or caves) that would support bat hibernacula. Further, hibernacula were not mapped within or adjacent to the project location according to the Ontario Renewable Energy Atlas.	n/a	n/a
Bat Maternity Colonies BMC D1	Maternity colonies can be found in tree cavities, vegetation and often in buildings; however, buildings are not considered significant wildlife habitat. Maternity roosts are not found in caves and mines in Ontario. This habitat is associated with any of the following Community Types: Deciduous Forest (FOD), Mixed Forest (FOM), that have ≥10/ha wildlife trees ≥25 cm diameter at breast height (dbh). Female bats prefer wildlife tree (snags) in early stages of decay, class 1-3 or class 1 or 2.	Potential habitat exists in a 16.36 ha Dry-Fresh White Cedar-Hardwood Mixed Forest Type (FOM4-3).	Photo 5	✓	✓	---	✓	---	---	Mixed forest present in the project location contains 12 wildlife trees ≥25 cm diameter at breast height (dbh) per ha based on ELC surveys and field observations. No wildlife trees were noted in the small Dry-Fresh Upland Deciduous Forest (FOD4) on Site 2.	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence	0
Bat Migratory Stopover Area	Long distance migratory bats typically migrate during late summer and early fall from summer breeding habitats throughout Ontario to southern wintering areas. Their annual fall migrations concentrate these species of bats at stopover areas. The location and characteristics of stopover habitats are generally unknown.	Potential habitat does not exist within the project location or 120 metre setback.	n/a	---	---	✓	---	---	---	Criteria to assess this habitat type have not been developed and therefore this habitat type will not be assessed as significant wildlife habitat at this time. Furthermore, habitat was not identified in original NHA reports.	n/a	n/a

Wildlife Habitat	Definition of Habitat[1]	Habitat Composition: Attributes, Condition and Function	Photo Record (Appendix C)	Location		Status				Rationale for Status	Main Project Components within 120 metres	Distance to Nearest Project Component (metres)
				Within Project Location	Within 120 m of Project Location	Not Applicable	Candidate	Previously Evaluated Significant	Generalized Candidate Significant Wildlife Habitat*			
Turtle Wintering Areas TWA D1	For most turtles, wintering areas are in the same general areas as their core habitat. Over-wintering sites are permanent water bodies, large wetlands, and bogs and fens with adequate dissolved oxygen. Water has to be deep enough not to freeze and have soft mud substrates. These habitats are found in the following Community Types: Swamp (SW), Marsh (MA), Open Water (OA), Shallow Water (SA), Open Fen (FEO), Open Bog (BOO).	Potential habitat exists in a 7.92 ha Open Bog (B001) located in Woodland A. Open Water communities identified on Figure 4 are shallow pools identified as dug farm ponds during the water site investigation (see Water Addendum Report for more details). Small MAM and SWC communities mapped on Figure 4 within Site 25b	Photo 14	---	✓	---	---	---	✓	Open Bog is wholly within the 120 metre setback for Site 25a and thus can be considered Generalized Candidate Significant Wildlife Habitat. The dug farm ponds are not deep enough (i.e., <1 m), nor do they have the inflow/outflow of water to support an adequate supply of dissolved oxygen for turtles. The MAM and SWC communities are not deep enough to allow for turtles to use for overwintering.	▪ Solar Panels ▪ Fence	91
Reptile Hibernaculum SH D1	Hibernation occurs in sites located below frost lines in burrows, rock crevices, broken and fissured rock, wetlands such as conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover. Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover. Hibernacula can be found in any ecosite in central Ontario other than very wet ones. The following Community Types may be directly related to snake	A 53.38 ha area primarily consisting of Dry-Fresh White Cedar Coniferous Forest Type (FOC2-2) and Dry-Fresh White Cedar-Hardwood Mixed Forest Type (FOM4-3). The area also has 4.85 ha of Mineral Cultural Savannah (CUS2). Rock crevices of various sizes were observed throughout Sites 25a and 25b. (Habitat boundaries based on the location of observed rock crevices)	Photo 10	✓	✓	---	✓	---	---	Rock crevices were observed within the project location of Site 25a and 25b and may provide suitable overwintering habitat for reptiles, particularly snakes. Habitat delineation is based on site observation of numerous rock crevices in the larger overall rock material and not individual points.	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence	0

Wildlife Habitat	Definition of Habitat[1]	Habitat Composition: Attributes, Condition and Function	Photo Record (Appendix C)	Location		Status				Rationale for Status	Main Project Components within 120 metres	Distance to Nearest Project Component (metres)
				Within Project Location	Within 120 m of Project Location	Not Applicable	Candidate	Previously Evaluated Significant	Generalized Candidate Significant Wildlife Habitat*			
Reptile Hibernaculum SH D2	hibernacula: Talus (TA), Rock Barren (RB), Crevice (CCR), Cave (CCA), and Alvar (RBOA1, RBSA1, RBTA1). Species of Special Concern Eastern Milksnake	A 3.71 ha area consisting of 1.13 ha of Dry-Fresh Graminoid Meadow Ecosite (MEGM3), 0.86 ha of Mineral Cultural Savannah (CUS2), 0.61 ha of Red Cedar Cultural Woodland Type (CUW1-1) and small amounts of other woodland type areas. (Habitat boundaries based on the location of observed rock crevices).	Photo 11	✓	✓	---	✓	---	---	Rock crevices were observed within the project location of Site 2 that may provide suitable overwintering habitat for reptiles, particularly snakes. Habitat delineation is based on site observation of numerous rock crevices in the larger overall rock material and not individual points.	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence	0
Colonially Nesting Bird Breeding Habitat (Bank and Cliff)	Any site or area with eroding banks, sandy hills, borrow pits, steep slopes, sand piles, cliff faces, bridge abutments, silos, or barns found in any of the following Community Types: Meadow (ME), Thicket (TH), Savannah (SV), Bluff (BL), Cliff (CL). This does not include man-made structures (bridges or buildings), licensed/permitted mineral aggregate operation, or recently (within the last 2 years) disturbed soil areas, such as berms, embankments, and soil or aggregate stockpiles.	Potential habitat does not exist within the project location or 120 metre setback.	n/a	---	---	✓	---	---	---	Eroding banks, sandy hills, borrow pits, steep slopes, sand piles, and cliff faces were not observed within the project location or 120 metre setback area.	n/a	n/a
Colonially Nesting Bird Breeding Habitat (Tree/Shrubs) CNBH D1	Nests in live or dead standing trees in wetlands, lakes, islands and peninsulas. Shrubs and occasionally emergent vegetation may also be used. Most nests in trees are 11 to 15 metres from ground, near the top of tree. This habitat can be found in any of the following community types: Mixed swamp (SWM); deciduous swamp (SWD), coniferous swamp (SWC).	Potential habitat exists in a 7.92 ha Open Bog (B001) located in Woodland A.	Photo 14	---	✓	---	---	---	✓	Two species of heron are known to occur in the general area (see Records Review, Appendix C). Habitat is not within 120 m of access road and is there for able to be generalized. Stick nests were not observed in other SWM and SWD communities mapped within Site 25 and the 120 metre setback area where they occur with the property boundaries	▪ Solar Panels ▪ Fence	91

Wildlife Habitat	Definition of Habitat[1]	Habitat Composition: Attributes, Condition and Function	Photo Record (Appendix C)	Location		Status				Rationale for Status	Main Project Components within 120 metres	Distance to Nearest Project Component (metres)
				Within Project Location	Within 120 m of Project Location	Not Applicable	Candidate	Previously Evaluated Significant	Generalized Candidate Significant Wildlife Habitat*			
Colonially Nesting Bird Breeding Habitat (Ground)	Nesting colonies of gulls and terns on islands or peninsulas associated with open water or in marshy areas. Brewer's Blackbird colonies are found loosely on the ground in low bushes in close proximity to streams and irrigation ditches within farmlands. Any rocky island or peninsula within a lake or large river, in close proximity to watercourses in open fields or pastures with scattered trees or shrubs found in any of the following Community Types: Meadow Marsh (MAM), Shallow Marsh (MAS), Meadow (ME), Thicket (TH), Savannah (SV).	Potential habitat does not exist within the project location or 120 metre setback.	n/a	---	---	✓	---	---	---	The project is not located on or adjacent to islands or peninsulas associated with open water or marsh areas. Although habitat for Brewer's Blackbird also does not exist within the 50 metre setback (i.e., open fields adjacent to watercourse) and Brewer's Blackbird has not been identified as having the potential to occur in the project location or adjacent lands (source: Ontario Breeding Bird Atlas, Square Numbers: 18UQ60 and 18UQ70).	n/a	n/a
Migratory Butterfly Stopover Areas	A butterfly stopover area will be a minimum of 10 hectares in size with a combination of field and forest habitat present, and will be located within 5 kilometres of Lake Ontario. Species of Special Concern Monarch Butterfly	Potential habitat does not exist within the project location or 120 metre setback.	n/a	---	---	✓	---	---	---	The project is not located within 5 kilometres of Lake Ontario.	n/a	n/a
Landbird Migratory Stopover Areas	Woodlots greater than 10 hectares in size and within 5 kilometres of Lake Ontario are important for migrating landbirds.	Potential habitat does not exist within the project location or 120 metre setback.	n/a	---	---	✓	---	---	---	The project is not located within 5 kilometres of Lake Ontario.	n/a	n/a

Wildlife Habitat	Definition of Habitat[1]	Habitat Composition: Attributes, Condition and Function	Photo Record (Appendix C)	Location		Status				Rationale for Status	Main Project Components within 120 metres	Distance to Nearest Project Component (metres)
				Within Project Location	Within 120 m of Project Location	Not Applicable	Candidate	Previously Evaluated Significant	Generalized Candidate Significant Wildlife Habitat*			
Deer Yarding Areas and Deer Winter Congregation Areas	Deer yarding areas or winter concentration areas are areas deer move to in response to the onset of winter snow and cold. The yard is composed of two areas referred to as Stratum I and II. Stratum II covers the entire winter yard area and is usually a mixed or deciduous forest with plenty of browse available for food. The core deer yard (Stratum I) is located within the Stratum II area and is critical for deer survival in areas where winters become severe. It is primarily composed of coniferous trees (Pine, Hemlock, Cedar, Spruce) with a canopy cover of more than 60%. MNR determines this habitat type.	Potential habitat does not exist within the project location or 120 metre setback.	n/a	---	---	✓	---	---	---	Planning authorities are advised to rely on MNR advice for locations and significance of Deer Yarding and Winter Congregation Areas. MNR is responsible for the management of Deer habitat in Ontario. No Deer Yarding or Winter Congregation Areas were identified by the MNR in the project location or 120 metre setback area.	n/a	n/a
Rare Vegetation Communities												
Cliffs and Talus Slopes	A cliff is vertical to near vertical bedrock that is greater than 3 metres in height. A talus slope is rock rubble at the base of a cliff made up of coarse rocky debris. Talus Slopes are associated with the following ELC communities: TAO (Open Talus), TAS (Shrub Talus), TAT (Treed Talus).	Potential habitat does not exist within the project location or 120 metre setback.	n/a	---	---	✓	---	---	---	ELC studies did not identify cliffs or talus slopes within the project location or 120 metre setback.	n/a	n/a
Sand Barren	Sand barrens typically are exposed sand, generally sparsely vegetated, and caused by lack of moisture, periodic fires and erosion. This habitat is associated with any of the following Community Types: SBO1 (Open Sand Barren Ecosite), SBS1 (Shrub Sand Barren Ecosite), SBT1 (Treed Sand Barren Ecosite). The site must not be dominated by exotic or introduced species (<50% vegetative cover exotics). Tree cover is always ≤ 60%.	Potential habitat does not exist within the project location or 120 metre setback.	n/a	---	---	✓	---	---	---	ELC studies did not identify sand barrens within the project location or 120 metre setback.	n/a	n/a

Wildlife Habitat	Definition of Habitat[1]	Habitat Composition: Attributes, Condition and Function	Photo Record (Appendix C)	Location		Status				Rationale for Status	Main Project Components within 120 metres	Distance to Nearest Project Component (metres)
				Within Project Location	Within 120 m of Project Location	Not Applicable	Candidate	Previously Evaluated Significant	Generalized Candidate Significant Wildlife Habitat*			
Alvar	An alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil. The hydrology of alvars is complex, with alternating periods of inundation and drought. This habitat is associated with any of the following ELC communities: ALO1(Open Alvar Rock Barren Ecosite), ALS1 (Alvar Shrub Rock Barren Ecosite), ALT1 (Treed Alvar Rock Barren Ecosite), FOC1 (Dry Pine Calcareous Shallow Coniferous Forest Ecosite), FOC2 (Dry Cedar Calcareous Shallow Coniferous Forest Ecosite), CUM2 (Bedrock Cultural Meadow Ecosite), CUS2 (Bedrock Cultural Savannah Ecosite), CUT2-1 (Common Juniper Cultural Alvar Thicket Type), CUW2 (Bedrock Cultural Woodland Ecosite) that are >0.5 ha in size.	Potential habitat does not exist within the project location or 120 metre setback.	n/a	---	---	✓	---	---	---	ELC studies did not identify alvar >0.5 ha within the project location or 120 metre setback (a small alvar was found within Site 25b but it was not larger than 0.5 ha).	n/a	n/a
Old Growth Forest	Old Growth Forests are characterized by heavy mortality or turnover of over-storey trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris. Stands ≥30 ha with at least 10 ha interior assuming 100 metre buffer at edge of forest, and are associated with the following Community Types: FOD (Deciduous Forest), FOM (Mixed Forest), FOC (Coniferous Forest). The stand will have experienced no recognizable forestry activities. Forests with a wide range of tree sizes, uneven canopy and canopy gaps, abundant fallen logs in varying states of decomposition, trees in older age classes (often 50-140 years+).	Potential habitat does not exist within the project location or 120 metre setback.	n/a	---	---	✓	---	---	---	ELC studies did not identify old growth forests within the project location or 120 metre setback. Tree species observed are not indicative of old growth or mature stands. Trees within the project location were generally young to mid-ages. Further, old growth forests were not previously mapped and identified during the records review.	n/a	n/a

Wildlife Habitat	Definition of Habitat[1]	Habitat Composition: Attributes, Condition and Function	Photo Record (Appendix C)	Location		Status				Rationale for Status	Main Project Components within 120 metres	Distance to Nearest Project Component (metres)
				Within Project Location	Within 120 m of Project Location	Not Applicable	Candidate	Previously Evaluated Significant	Generalized Candidate Significant Wildlife Habitat*			
Savannah	A Savannah is a tallgrass prairie habitat that has tree cover between 25-60%, and are associated with the following ELC communities: TPS1 (Dry-Fresh Tallgrass Mixed Savannah Ecosite), TPS2 (Fresh-Moist Tallgrass Deciduous Savannah Ecosite), TPW1 (Dry-Fresh Black Oak Tallgrass Deciduous Woodland Ecosite), TPW2 (Fresh-Moist Tallgrass Deciduous Woodland Ecosite), CUS2 (Bedrock Cultural Savannah Ecosite). These communities must be restored or natural and must not be dominated by exotic or introduced species (<50% vegetative cover exotics).	Potential habitat does not exist within the project location or 120 metre setback.	n/a	---	---	✓	---	---	---	ELC studies did not identify Savannahs within the project location or 120 metre setback. A Bedrock Cultural Savannah Ecosite (CUS2) was identified in the original NHA report in the 120 metre setback; however, it was not classified as a candidate habitat based on site investigation (see original NHA report).	n/a	n/a
Tallgrass Prairie	A tallgrass prairie has ground cover dominated by prairie grasses. An open tallgrass prairie habitat has less than 25% tree cover. This habitat is associated with the following communities: TPO1 (Dry Tallgrass Prairie Ecosite), TPO2 (Fresh-Moist Tallgrass Prairie Ecosite). These communities must be restored or natural.	Potential habitat does not exist within the project location or 120 metre setback.	n/a	---	---	✓	---	---	---	ELC studies did not identify tallgrass prairies within the project location or 120 metre setback.	n/a	n/a
Other Rare Vegetation Communities	May include beaches, fens, forests, marshes, barrens, dunes and swamps. Provincially rare S1, S2 and S3 vegetation communities are listed in Appendix M of the Significant Wildlife Habitat Technical Guide (MNR 2000). Woodlands with >60% forest cover, containing regionally/locally or provincially rare tree species or tree associations.	Potential habitat does not exist within the project location or 120 metre setback.	n/a	---	---	✓	---	---	---	ELC studies did not identify any rare vegetation communities, as defined in the Significant Wildlife Habitat Technical Guide, within the project location or 120 metre setback. Further, woodlands containing rare tree species or tree associations were not observed.	n/a	n/a

Wildlife Habitat	Definition of Habitat[1]	Habitat Composition: Attributes, Condition and Function	Photo Record (Appendix C)	Location		Status				Rationale for Status	Main Project Components within 120 metres	Distance to Nearest Project Component (metres)
				Within Project Location	Within 120 m of Project Location	Not Applicable	Candidate	Previously Evaluated Significant	Generalized Candidate Significant Wildlife Habitat*			
Specialised Habitat for Wildlife												
Waterfowl Nesting Area WNA D1	Upland habitats of any kind located adjacent to the following wetland Community Types: Meadow Marsh (MAM), Shallow Marsh (MAS), Shallow Aquatic (SA), Bedrock Thicket (RBS), Mineral Thicket Swamp (SWT), or Mineral Deciduous Swamp (SWD). Habitat should be at least 120 m wide. Three types of delineation criteria are provided: 1. If the wetland is greater than 0.5 ha, the habitat extends 120 m from it. 2. If the wetland is greater than 0.5 ha and includes any small wetlands 0.5 ha within 120 m, the area 120 m from this is candidate habitat. 3. A cluster of 3 or more small (<0.5 ha) wetlands within 120 m of each other. The upland areas should be at least 120 metres wide. Wood ducks and hooded mergansers utilize large diameter trees (>40 cm dbh) in woodlands for cavity nest sites.	Potential habitat exists in 9.79 ha area consisting of Poplar Conifer Mineral Mixed Swamp (SWM3-2), Poplar Mineral Deciduous Swamp (SWD4-5), and Reed Canary Grass Bedrock Meadow Marsh (MAM1-1). The potential habitat also includes a 120 m buffer that includes the surrounding woodland habitat. Total size is 15.67 ha.	Photos 16, 19 and 20	✓	✓	---	✓	---	---	Marsh and swamp communities may be used by waterfowl as nesting areas. Waterfowl species were identified in the Records Review, Appendix C.	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence	0
Waterfowl Nesting Area WNA D2		Potential habitat exists in a 1.65 ha Green Ash Mineral Deciduous Swamp (SWD2-1) plus a 100m buffer that includes the surrounding woodland and meadows. Total size is 15.71 ha.	See original NHA report	✓	✓	---	✓	---	---	Swamp community may be used by waterfowl as nesting areas. Waterfowl species were identified in the Records Review, Appendix C.	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence	0
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands or on structures over water. Osprey nests are usually at the top of a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree's canopy. Nests located on man-made structures are not included as significant wildlife habitat. Forest (FO), or Swamp (SW) that are immediately adjacent to rivers, lakes, ponds, and wetlands should be considered. Habitat for Species of Special Concern: Bald Eagle	Potential habitat does not exist within the project location or 120 metre setback.	n/a	---	---	✓	---	---	---	There are no lakes, ponds, rivers, or wetlands along forested shorelines, islands, or on structures over water. No nests were observed.	n/a	n/a

Wildlife Habitat	Definition of Habitat[1]	Habitat Composition: Attributes, Condition and Function	Photo Record (Appendix C)	Location		Status				Rationale for Status	Main Project Components within 120 metres	Distance to Nearest Project Component (metres)
				Within Project Location	Within 120 m of Project Location	Not Applicable	Candidate	Previously Evaluated Significant	Generalized Candidate Significant Wildlife Habitat*			
Woodland Raptor Nesting Habitat RN1*	Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests within tops or crotches of trees. Species such as Cooper's Hawk nest along forest edges sometimes on peninsulas or small off-shore islands. In disturbed sites, nests may be used again or a new nest will be in close proximity to the old nest. Can be found in the following ELC communities: Forest (FO), Treed Swamp (SW), Coniferous Plantation (CUP3/TAGM1) that are >30 ha with >10 ha of interior habitat (interior habitat having a 200 metres buffer of surrounding woodland and/or forest).	A 29.49 ha area consisting primarily of Dry-Fresh White Cedar Coniferous Forest Type (FOC2-2) with smaller areas of Poplar Conifer Mineral Mixed Swamp (SWM3-2), Green Ash Mineral Deciduous Swamp Type (SWD2-2), and Red Cedar Cultural Woodland Type (CUW1-1). Woodland has 12.83 ha of interior habitat.	Photo 3 and 5	✓	✓	---	✓	---	---	Potential suitable nesting habitat for woodland raptors is present within the project location and 120 m setback for Site 25a and 25b. This habitat was identified and mapped in the original NHA (AMEC 2012; Appendix A Figure 3-6 and Appendix B 3-8).	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence	0
Turtle Nesting Areas	For an area to function as a turtle nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. Nesting areas on the sides of municipal or provincial road embankments and shoulders are not significant wildlife habitat. Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes and rivers are most frequently used. Exposed mineral soil (sand or gravel) areas <100 metres from or within the following Community Types: Mineral or Organic Meadow Marsh (MAM or MAO), Shallow Marsh (MAS), Shallow Aquatic (SA), Open Bog (BOO), Open Fen (FEO).	Potential habitat does not exist within the project location or 120 metre setback.	n/a	---	---	✓	---	---	---	No open sunny areas with exposed sand and gravel beaches in and within 100 metres of the Mineral or Organic Meadow Marsh, Shallow Marsh, Open Bog or Open Fen ecosites were observed in the project location or setback areas.	n/a	n/a
Seeps and Springs	Seeps and springs are areas where ground water comes to the surface, often in forested headwater areas. Any forested area (with <25% meadow, field, or pasture) within the headwaters of a stream or river system may have seeps or springs. Presence of a site with 2 or more seeps/springs should be considered SWH.	Potential habitat does not exist within the project location or 120 metre setback.	n/a	---	---	✓	---	---	---	Seeps and springs were not identified within the project location or 120 metre setback area during site investigations.	n/a	n/a

Wildlife Habitat	Definition of Habitat[1]	Habitat Composition: Attributes, Condition and Function	Photo Record (Appendix C)	Location		Status				Rationale for Status	Main Project Components within 120 metres	Distance to Nearest Project Component (metres)
				Within Project Location	Within 120 m of Project Location	Not Applicable	Candidate	Previously Evaluated Significant	Generalized Candidate Significant Wildlife Habitat*			
Amphibian Breeding Habitat (Wetland)	Wetlands and pools isolated from woodlands with presence of shrubs, logs available for calling, foraging, and escape/concealment from predators. Bullfrogs require permanent water bodies with an abundance of emergent vegetation. Associated with any of the following ELC communities: Swamp (SW), Marsh (MA), Fen (FE), Bog (BO), Open Water (OA), Shallow Aquatic (SA), including vernal pools, that are >500 m2 or 25 metres in diameter, and located >120 metres from woodlands.	Potential habitat does not exist within the project location or 120 metre setback.	n/a	---	---	✓	---	---	---	No identified wetlands are isolated from woodlands. Open Water ELC communities seen in Photos 22 and 23 do not offer the shrubs and logs needed for calling, foraging, and escape/concealment. Furthermore the areas are impacted by agricultural practices and are used for the purpose of nourishing livestock.	n/a	n/a
Amphibian Breeding Habitat (Woodland) ABF D1	The presence of a wetland, lake or pond within or adjacent to (within 120 m) a woodland that contains permanent ponds or contains water in most years until mid-July are most likely to be used as breeding habitat.	A 183.39 ha woodland area consisting of Dry-Fresh White Cedar Coniferous Forest Type (FOC2-2), Dry-Fresh White Cedar-Hardwood Mixed Forest Type (FOM4-3), Coniferous Swamp (SWC), Mineral Meadow Marsh (MAM2), Black Ash Mineral Deciduous Swamp (SWD2-1), Reed Canary Grass Bedrock Meadow Marsh (MAM1-1), Poplar Conifer Mineral Mixed Swamp (SWM3-2), Poplar Mineral Deciduous Swamp (SWD4-5), and Open Bog (BOO1).	Photos 6, 15-19	✓	✓	---	✓	---	---	Mix of swamp and forest habitat offers potential breeding habitat for many amphibians. Note that this candidate habitat includes the previously identified ABHW 12* in the original NHA (Appendix A Figure 3-6 and Appendix B Table 3-8).	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence	0
Habitat of Species of Conservation Concern												
Marsh Breeding Bird Habitat MBB D1	The following ELC communities should be considered: Meadow Marsh (MAM), Shallow Aquatic (SA), Open Bog (BOO), Open Fen (FEO), or for Green Heron: SW (Swamp), MA (Marsh) and Meadow (ME). This habitat includes all wetland habitats as long as there is shallow water with emergent aquatic	Potential habitat exists in a 7.92 ha Open Bog (B001) located in Woodland A.	Photo 14	---	✓	---	---	---	✓	Potential Open Bog surrounded by woodlands may be suitable for Marsh Breeding Birds. Swamp habitats lack shallow water, sluggish streams, ponds, and marshes sheltered by shrubs and trees (Green Heron).	▪ Solar Panels ▪ Fence	91

Wildlife Habitat	Definition of Habitat[1]	Habitat Composition: Attributes, Condition and Function	Photo Record (Appendix C)	Location		Status				Rationale for Status	Main Project Components within 120 metres	Distance to Nearest Project Component (metres)
				Within Project Location	Within 120 m of Project Location	Not Applicable	Candidate	Previously Evaluated Significant	Generalized Candidate Significant Wildlife Habitat*			
	vegetation present. For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently it may be found in upland shrubs or forest a considerable distance from water. Species of Conservation Concern: Black Tern											
Marsh Breeding Bird Habitat MBB D2		Potential habitat exists in 0.03 ha Mineral meadow marsh (MAM2) community on Site 25.	Photo 6	✓	---	---	✓	---	---	Meadow marsh with shallow water and emergent aquatic vegetation was found in the potential habitat. Numerous marsh breeding bird species are listed in the Records Review Appendix C.	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence	0
Marsh Breeding Bird Habitat MBB D3		Potential habitat exists in 0.16 ha area consisting of Reed Canary Grass Bedrock Meadow Marsh (MAM1-1),	Photos 16, 19 and 20	---	✓	---	---	---	✓	Mix of swamp and marsh communities with shallow water and emergent aquatic vegetation was found wholly within the 120 metre setback area.	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence	54
Woodland Area-sensitive Bird Breeding Habitat IF D1	Habitats where interior forest breeding birds are breeding in forest stands or woodlots >30 ha (forest interior is defined as at least 200 metres from the forest edge). These include any of the following Community Types: Forest (FO), Treed Swamp (SW) that are mature (>60 years old).	Potential habitat does not exist within the project location or 120 metre setback.	n/a	---	---	✓	---	---	---	Woodland A does not include interior woodland wildlife habitat due to the openness of the woodland, specifically the bog ELC community.	n/a	n/a

Wildlife Habitat	Definition of Habitat[1]	Habitat Composition: Attributes, Condition and Function	Photo Record (Appendix C)	Location		Status				Rationale for Status	Main Project Components within 120 metres	Distance to Nearest Project Component (metres)
				Within Project Location	Within 120 m of Project Location	Not Applicable	Candidate	Previously Evaluated Significant	Generalized Candidate Significant Wildlife Habitat*			
Open Country Bird Breeding Habitat OCBB D1 (9*)	Large grassland areas (including natural and cultural fields and meadows) are important to support grassland breeding bird species. Grassland areas > 30 ha, and do not include Class 1 or Class 2 agricultural lands. Habitat does not include fields with row-cropping or intensive hay or livestock pasturing in the last 5 years. This habitat can be found in Meadows (ME). Species of Conservation Concern: Short-eared Owl	A large (291.5 ha) open country habitat consisting of active pasture, used agricultural lands. This habitat extends well north of Unity Road and away from rural building and regular human activity. The area consists of 110.47 ha of Dry-Moist Old Field Meadow Type (CUM1-1), 39.73 ha of Perennial Cover Crop, 17.04 ha of Open Pasture, 12.54 ha of Rural Property, 5.82 ha of Annual Row Crop, and 3.86 ha of Mineral Cultural Savanah.	see original NHA report	✓	✓	---	✓	---	---	Large grasslands >30 ha that are not currently being used for row crop, active hay fields, or livestock pasturing were not observed within the project location or 50 metre setback. Part of this habitat was identified and mapped in the original NHA (AMEC 2012 Appendix A Figure 3-6 and Appendix B 3-8).	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence	0
Shrub/Early Successional Bird Breeding Habitat SSB 4*	Oldfield areas succeeding to shrub and thicket habitats >10 ha, that are not Class 1 or Class 2 agricultural lands, with no row-cropping or intensive hay or livestock pasturing in the last 5 years. This habitat can be found in Thickets (TH) and Savannahs (SV).	This feature is 16.39 ha in size and consists of Mineral Cultural Savannah (CUS1), Gray Dogwood Cultural Thicket Type (CUT1-4), Cultural Woodland (CUW), and Red Cedar Cultural Woodland Type (CUW1-1). Note this habitat boundary was revised from the original AMEC mapped SSB 4* (AMEC 2012 Appendix A Figure 3-7 and Appendix B 3-8).	See Photo 1,2, 8, and 9	✓	✓	---	✓	---	---	Feature may provide suitable breeding habitat for shrub/early successional bird species. Numerous shrub/early successional breeding bird species are listed in the Records Review Appendix C.	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence	0
Terrestrial Crayfish	This species constructs burrows in marshes, mudflats, and meadows. The ground cannot be too moist and the burrows can often be found far from water. Meadow (ME) and edges of Meadow Marshes (MAM) and Shallow marshes (MAS) (no minimum size) identified should be surveyed for terrestrial crayfish. Terrestrial Crayfish are only found in southwestern Ontario.	Potential habitat does not exist within the project location or 120 metre setback.	n/a	---	---	✓	---	---	---	Project location is not in Southwestern Ontario.	n/a	n/a

Wildlife Habitat	Definition of Habitat[1]	Habitat Composition: Attributes, Condition and Function	Photo Record (Appendix C)	Location		Status				Rationale for Status	Main Project Components within 120 metres	Distance to Nearest Project Component (metres)
				Within Project Location	Within 120 m of Project Location	Not Applicable	Candidate	Previously Evaluated Significant	Generalized Candidate Significant Wildlife Habitat*			
Bowman's Root	This species grows in open sandy woods and edges, and flowers from April to June (NHIC 2011).	Potential habitat does not exist within the project location or 120 metre setback.	n/a	---	---	✓	---	---	---	The probability of this plant occurring within the Project Location is very low based on habitat requirements, as sandy soils are uncommon.	n/a	n/a
Carolina Whitlow-grass	This species grows in dry, sandy, open areas, and alvar pavements and flowers in the spring (NHIC 2011).	Potential habitat does not exist within the project location or 120 metre setback.	n/a	---	---	✓	---	---	---	The probability of this plant occurring within the Project Location is very low based on habitat requirements, as sandy soils are uncommon.	n/a	n/a
Olney's Dry Rock Moss (*Grimmia olneyi*)	Cracks and exposed faces of dry to periodically wet, acidic or calcareous rocks, commonly along streams or splash zones of lake shores; low to moderate elevations.	Potential habitat does not exist within the project location or 120 metre setback.	n/a	---	---	✓	---	---	---	The probability of this moss occurring within the Project Location is very low as no streams or splash zones of lake shores are present.	n/a	n/a
Juniper Hairstreak	This species is closely associated with Eastern Red Cedar and prefers dense patches of Eastern Red Cedar woodlands.	Potential habitat does not exist within the project location or 120 metre setback.	n/a	---	---	✓	---	---	---	In Ontario, this species is restricted to Point Pelee and areas near Prince Edward County (Layberry et al. 1998).	n/a	n/a
Giant Swallowtail GS 2*	This species is associated with open woodlands and nearby fields. Giant Swallowtails feed on Hop Tree (*Ptelea trifoliate*) and Northern Prickly-ash. The species is common to southwestern Ontario.	This feature is comprised of cultural meadow and Red Cedar cultural woodland bordered by small forests. Patches of dense Northern Prickly-ash were noted, which may provide a food source for Giant Swallowtail caterpillars.	See original NHA report	✓	✓	---	✓	---	---	Potential open woodland and nearby fields were found in the project location for Site 2. This habitat was identified and mapped in the original NHA (AMEC 2012 Appendix A Figure 3-7 and Appendix B 3-8).	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence	0

Wildlife Habitat	Definition of Habitat[1]	Habitat Composition: Attributes, Condition and Function	Photo Record (Appendix C)	Location		Status				Rationale for Status	Main Project Components within 120 metres	Distance to Nearest Project Component (metres)
				Within Project Location	Within 120 m of Project Location	Not Applicable	Candidate	Previously Evaluated Significant	Generalized Candidate Significant Wildlife Habitat*			
Common Nighthawk CN D1	Traditional Common Nighthawk habitat consist of open areas with little to no ground vegetation, such as logged or burned-over areas, forest clearings, rock barrens, peat bogs, lakeshores, and mine tailings. Although the species also nests in cultivated fields, orchards, urban parks, mine tailings, and along gravel roads and railways, they tend to occupy natural sites.	A 51.25 ha unit. ELC was conducted within 29.24 ha of this unit consisting of 11.49 ha of Dry-Fresh White Cedar Coniferous Forest Type (FOC2-2) and 9.04 ha of Dry-Fresh White Cedar-Hardwood Mixed Forest Type (FO 4-3), 3 ha of Dry White Cedar Calcareous Bedrock Coniferous Forest Type (FOC2-2).	Photo 3, 5,and 8	✓	✓	---	✓	---	---	Suitable open woodlands with some exposed rock are present in the northern sections of Site 25a and 25b. Common Nighthawk were as having the potential to occur in the project location or adjacent lands (source: Ontario Breeding Bird Atlas, Square Numbers: 18UQ60 and 18UQ70).	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence	0
Jefferson Salamander X Blue-Spotted Salamander Complex (*Ambystoma jeffersonianum-laterale* complex)	Moist woods in floodplains; ponds, sedge meadows, bogs, swamps or areas with semi-permanent water; occasionally in overgrown fields or in sandy soil; found under logs or other forest debris; home range size 250 m. Prefers deciduous woodlands.	Potential habitat does not exist within the project location or 120 metre setback.	n/a	---	---	✓	---	---	---	No species reported occurrences within the Project Location or 120 metre setback areas in search of NHIC database. There is also a lack of deciduous woodland in the area.	n/a	n/a

Wildlife Habitat	Definition of Habitat[1]	Habitat Composition: Attributes, Condition and Function	Photo Record (Appendix C)	Location		Status				Rationale for Status	Main Project Components within 120 metres	Distance to Nearest Project Component (metres)
				Within Project Location	Within 120 m of Project Location	Not Applicable	Candidate	Previously Evaluated Significant	Generalized Candidate Significant Wildlife Habitat*			
Animal Movement Corridors												
Amphibians	Corridors are determined based on the identification of significant breeding habitat for amphibians. Movement corridors between breeding habitat and summer habitat must be determined when amphibian breeding habitat is confirmed as significant wildlife habitat. Corridors may be found in all ecosites associated with water. Corridors should be at least 200 metres wide with gaps <20 m, and, if following riparian area, with at least 15 metres of vegetation on both sides of waterway.	Potential habitat does not exist within the project location or 50 metre setback.	n/a	---	---	✓	---	---	---	No ecosites associated with water were found connecting candidate Amphibian Breeding Habitat. No waterways connecting candidate were present.	n/a	n/a
Deer	Movement corridors must be determined when deer wintering habitat is confirmed as significant wildlife habitat. Corridors may be found in all forested ecosites. Corridors typically follow riparian areas, woodlots, and areas of physical geography (ravines or ridges). Corridors that lead to a deer wintering yard should be unbroken by roads and residential areas, and should be at least 200 metres wide with games <20m, and, if following riparian area, with at least 15 metres of vegetation on both sides of waterway.	Potential habitat does not exist within the project location or 50 metre setback.	n/a	---	---	✓	---	---	---	MNR did not identify significant deer wintering areas in or within 50 metres of the project location or 50 metre setback, thus deer movement corridors are not located within the project location or 120 metre setback.	n/a	n/a

[1]Habitat definition from Draft Ecoregion 6E Criterion Schedule (MNR 2012) for wildlife habitats and from Significant Wildlife Habitat Technical Guide for species habitats; [2]Natural Heritage & Endangered Species Program Species Fact Sheet: Ebony Boghaunter (2008) * Indicates identifier used in original NHA

8. Summary of Amendments to the Records Review

Based on the results of the site investigations, the boundaries and extent of all natural features were confirmed and refined. Based on a comparison of the features identified during the records review and the observations made during the site investigation, there are discrepancies with the natural features determined to exist within the project location and 120 m setback. These discrepancies apply to the size and location of woodland and wetland features. These amendments have been made to the mapping prepared during the records review (**Figure 3**) and are shown on **Figures 5-9**. **Table 9** identifies any necessary corrections to the determinations made during the NHA Records Review Addendum Report, including the addition of natural features, the absence of natural features identified during the records review and the amendments to boundaries of all natural features located within 120 m of the project location.

Table 9: Summary of Amendments to the Records Review

Natural Feature ID	Identified During Records Review?	Amendment to Records Review Required?	Source of Information for Amendment	Change in Distance Relative to Project Location?	Summary of Amendments
Provincial Parks and Conservation Reserves					
Not applicable to project location					
ANSI, Life Science					
Not applicable to project location					
ANSI, Earth Science					
Not applicable to project location					
Valleylands					
Not applicable to project location					
Wetlands					
2	Yes	Yes	Site Investigation	Yes	Wetland does not exist
3 (WTL 30*)	Yes	Yes	Original NHA	Yes	Wetland boundary revised combined with Wetland 10, moving forward as 10
4	Yes	Yes	Site Investigation	Yes	Wetland does not exist
5	Yes	Yes	Site Investigation	Yes	Wetland boundary revised and divided (now Wetland 5 and Wetland 11)
6	Yes	Yes	Site Investigation	Yes	Wetland boundary revised combined with Wetland 8, moving forward as 8
7	Yes	Yes	Site Investigation	Yes	Wetland boundary revised and is not within project location, combined with Wetland 8, moving forward as 8
8	Yes	Yes	Site Investigation	Yes	Combined with 5 and 7, moving forward as 8

Natural Feature ID	Identified During Records Review?	Amendment to Records Review Required?	Source of Information for Amendment	Change in Distance Relative to Project Location?	Summary of Amendments
9	Yes	No	n/a	n/a	n/a
10	Yes	Yes	Site Investigation	Yes	Wetland boundary revised; now includes Wetland 3
11	No	Yes	Site Investigation	Yes	Wetland 5 boundary revised and divided (Wetland 5 and Wetland 11)
Woodlands					
A (18*)	Yes	Yes	Site Investigation	Yes	Woodland boundary revised
B	Yes	Yes	Site Investigation	Yes	Woodland boundary revised
C (22*)	Yes	Yes	Site Investigation	Yes	Woodland boundary revised
Wildlife Habitat					
Seasonal Concentration Areas					
Waterfowl Stopover and Staging Areas (Aquatic) (WSSA D1)	No	Yes	Site Investigation	Yes	Addition of Candidate Wildlife Habitat
Waterfowl Stopover and Staging Areas (Aquatic) (WSSA D2)	No	Yes	Site Investigation	Yes	Addition of Candidate Wildlife Habitat
Waterfowl Stopover and Staging Areas (Aquatic) (WSSA	No	Yes	Site Investigation	Yes	Addition of Candidate Wildlife Habitat

Natural Feature ID	Identified During Records Review?	Amendment to Records Review Required?	Source of Information for Amendment	Change in Distance Relative to Project Location?	Summary of Amendments
D3)					
Raptor Wintering Area (RWA D1 [WR6*])	No	Yes	Site Investigation	Yes	Addition of Candidate Wildlife Habitat
Bat Maternity Colonies (BMC D1	No	Yes	Site Investigation	Yes	Addition of Candidate Wildlife Habitat
Turtle Wintering Area (TWA D1)	No	Yes	Site Investigation	Yes	Addition of Generalized Candidate Significant Wildlife Habitat
Reptile Hibernaculum (SH D1)	No	Yes	Site Investigation	Yes	Addition of Candidate Wildlife Habitat
Reptile Hibernaculum (SH D2)	No	Yes	Site Investigation	Yes	Addition of Candidate Wildlife Habitat
Colonially Nesting Bird Breeding Habitat (Tree/Shrubs) (CNBH D1)	No	Yes	Site Investigation	Yes	Addition of Generalized Candidate Significant Wildlife Habitat
Rare Vegetation Communities					
Not applicable to project location					
Specialised Wildlife Habitat					
Waterfowl Nesting Area (WNA D1)	No	Yes	Site Investigation	Yes	Addition of Candidate Wildlife Habitat
Waterfowl Nesting Area (WNA D2)	No	Yes	Site Investigation	Yes	Addition of Candidate Wildlife Habitat

Natural Feature ID	Identified During Records Review?	Amendment to Records Review Required?	Source of Information for Amendment	Change in Distance Relative to Project Location?	Summary of Amendments
Woodland Raptor Nesting Habitat (RN1)	No	Yes	Site Investigation	Yes	Addition of Candidate Wildlife Habitat
Amphibian Breeding Habitat (Woodland) (ABF D1)	No	Yes	Site Investigation	Yes	Addition of Candidate Wildlife Habitat
Habitat of Species of Conservation Concern					
Marsh Breeding Bird Habitat (MBB D1)	No	Yes	Site Investigation	Yes	Addition of Generalized Candidate Significant Wildlife Habitat
Marsh Breeding Bird Habitat (MBB D2)	No	Yes	Site Investigation	Yes	Addition of Candidate Wildlife Habitat
Marsh Breeding Bird Habitat (MBB D3)	No	Yes	Site Investigation	Yes	Addition of Generalized Candidate Significant Wildlife Habitat
Open Country Breeding Bird Habitat (OCBB D1 [OCBB9*])	No	Yes	Site Investigation	Yes	Addition of Candidate Wildlife Habitat
Shrub/Successional Breeding Bird Habitat (SBB 4*)	No	Yes	Site Investigation	Yes	Addition of Candidate Wildlife Habitat

Natural Feature ID	Identified During Records Review?	Amendment to Records Review Required?	Source of Information for Amendment	Change in Distance Relative to Project Location?	Summary of Amendments
Habitat for Giant Swallowtail (GS2*)	No	Yes	Site Investigation	Yes	Addition of Candidate Wildlife Habitat
Habitat for Common Nighthawk (CN D1)	No	Yes	Site Investigation	Yes	Addition of Candidate Wildlife Habitat
Animal Movement Corridors					
None identified within the project location or adjacent lands within 300 metres					

* Indicates identifier used in original NHA

9. Conclusions

This report is intended to fulfill requirements for the NHA Site Investigation Addendum Report under *Ontario Regulation 359/09*. Based on the results of the site investigations, this report identified the accuracy of the records review, the addition of any previously unidentified natural features, the boundaries of natural features located within 120 m of the project location at Sites 2 and 25 a/b, and the distance of the natural feature from the project location.

This site investigation addendum report is the second report in a series that will fulfill the natural heritage assessment component of the REA process. Site investigations were carried out based on the results of a completed records review. Applicable natural features identified as being within 120 m of a project component will require an evaluation of significance based on information confirmed during the records review, site investigation and in consultation with appropriate agencies (REA Section 27). The natural features applicable to the Sol-luce Kingston Solar PV Energy Project are identified in **Table 10** and will be evaluated in the NHA Evaluation of Significance Addendum Report.

Table 10: Identified Natural Features within 120 m of the Project Location

Natural Feature ID	Feature in Relation to Project Location		Evaluation of Significance Status		
	Within	Within Prescribed Setback	Requires Evaluation	Previously Evaluated	Evaluation Not Required
PROVINICAL PARKS AND CONSERVATION RESERVES					
Not applicable to project location					
ANSI, LIFE SCIENCE					
Not applicable to project location					
ANSI, EARTH SCIENCE					
Not applicable to project location					
VALLEYLANDS					
Not applicable to project location					
WETLANDS					
5	✓	---	✓	---	---
8	---	✓	✓	---	---
9		✓	✓	---	---
10	---	✓	✓	---	---
11	✓	---	✓	---	---
WOODLANDS					
A(18*)	✓	✓	✓	✓	---
B	✓	✓	✓	---	---
C (22*)	✓	✓	✓	✓	---
CANDIDATE WILDLIFE HABITAT					
Seasonal Concentration Areas					
Waterfowl Stopover and Staging Areas (Aquatic) (WSSA D1)	✓	✓	✓	---	---
Waterfowl Stopover and Staging Areas (Aquatic) (WSSA D2)	✓	✓	✓	---	---
Waterfowl Stopover and Staging Areas (Aquatic)	✓	✓	✓	---	---

Natural Feature ID	Feature in Relation to Project Location		Evaluation of Significance Status		
	Within	Within Prescribed Setback	Requires Evaluation	Previously Evaluated	Evaluation Not Required
(WSSA D3)					
Raptor Wintering Area (RWA D1 [WR6*])	✓	✓	✓	✓	---
Bat Maternity Colonies (BMC D1)	✓	✓	✓	---	---
Reptile Hibernaculum (SH D1)	✓	✓	✓	---	---
Reptile Hibernaculum (SH D2)	✓	✓	✓	---	---
Rare Vegetation Communities					
Not applicable to project location					
Specialised Wildlife Habitat					
Waterfowl Nesting Area (WNA D1)	✓	✓	✓	---	---
Waterfowl Nesting Area (WNA D2)	✓	✓	✓	---	---
Woodland Raptor Nesting Habitat (RN1)	✓	✓	✓	✓	---
Amphibian Breeding Habitat (Woodland) (ABF D1)	✓	✓	✓	---	---
Habitat of Species of Conservation Concern					
Marsh Breeding Bird Habitat (MBB D2)	✓	---	✓	---	---
Open Country Breeding Bird Habitat (OCBB D1 [OCBB9*])	✓	✓	✓	✓	---
Shrub/Successional Breeding Bird Habitat (SBB 4*)	✓	✓	✓	✓	---
Habitat for Giant Swallowtail (GS 2*)	✓	✓	✓	✓	---
Habitat for Common Nighthawk (CN D1)	✓	✓	✓	---	---
Animal Movement Corridors					
Not applicable to project location					

* Indicates identifier used in original NHA; Note: where the columns "Require Evaluation" and "Previously Evaluated" are both checked off, this indicates the natural feature was evaluated in the original NHA (AMEC 2012) and confirmed by the MNR.

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Appendix A

Field Notes/Supplementary Information

JOB Samsung Solar projecte - propeuty 2

DATE October 2nd, 2013 PAGE 1 of 4

note #1 - open pasture land dominated be cool season grass. has been recently ~~et~~ cut. pictures 1537-39.

note #2 - small depression between lawn and adjacent fields that holds water. Too small for etc. cattail's dominated The edge and associate species included water plantain, Juncus sp. Reed-canary grass, spike rush-sp purple loosestrife. picture 1540-41

note 3 - drainage ditch between fields. was mainly composed of reed canary grass with tamarack - picture 1542-3

note #4 - very land open pasture / Hay field that was dominated by cool season ecrusin pasture grasses. Given it's size and the densitiy of the grass the area could be used by Bobolink / EML for breeding habitat

PARTY CHIEF Mike Wolosiecky

WEATHER

JOB ~~property~~ samsung solar project - property 2

DATE October 2nd, 2013 PAGE 2 of 4

wildlife

common raven
song sparrow
northern leopard frog
blue Jay
American crow
American gold finch
northern flicker
Eastern meadow lark → heard callings (chattercall)
Monarch
common garter snake
↳ observed sunning on rock.
cedar waxwing ↳ more than 1
mourning dove

PARTY CHIEF

WEATHER

JOB Samsung Solar project - property #2

DATE October 2nd, 2013 PAGE 3 of 4

(5) Several cracks in pavement and boulder were observed within the reed • cedar.

(6) open sections were classified in the orginal EIC as woodland. clearing may have occured but most of the area would be a smooth brome meadow. could be habitat for grassland birds.

brome >> aster_sp > goldenRod > common milkweed

7) low lying area where soils have been removed to bare Rock. may hold water during the spring but was dry at the time of visit. Drainage ditch does flow into the area. area around depression was dominated by reed canary grass. Soil was very shallow and comprised of sandy loam

PARTY CHIEF Mike Wolosinecky

WEATHER

JOB Samsung Solar project - property 2

DATE October 2nd, 2013 PAGE 4 of 4

(8) Area was orgially classified as a red cedar wood land. While while present, red cedar did not apear to be the dominant veg type, UlmAme ER was FODMS+2 2 might be better but soils don't quite match. may have small inclusions of reden Cedar woodland.

(9) woodlot dominated be most bass wood with green ash, with some red cedar, Ironwood white elm, soil was very shallow and bed rock was exposed in many places. soil was SC in and was not very deep. There was a large dogwood / prickley ash thicket that was found along the edges of the woodlot. given it's size may be a seperate polygon but if not should be added as an inclusion.

PARTY CHIEF Mike Wolosinecky

WEATHER

property #2

Species Name	Habitat	Abundance
fraxinus pennsylvanica		
~~smooth brome~~ Bromus inermis		
symphyotrichum ~~ericoides~~ ericoides		
~~prickly ash~~ zanthoxylum americanum		
~~red cedar~~ Juniperus viriniana		
symphyotrichum novae angliae		
~~gray dogwood~~ cornus racemosa		
~~wild carrot~~ Daucus carota		
Solidago nemoralis		
~~Tamarack~~ Larix laricina (likely planted)		
phalaris arundinacea		
Typha latifolia		
~~water plantain~~ Alisma plantago-aquatica		
~~Canada thistle~~ cirsium arvense		
~~grass leafed goldenrod~~ Euthamia graminifolia		
mustard_sp		
poa pratense		
~~Trembling aspen~~ populus tremuloides		
~~Bur oak~~ quercus macrocrapa		
~~common ragweed~~ Ambrosia artemisiifola		
~~lance leaved aster~~ symphyotrichum lanceolatem var lanceolatem		
~~bebb~~ salix ~~balsamia~~ bebbiana		
solidago altissima.		
carex__spp		
~~Fragrant bedstraw~~ Galium trifolium		
~~Sugar maple~~ acer saccharum		
~~Herb robert~~ geranium robertianum		
~~Ironwood~~ ostrya virginiana		
~~D. fleabane~~ Erigeron philadelphicus		
~~vipers bugloss~~ Echium vulgare		
lambs ear.	ans Red	
~~Black maple - Acer nigrum~~ ~~(likely planted)~~		
Tila Americana		R
RHUS typhina		
Acer Rubrum		

JOB Samsung Solar farm - property 29
DATE October 2nd, 2013 PAGE 1 of 4

Start 9:00am? had to move to property
End 9:30am #2 after call.

area located adjacent to end of road
way is mainly a thicket dominated
by gray dogwood

note#1 - picture 1602-06
small meadow marsh located adjacent
to roadway. seem to have a
drainage ditch flow in from
adjacent property. Soil was mainly
composed of heavy sand and bedrock
was hit at 60cm. water was at
the surface in many places
could be Amphibian breed habitat.

note#2 - CC 1-7 - not red osisen dogwood
is grey dog wood thicket with
patchs of MEM.

note #3 - Red cedar woold is green ash
woodland. soils SL over SCL, 42cm
mottles at 35, bedrock @ 42.

PARTY CHIEF
WEATHER Sunney, cc 5%, wind 1

JOB Samsung Solar farm - propert 29
DATE October 2nd, 2013 PAGE 2 of 4

Wildlife
cedar waxwing
song sparrow
~~frog~~ frog species - did not get a good
- garter snake look.
- northern leopard frog
- Turkey vulture
- green frog
- rabbit species
- white tailed deer (Tracks.)
- American crow.

PARTY CHIEF Mike G
WEATHER

JOB samsung solar farm - property 24
DATE october 2nd, 2013 PAGE 3 of 4

marsh in front of SWP was EIC'd correctly. mainly was composed of cattails with sedges, watercourse along edge of marsh appears to have recently been cleared.

CoT 2-1 - area is open and bedrock is exposed to the surface in many places. lots of ~~a~~ invasive honeysuckle species were present. CoT 2-1 may not be best fit, lots of deciduous shrubs ~~were~~ were present. no large thickets of Hawthorn were observed. several thickets of ~~gray~~ dogwood and prickly ash occured in this area but wer too small for elc and should be added as inclusions. soil very shallow ~~less~~ >20 cm.

mixed forest - the mixed forest located at the ~~northern~~ western side of the property was classified correctly. was mainly composed of white cedar,

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WEATHER

JOB Samsung solar farm - property 24
DATE october 2nd, 2013 PAGE 4 of 4

balsam fir and poplar species. small thickets of ~~gray~~ dogwood and prickley ash were located along the edges of the woodland in some areas.

PARTY CHIEF
WEATHER

~~property~~ property # 24

Species Name	Habitat	Abundance
~~gray dog~~ ~~dog wood~~ cornus racemosa	TH	
~~wild carrot~~ Daucus carota		
~~smooth brome~~ Bromus inermis		
sm symphyotrich ~~ericoides~~ ericoides		
~~new england aster~~ ~~sm~~ symphyotrichum novae-angliae		
Ulmus americana		
~~heart leafed aster~~ symphyotrichum cordifolium		
asclepis Syriaca		
~~Black medic~~ medicago lopulina		
fraxinus pennsylvanica		
Tila americana.		
~~red cedar~~ Juniperus Virginiana		
Trifolicm pratense.		
solidago altissima		
~~common strawberry.~~ Fragaria virginiana		
vicia cracca.		
~~R~~ solidago Rugosa		
scivpus atrovirens		
~~swamp milkweed~~ asclepis incarnata		
~~water~~ plantain Alisma plantago-aquatica		
scivpus cyperinus		
~~grass leaved goldenrod~~ Euthamia graminifolia		
Carex--spp		
Cornus Sericea		
bidens ~~cernua~~ cernua		
~~lance leafe~~ symphyotrichum lanceolatum var lanceolatum		
~~Bulb~~. cicuta bulbifera		
Salix-eriocephala		
~~fra wild parsnip.~~ Pastinaca Sativa		
~~canadan thistle~~ cirsicm arvense		
~~common milkweed~~ asclepis Syriaca		
~~prickly ash.~~ Zanthoxylum americanum		
Juncus sp		
grass--sp		
glyceria Striata cmaybe hard to tell.		
~~Solidago altissima.~~ (repeated)		
~~chickory~~ ~~ch~~ cichoricm intybus		

Species Name	Habitat	Abundance
Eupatorium purfoliatum		
ovalcs sedge species		
spirea alba		
~~creeping juniper~~ Juniperus communis		
~~common strawberry~~ re-peat		
~~Fireset.~~ Dipsacus sylvestris		
carex Hystricena		
~~water plantain~~ alisma plantago-aquatica		
~~Whorehead bugle-weed~~ Lycopus ~~E~~ europaeus		
Lythrum Salicaria		
~~common lilac~~ syringa vulgaris		
~~Sto~~ Rhus scvotina		
~~Fa toucia tartarian.~~ lonicera tatarica		
~~tag~~		
ϕ betutla papyifera		
~~viper bugloss~~ Echicm vulgare		
quercus macrocvapa.		
~~Bracken fern~~ pteridicm aquilincm		
Abies ~~balsamifera~~. balsamea		
~~Early meadow Rue~~ Thalictrum dioicum		
~~spreading dogbane~~ (adjacet to highway.		
↳ Apocynum androsaemifolicm		

JOB Samsung solar farm - property 25BA

DATE October 1st, 2013 PAGE 1 of 5

Hedge ROW at ~~fei~~ Field edge.

A small hedgrow was present along the edges of farm ~~fied~~ fields. Area was mainly composed of small trees and shrubs.

species mainly were:

ulmus americana

Fraxinus pennsylvanica

Juniperus virginian

Cornus racemosa

Zanthoxylum americanum

Aster species, goldenrod species, and bromus sp. composed of the majority of the ground cover.

Note #1 - low lying area collected water from adjacent Fields. wetland plants such as cattails, area may be considered a marsh. Sections of the Cattails had been recently mowed Area would have been too small for ELC. pictures 1417 - 20

PARTY CHIEF Mike Wolosinecky

WEATHER Sunney W, clouds

JOB Samsung solar farm - property 25BA

DATE October 1st, 2013 PAGE 2 of 5

Wildlife observations - ~~out~~ to ongoing.

Song sparrow	OB
Blue Jay	Call
American crow	OB
House WREN	OB
White tailed deer	TR
Wild turkey	Found tail feather.
Black-capped chickadee	OB
Downy woodpecker	Call
northern leopard frog	OB
morning dove	Call
merlin X 2	OB
European starling	OB
Eastern meadow lark	very faint call (possible sighting)

PARTY CHIEF Mike Wolosinecky

WEATHER Sunney W, clouds.

JOB Samsung solar farm - property 258 A
DATE October 1st, 2013 PAGE 3 of 5

note*2 - several open building where present that could be potential habitat for barn swallow and bat species - pictures 1421-22

The area surrounding the buildings was composed of an old field. Go species mainly were composed of ~~otc~~ weedy species such as:

Bromus species
Canada thistle.
Black medic
Red clover
aster - spp
Solidago - spp

note #3 - A semi-open area that is located in front of the forest. Area was dominated by red cedar. Covered varied between being very sparse to very dense. likely would be mostly a red cedar ~~forest~~ woodland with inclusions of red cedar cultural Savanna. likely ~~boo~~ cows grazed area at some point.

PARTY CHIEF MWW
WEATHER

JOB Samsung Solar farm - property 258 A
DATE October 1st, 2013 PAGE 4 of 5

note #4 - The area located behind the forest was of ~~path~~ patchy composition. area likely overall would be classified as a mixed forest. ~~bet~~ but there were small sections that were 100% deciduous/ conifer ~~the~~ deciduous trees were more prevalent in ares were soils were deeper. Main conifers consisted of white cedar, eastern hemlock and baslam fir. Deciduous trees were composed sugar maple, Ironwood, paper birch, Trembling aspen. Percentage of conifer were slightly greater than deciduous trees overall. several ares of cracle bed rock were observed within the area and some small rock piles were also observed. ~~sm~~ some wildlife Snags and cavities were observed, but were sparse. Cavities were not of a suitable size to host but maternal colonies. A area would be suitable habitat for bottenose

PARTY CHIEF MWW
WEATHER

JOB samsung solar farm - property 25A
DATE October 1st, 2013 PAGE 5 of 5

Trees but none were observed. However, a detailed survey of the area for betterment trees was not conducted. ~~a~~ well used animal trails (cattle?), were also observed within several sections of the ~~wood~~ forest.

MWW

PARTY CHIEF .....
WEATHER .....

JOB Samsung Solar farm - property 25B
DATE October 1st, 2013 PAGE 1 of

Note #1 - woodland / forest on this property was dominated by white ~~ceda~~ cedar, and would be classified as a white cedar forest. other conifer associate species included red cedar, eastern hemlock, ~~bals~~ balsam fir and Common Juniper. Deciduous tree ~~cov~~ cover was much sparser than on property 25A. Deciduous tree species were composed mainly of paper birch, trembling aspen European buckthorn, Ironwood. Several open areas were observed were bed rock was present at the surface. several cracks in the bedrock were also observed most of these areas were ~~foot~~ located at the Southern section of the forest.

In the northern section of the property there were large open areas with very shallow (<5cm) of

PARTY CHIEF .....
WEATHER .....

JOB Samuels ~~October~~ Solar ~~Co~~ farm - property 25B

DATE October 1st, 2013 PAGE

soil that were dominated by grasses. Area likely has been grazed by cattle as several trails were observed within the area. Might be a cultural climax/ rock barren.

note #2

Area in front of the white ~~cedar~~ cedar forest was composed of red cedar and would be an extension of the red cedar community observed on property #25A. Mixed meadows consisting of asters, golden rods and varies species of grasses.

~~not~~ The fencerow located on the east side of the fields consisted of the same species as the hedgerow noted on property #25A.

PARTY CHIEF

WEATHER

JOB

DATE PAGE

PARTY CHIEF

WEATHER

Botanical Observations

DILLON CONSULTING

Project: Samsung Solar project - 25A1B	Date: October 1st, 2013	Time: 14:25
Weather: Sunny with clouds	Cloud Cover: 40%	Wind: 2
Surveyor(s): Mike Wolosinecky		
Comments: species observed on property # 25A/B		

Abundance Rating: Dominant (D), Abundant (A), Occasional (O), (Rare) (R)

Terrestrial Habitat: Meadow (ME), Thicket (TH), Savannah (SA), Woodland (WO), Forest (FR)

Aquatic Habitat: Swamp (SW), Fen (FE), Bog (BO), Marsh (MA) Shallow Aquatic (SA), Open Water (OW)

Other: Agriculture (AG), Constructed (CO), other (specify) HEG ~~TH~~ = Thicket between Fields

Species Name	Habitat	Abundance
Ulmus americana	~~TH~~ HEG, FO	O
Fraxinus pennsylvanica	HEG, FO	O
Daucus carota	HEG, ME	O
Juniperus virginiana	FO, WO	D in some areas.
Cornus racemosa	HEG, ME	O
Corylus cornuta	HEG, ME	O
Zanthoxylum americanum	HEG, ME, FO	O
Solidago altissima	HEG, ME	O
~~Solidg~~ Solidago nemoralis	HEG, ME	O
Symphyotrichum lanceolatum	HEG, ME	O
Symphyotrichum novae-angliae	HEG, ME	O
Symphyotrichum ericoides	HEG, ME	O
Rhamnus cathartica	ME, FO	O
Bromus sp	ME, HEG	O A
Typha latifolia	O	O
Medicago lupulina	ME	O
Cichorium intybus	ME	O
Cirsium arvense	ME	O
Trifolium pratense	ME	O

Species Name	Habitat	Abundance
Ambrosia artemisiifolia	ME, HEG	O
Echium vulgare	ME	O
Asclepias Syriaca	ME	O
Syringa vulgaris	HEG	R
Lonicera tatarica	HEG	O
Phleum—sp (Timothy species	ME, HEG	O
Poa pratensis	ME	O
~~Rubus—sp with bloom~~ Rubus occidentalis	HEG, FO	O Edge
Symphyotrichum pilosum	HEG, ME	O
Phalaris arundinacea	HEG, ME	O mostly in depression.
Euthamia graminifolia	ME	O
Populus tremuloides	FO	O
Ostrya virginiana	FO	A
Betula papyrifera	FO	O
Acer saccharum	FO	O
Acer Rebrum	FO	O
Thuja occidentalis	FO, WO	O to A
Abies balsamea	FO	O
Carex—spp (could not ID no spiklets/achenes)	FO, WO	O
Tsuga canadensis	FO	O
Symphyotrichum cordifolium	FO	O
Quercus rubra	FO	O
Quercus macrocarpa	FO	O
Dryopteris—sp	FO	O
Pteridium aquilinum	FO	O
Toxicodendron radicans	FO	O
Pinus Strobus	FO	O
Elymus hystrix	FO	R
Fagus grandifolia	FO	R
Salix bebbiana	FO Edge	R
Geranium robertianum	ME, FO	O
Vitis riparia	ME, FO, HEG	O
Chara—sp	O] pond edge	O
Alisma plantago-aquatica	O	O
Fern—sp	FO	O
Juncus—sp	HEB	O
Scirpus atrovirens	HEG	O
* Juncus communis		

Solidago canadensis

Pinus strobus

Property 24

SWDM2-2 - Green Ash. Leopard frog. WTD.

25% fraxpen[1] Acer fre[P], ulmuame[2], Populus del.[P]
25% phalaru[1], wood grass[P]
Typhlat
bidens sp.
silky dogwood, spiralb., salix sp.

swamp; palustrine
Carex sp., bugleweed, boneset, purple-stemmed aster, jewelweed
open water - 0%

mineral soils, old beaver activity

Photo - 41 to 47

MASM1-2 - cattail shallow.

Marsh, palustrine.

25% Typhlat[1]
fraxpen[P]
mineral soils

Sugar Maple red cedar.
large-tooth Aspen
Beech
Bur oak.
Green Ash

25a

pond feature - former cattle pond (trails, hoof prints in mud).
Does contain minimal wetland flora along the edges (rice cut grass, bidens, lesser duckweed, sensitive fern, black bulrush. but because of small size and lack of function, I would not designate this a wetland. However, this pool would provide suitable breeding habitat for amphibians (woodland) now that is unlikely to be used by cattle.

- Green frog
- Mallard (x2)
- leopard frog.

- clearweed.

photo - 48 to 52

Swale area Swale? vs. MAM? - lack of definition
-Typhlat & Phalaris. - 80% has been mown.
bedrock close to surface, water will just sit
- low topographic relief.

(MAM) photo - 53 to 58.

Swanslake Lane.

wetland/general notes

GPS 116 - pic 1586

- small isolated permanent looking pond - WODU on this pond Oct 12
- ~20 m diameter

GPS 127 - pics 1626-1629

- soil shallow, loam/silt loam no mottling - exposed bedrock in area, cracked limestone
- ground veg is sparse almost nonexistent
- Tree species are all facultative - ABIEBAL (3) THUJOCC (-3) Fac Wet, POPUGRA +3 Fac upland, POPUTRE 0
- based on soil at this point not wetland

GPS 129 - pics 1637-1640

- soil mineral, loam, moderate mottles at ~20 cm, no gley
- veg very similar to at GPS 127
- based on soil & veg I would not say wetland
  - close to wetland boundary.

GPS 132 - pics 1642-1649

- not wetland here
- species QUERRUB, ACERSAS, OSTRVIR, QUERALB, WALDFRA, Sanicula, HEPAACU, Carex pedunculata, THUJOCC, PICEGLA, downy arrowwood.

GPS "Wetland 2" - pics 1662-1664

UTM - 18T 369137 4910208

- not wetland at this point
- species THUJOCC, OSTRVIR, ACERSAC, Carex pedunculata, common polypody, HEPAACU, DRYOMAR

Wetlands cont'd

pics 1689-1690
GPS 136 ∘ track

- small wet/moist patch
- mix of PHALARU[1] BETUPAP[P]
TAUJOCC[P] FRAXAEN[P]
DRYOCART[P] heartleaved aster 2
RANNACR[2]

Wetland unit/community 6

enough PHAL ARUN in ground layer that it would qualify as wetland, but small area.

Weather Oct 11
17:00-19:00

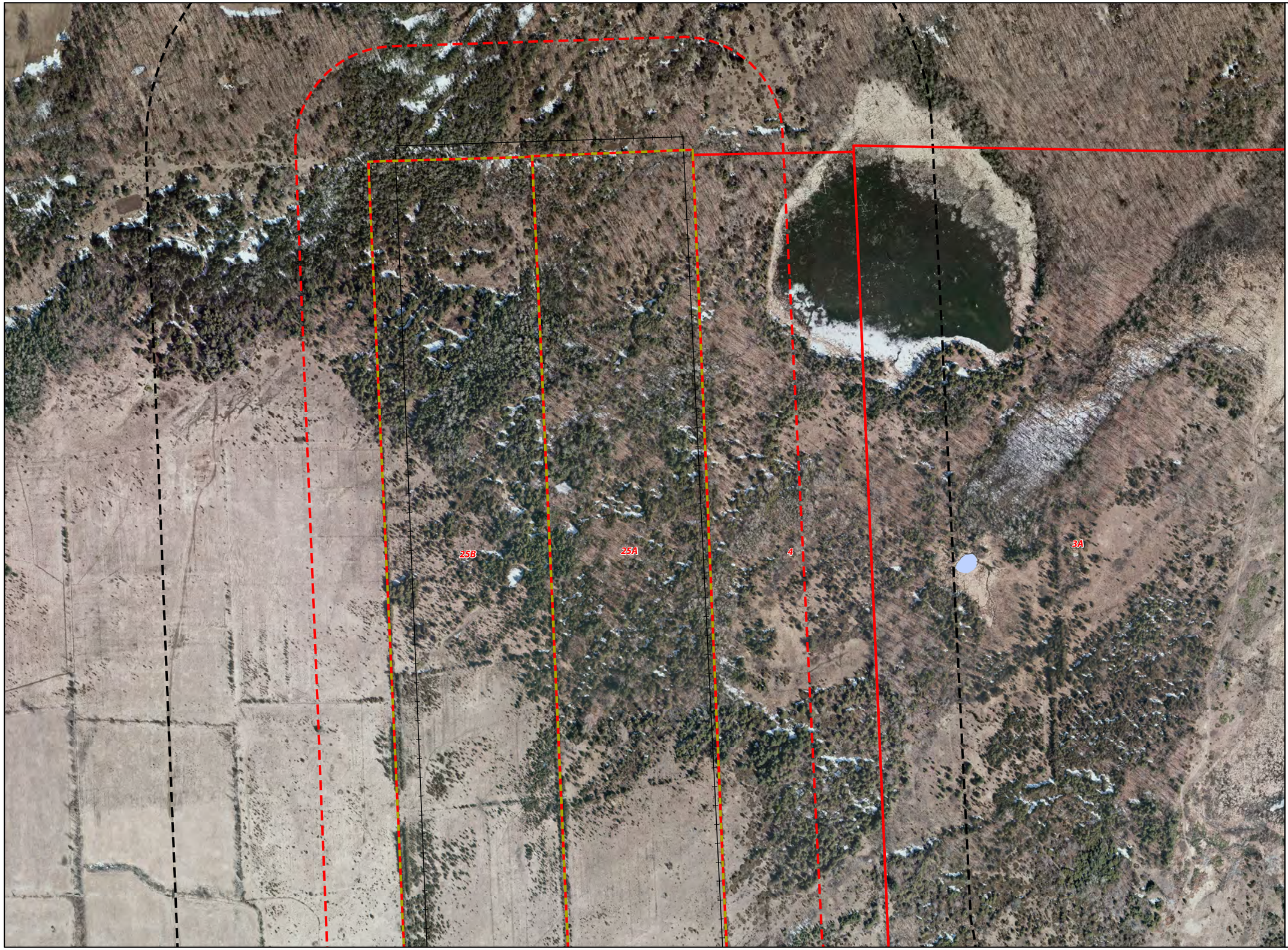
- Temp ~ 10°C
wind B1
cloud 20%

Oct 12
8:00-
3:00

- Temp ~ 15°
- wind B1
- cloud 20%

Sol-luce Kingston Solar PV Energy Project

Figure 3
Records Review



- Freeway
- Expressway / Highway
- Arterial Road
- Collector Road
- Local Road
- Watercourse
- Property Boundary of Project Location Lands
- Property Where New Lands for Study Occur
- Preliminary Fence Line
- New Lands 120 m Setback
- New Lands 300 m Setback
- Water Body

N
W E
S

1:4,306

0 100 200 m

DILLON CONSULTING

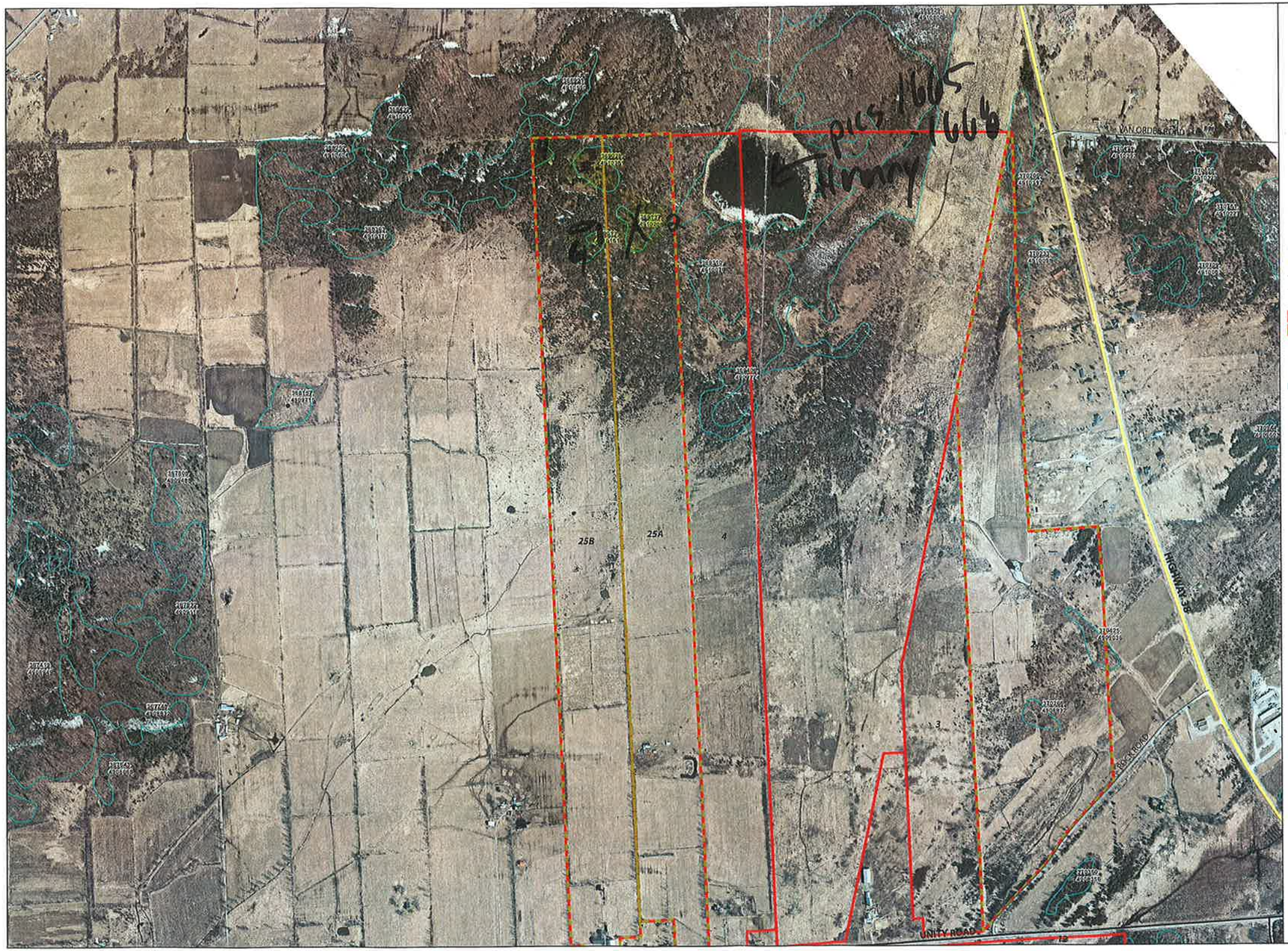
Created By: GM
Checked By: JLP
Date Created: 9/17/2013
Date Modified: 10/15/2013
File Path: I:\GIS\138436 Kingston Solar REA Amendment\Mapping

Canty Trees

CWPS 115 - ACER SPP DBH ~ 60cm

PLCS 1583-1585 - on fenceline

some canthis ~ 3m from ground.



Sol-luce Kingston Solar PV Energy Project

25 A/B Wetlands

- Freeway
- Expressway / Highway
- Arterial Road
- Collector Road
- Local Road
- Property Boundary of Project Location Lands
- Property Where New Lands for Study Occur
- Wetland_Centroid_MNR

Wetland (MNR)

- Provincially Significant Wetland
- Unevaluated Wetland

N
W E
S

1:10,000

0 200 400

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Date Modified: 10/11/2013
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Snake Hibernacula (Potential)

Garter snake
GPS - "Entrance"
pics 1683-1699

GPS 117 - pics 1587-1598
exposed & cracked limestone bedrock.

GPS 118 - pics 1589-1590
exposed crack in bedrock

GPS 123 - pic 1608 - large hole in bedrock

GPS 124 - pics 1615-1618 - exposed cracked bedrock

GPS 126 - pics 1623-1625 - exposed bedrock & boulders.

GPS 133 - pic 1650 - exposed cracked bedrock.

GPS "Wetland 2" - pic 1661 - hole in ground / bedrock

GPS 135 - pic 1688 - hole in ground / bedrock

GPS 119 - potential alvar - pics 1591-1597
- species look like common disturbed meadow sp
- common juniper, gray goldenrod present - no "alvar specialist" observed.
- exposed bedrock here GPS 120 pic 1598

Site: Solar Farm, Odessa Observer (s): RLS Date: Oct 12 2012

Field No: 1 Wetland Type: Isolated Site Type: S Dominant Form: C
% Open Water: none Water Depth (cm): none Depth of Organics (cm): 10 cm
Soil: A Oh then bedrock. Depth to Mottles (cm): — Gley (cm): —
B Depth to Mottles (cm): Gley (cm):
Presence of Seepage: ☐ Presence of Iron Precipitates: ☐

Forms % (Circle those ≥25%)	Species (dominant species[1], secondary species[2], present species[P])
h	POPUTRE[2], FRAXNIG[P]
c	TINSOCC[1], ABIEBAL[2]
dc, dh, ds	
ts	
ls	THUJOCC
gc	ONOCSEN[2], N. lady fern[P], LYCOUNI
ne	
be	
re	
ff	
f	
su	
m	MOSS SP.[1]

Rare Species (Local, Regional, Provincial): pics 1691-1692; soil GPS 137

Wildlife Notes: BLJA.

Field No: 6 Wetland Type: Isolated Site Type: M Dominant Form: NE
% Open Water: none Water Depth (cm): none Depth of Organics (cm): —
Soil: A mineral Depth to Mottles (cm): — Gley (cm): —
B Depth to Mottles (cm): Gley (cm):
Presence of Seepage: ☐ Presence of Iron Precipitates: ☐

Forms % (Circle those ≥25%)	Species (dominant species[1], secondary species[2], present species[P])
h	BETPAP[P], FRAXPEN[P]
c	THUJOCC[P]
dc, dh, ds	
ts	
ls	
gc	RANUACR[P], Herbaceous Asts[P], DRYDCAR[P]
ne	PHALARU[P],
be	
re	
ff	
f	
su	
m	

Rare Species (Local, Regional, Provincial): pics; GPS 1360 + track

Wildlife Notes:

Site: Solar Farm, Odessa Observer (s): RLB Date: Oct 12 2013

Field No: 4 Wetland Type: Palustrine Site Type: S Dominant Form: _____
% Open Water: none Water Depth (cm): none Depth of Organics (cm): 20cm
Soil: A clay loam Depth to Mottles (cm): 0 - top of mineral Gley (cm): 0
B _____ Depth to Mottles (cm): _____ Gley (cm): _____
Presence of Seepage: ☐ Presence of Iron Precipitates: ☐

Forms % (Circle those ≥25%)	Species (dominant species[1], secondary species[2], present species[P])
h	FRAXNIG[2], ULMAME[2], POPUTRE[1], QUEMAC[1]
c	ABIESAL[2]
dc, dh, ds	
ts	RHAMCAT[2], ILEXVOR[2], SALIBEB[1]
ls	CORNSTO[2], SPIRALB[2]
gc	CNIDMEL[2], RUBUPUB[2], Solidago sp[P], LYCOUNI[P], EUPMAC[2], Viola sp.[2]
ne	CAREXLUP[P]
be	
re	
ff	
f	
su	
m	

Rare Species (Local, Regional, Provincial): pics 1630-1636; soil at GPS "Wetland 4"

Wildlife Notes: RLJA

Field No: 3 Wetland Type: Palustrine Site Type: M Dominant Form: NE
% Open Water: none Water Depth (cm): none Depth of Organics (cm): 10cm
Soil: A 10cm of Oh over bedrock Depth to Mottles (cm): _____ Gley (cm): _____
B _____ Depth to Mottles (cm): _____ Gley (cm): _____
Presence of Seepage: ☐ Presence of Iron Precipitates: ☐

Forms % (Circle those ≥25%)	Species (dominant species[1], secondary species[2], present species[P])
h	
c	
dc, dh, ds	
ts	
ls	ULMAME[P], SALIBEB[P]
gc	closed gentian[P], ACHIMIL[P], ROMECRI[P],
ne	PHALARU[1], SCIATA[P], DONART[P]
be	
re	
ff	
f	
su	
m	

Rare Species (Local, Regional, Provincial): pics 1641-1643; soil at GPS 130

Wildlife Notes: NOFL

Site: Solar Farm, Odessa Observer (s): RLA Date: Oct 12 2013

Field No: 5 Wetland Type: Palustrine Site Type: S Dominant Form: H
% Open Water: none Water Depth (cm): none Depth of Organics (cm): 15 cm
Soil: A clay loam Depth to Mottles (cm): 0 Gley (cm): 0
B Depth to Mottles (cm): Gley (cm):
Presence of Seepage: ☐ Presence of Iron Precipitates: ☐

Forms % (Circle those ≥25%)	Species (dominant species[1], secondary species[2], present species[P])
h	POPUTRE,
c	PICEGLA,
dc, dh, ds	
ts	SALIBEB[2], CORNRUG[2], ULMUAME[P]
ls	CORNST[2], downy arrowwood[P],
gd	INULHEL[2], LYCOUNI[P], FRAGVIR[2], RANNACR[P], PRUNVUL[2]
ne	SCIRCYP, SCIRATR
be	
re	
ff	
f	
su	
m	MOSS sp.

Rare Species (Local, Regional, Provincial): CHFR- calling; soil at GPS 131; PICS 1644-1646

Wildlife Notes:

Field No: 2 Wetland Type: Palustrine Site Type: S Dominant Form: H
% Open Water: none Water Depth (cm): none Depth of Organics (cm): 15
Soil: A loamy medium sand Depth to Mottles (cm): 0 Gley (cm): 0
B Depth to Mottles (cm): Gley (cm):
Presence of Seepage: ☐ Presence of Iron Precipitates: ☐

Forms % (Circle those ≥25%)	Species (dominant species[1], secondary species[2], present species[P])
h	FRAXNIG,
c	
dc, dh, ds	
ts	THUSOCC[2]
ls	CORNSTO
gd	RUBUPUB[2], RANNACR[P], PRUNVUL[P], LYCOUNI[P], ASTELAN[P]
ne	CYPERUS sp.[2]
be	
re	
ff	
f	
su	
m	

Rare Species (Local, Regional, Provincial): Soil GPS 134; PICS 1669-1672

Wildlife Notes: SPPE

A	SYS_PERIM	ET_X	ET_Y
13647.927	461.916	368157	4909715
13898.016	731.902	369310	4910078
11403.86	439.64	368363	4910176
38729.252	1567.218	368252	4910404
21540.496	717.532	368921	4910590
11333.864	423.917	369028	4910381
66079.056	2305.398	368432	4910511
7501.244	382.168	369137	4910208
4380.928	308.515	369013	4910161
13532.822	823.329	369406	4909774

GPS 121 - pics 1603-1605
wetland area in NW corner
"Wetland 4"
GPS 128 - pics 1630-1636
small wet area - black mix of organic/mineral soil ~20 cm over clay loam with [illegible] straight mineral soil

species: ULMAME, FRANIG, CORNSYD, INOLMEL, Carex sp., QUERMAC, RUBOPUB

Wetland 3.
Wetland 2
Wetland 1 - no wetland here only small moist patch GPS'd & photos

crea

"Wetland 3" area
pics taken from
UTM 369028, 4910381
pic 1599-1602
- meadow species present.
dog strangling vine
PHLEPRA
TRIFPRA
JUNICOM
THUJOCC
Solidago sp.

- GPS 122
pics 1606 - 1607
PHAL ARU.

- GPS 125 small wet spot pics 1620-21
check further.

ELC Primary Data Card

Version: 25 June, 2013

❶ Polygon ID	25AB
Plot(s) ID	25AB-094
Site Name	property 25A
Date	October 1st, 2013
Time	~~3:30pm~~ 5:30
Surveyor(s)	mike wolsincelg
Photo(s)	
Waypoint(s)	

UTM Zone | datum

Easting

Northing

sampling scale: ☐ Plot ☑ Polygon

sampling effort: ☐ verification ☑ survey ☐ Ecosite ☐ detailed (poly) ☐ research (plot)

size/shape: ☐ 1 m² ☐ 25 m² ☐ ~~100 m²~~ ☑ 400 m² ☐ circular ☐ square ☐ rectangle

sampling cards: ☑ Field Desc's ☐ Assoc Desc's ☐ Assoc Desc's 2 ☐ Site+Substrate ☐ Species List ☐ DBH, Age, Ht ☐ Man. / Dist.

System ❻: ☑ terrestrial ☐ wetland ☐ aquatic ☐ subterranean

History: ☑ natural ☐ anthropogenic

Energy: ☐ active ☑ not active

Site: ☐ open water ☐ shallow water ☐ organic ☑ mineral ☐ rock

Page 1 of 2

Landform ❸: level

Topographic Feature ❸: Tableland

Weather ❶

temperature	22°C
wind	2
cloud cover	30?
precipitation	none

Vegetation Summary of prevailing element (4 species per layer)

❷ Layer	Cover	species in order of decreasing cover (">>" much greater than, ">" greater than, "=" equal to	Ecosystem Coverage (%) 90
> 10 m	3	THUOCCI >> POPTREM > ABIBALS > BETPAPV	
2 - 10 m	4	THUOCCI >> ABIBALS > POPTREM > FRAPEN	
0.5 - 2 m	3	THUOCCI > ZAWAMER > CORRACE > JUNCOMM	
0.5 - 0 m	3	GRA--SP > CAREX_SP > GR Aster_SP > GERROBE	
0 (surface)			
0 - 0.5 m deep			
> 0.5 m deep			

cover codes: **1** = < 10%, **2** = 10 - 24%, **3** = 25 - 59%, **4** = ≥ 60%

❸ depth sampled	10 cm
mottles	999
gley	999
Depth to / of: bedrock	10cm
carbonates	
water table	999
organics	2
effective texture	vfSL
moisture regime	2
position on slope	R 6

0 — 10cm vfSL parent material

Vegetation Cover: ☐ not vegetated ☐ non-vascular ☐ sparse herbaceous ☐ herbaceous ☐ sparse low shrub ☐ low shrub ☐ sparse tall shrub ☐ tall shrub ☐ sparse low treed ☐ low treed ☐ sparse tall teed ☑ semi-closed tall treed ☐ closed tall treed

❷↑↓

Vegetation Form: ☐ lichen ☐ algal ☐ bryophyte ☐ mixed non-vascular ☐ forb ☐ graminoid ☐ mixed herbaceous ☐ floating-lvd aquatic ☐ submerged aquatic ☐ mixed aquatic ☐ coniferous shrub ☐ evergreen shrub ☐ mixed shrub ☐ deciduous shrub ☑ coniferous treed ☐ mixed treed ☐ deciduous treed

Treed Com. Age: ☐ pioneer ☐ young ☑ mid - age ☐ mature ☐ old growth

❺→

element	Management / Disturbance	intensity	extent	score

Surface Assessment (%)

20	bedrock (rockiness)
15	coarse frag. (stoniness)
20	mineral substrate
25	organic material
5	woody debris
10	moss
50	vegetation
999	vernal pooling

Material Family: ☐ bedrock ☐ coarse fragments ☑ sandy ☐ coarse loamy ☐ silty ☐ fine loamy ☐ clayey ☐ organic - folic (dry) ☐ organic - peat (wet)

Substrate Depth ❸↙: ☐ rock (< 5 cm) ☑ very shallow (6 - 15 cm) ☐ shallow (16 - 30 cm) ☐ moderate (31 - 60 cm) ☐ moderately deep (61 - 120 cm) ☐ deep (> 120 cm)

Chemistry: ☑ calcareous ☐ non-calcareous ☐ saline

❽↓

Hydric Substrates: ☐ hydric (MR 6, 7, 8) ☐ pear hydric (MR 5) ☑ not hydric (MR<5)

❻→ Community Class: ☐ active shoreline ☐ sand dune ☐ mineral barren ☐ cliff and talus ☐ rockland ☐ meadow ☐ shrubland ☑ treed ☐ treed swamp ☐ shrub swamp ☐ fen ☐ bog ☐ marsh ☐ unvegetated ephemeral ☐ open water ☐ crevice / cave ☐ agriculture ☐ actively managed ☐ constructed

Classification	prevailing element code	element 2 code	element 3 code	element 4 code
❼ Vegetation Type	FOC coniferous forest			
❽ Substrate Type	V S1			
❾ Ecosite	~~FOCM2~~ Dry-Fresh cedar ~~coniferous forest~~			
⓫ Ecoelement	~~FOCM2~~ dry-fresh white cedar			
1st or 2nd Approx	FOCM2-2			
	Inclusion / Complex			
Ecosystem Coverage (%)				

Polygon ID: 25A-01 | Version: 25 June 2013 | **Field Descriptions** | Page 2 of 2

plant species list for prevailing (1) ecosystem element

❷ plant species code	>10	2-10	0.5-2	0.5-0	0	0-0.5	>0.5
THUOCCI	4	3	3	2			
POPTREM	2	2	1	0			
~~ZPOST~~ ZANTHE	0	0	3	1			
~~Gostw~~ COR RACE	0	0	2	2			
ABIBALS	2	2	1	0			
JUNIP VIRG	1	1	1	0			
Aster_spp	0	0	0	3			
Soli-spp	0	0	0	2			
BROM_spp	0	0	0	3			
*GER ROBE	0	0	0	3			
ACER_spp	1	2	0	0	1		
LOW TATA	0	0	2	0			

plant species list for ecosystem element #: _____

plant species code	>10	2-10	0.5-2	0.5-0	0	0-0.5	>0.5

❹

element	type	Wildlife Species Code	#

Size Class Analysis

size class (cm)	< 10	10 - 25	25 - 50	> 50
❷ live	A	A	O	R
standing dead	O	R	R	N
deadfall	O	R	N	N

codes: N = none R = rare O = occasional A = abundant

Prism Sweeps prism factor 2

❸ element # / auger #						
depth sampled	10 cm	70cm				
mottles	999	50cm				
gley	999	999				
Depth to / of: bedrock	10 cm	70cm				
carbonates						
water table	999	999				
organics	2 cm	2				
effective texture	vfSL	SCL				
moisture regime						
position on slope						
⑧ Substrate Type						

Spit was moist 140

❷ tree species code	element # / prism sweep #					totals	rel avg
THUOCCI	9	6					
POPTREM		1					
Totals	9						100
Basal Area							
Dead							
basal area							
standing dead tally							

ELC Primary Data Card

Version: 25 June 2013

❶ Polygon ID	25A
Plot(s) ID	25A-02
Site Name	propert 25A
Date	October 1st
Time	3:30 pm
Surveyor(s)	Mike wolosinecky
Photo(s)	
Waypoint(s)	

UTM Zone ______ datum ______
Easting ______
Northing ______

sampling scale
- ☐ Plot
- ☑ Polygon

sampling effort
- ☐ verification
- ☑ survey
- ☐ Ecosite
- ☐ detailed (poly)
- ☐ research (plot)

size/shape
- ☐ 1 m^2
- ☐ 25 m^2
- ☐ 100 m^2
- ☐ 400 m^2
- ☐ circular
- ☐ square
- ☐ rectangle

sampling cards
- ☑ Field Desc's
- ☐ Assoc Desc's
- ☐ Assoc Desc's 2
- ☐ Site+Substrate
- ☐ Species List
- ☐ DBH, Age, Ht
- ☐ Man. / Dist.

System ❻
- ☐ terrestrial
- ☐ wetland
- ☐ aquatic
- ☐ subterranean

History
- ☐ natural
- ☐ anthropogenic

Energy
- ☐ active
- ☐ not active

Site
- ☐ open water
- ☐ shallow water
- ☐ organic
- ☐ mineral
- ☐ rock

Landform ❸: level

Topographic Feature ❸: Tableland

Weather ❶

temperature	~~20~~ 22°C
wind	2
cloud cover	35%
precipitation	none

Vegetation Summary of prevailing element (4 species per layer)

❷ Layer	Cover	species in order of decreasing cover (">>" much greater than, ">" greater than, "=" equal to) Ecosystem Coverage (%)
> 10 m	4	JUN VIRG >> POPTREM > THUOCCI > ABIBALS
2 - 10 m	4	JUN VIRG >> THUOCCI >
0.5 - 2 m	3	JUN VIRG > ZANAMER > CORRACE > RAMCATH
0.5 - 0 m	3	GRA-SPP CAREX-SPP SYM ERIO > MOSS-SPP
0 (surface)		
0 - 0.5 m deep		
> 0.5 m deep		

cover codes: 1 = < 10%, 2 = 10 - 24%, 3 = 25 - 59%, 4 = ≥ 60%

❸	
depth sampled	15cm
mottles	999
gley	999
bedrock	15
carbonates	
water table	999
organics	999
effective texture	SL
moisture regime	1
position on slope	~~4~~ 6

Depth to / of:

Vegetation Cover
- ☐ not vegetated
- ☐ non-vascular
- ☐ sparse herbaceous
- ☐ herbaceous
- ☐ sparse low shrub
- ☐ low shrub
- ☐ sparse tall shrub
- ☐ tall shrub
- ☐ sparse low treed
- ☐ low treed
- ☐ sparse tall teed
- ☑ semi-closed tall treed
- ☐ closed tall treed

❷↑↓

Vegetation Form
- ☐ lichen
- ☐ algal
- ☐ bryophyte
- ☐ mixed non-vascular
- ☐ forb
- ☐ graminoid
- ☐ mixed herbaceous
- ☐ floating-lvd aquatic
- ☐ submerged aquatic
- ☐ mixed aquatic
- ☐ coniferous shrub
- ☐ evergreen shrub
- ☐ mixed shrub
- ☐ deciduous shrub
- ☐ coniferous treed
- ☐ mixed treed
- ☐ deciduous treed

Treed Com. Age
- ☐ pioneer
- ☐ young
- ☐ mid - age
- ☐ mature
- ☐ old growth

❺→

element	Management / Disturbance	intensity	extent	score

Surface Assessment (%)

35	bedrock (rockiness)
20	coarse frag. (stoniness)
5	mineral substrate
999	organic material
10	woody debris
30	moss
70	vegetation
999	vernal pooling

Material Family
- ☐ bedrock
- ☐ coarse fragments
- ☑ sandy
- ☐ coarse loamy
- ☐ silty
- ☐ fine loamy
- ☐ clayey
- ☐ organic - folic (dry)
- ☐ organic - peat (wet)

Substrate Depth ❸✓
- ☐ rock (< 5 cm)
- ☑ very shallow (6 - 15 cm)
- ☐ shallow (16 - 30 cm)
- ☐ moderate (31 - 60 cm)
- ☐ moderately deep (61 - 120 cm)
- ☐ deep (> 120 cm)

❽↓

Chemistry
- ☑ calcareous
- ☐ non-calcareous
- ☐ saline

Hydric Substrates
- ☐ hydric (MR 6, 7, 8)
- ☐ near hydric (MR 5)
- ☑ not hydric (MR<5)

❻→ **Community Class**
- ☐ active shoreline
- ☐ sand dune
- ☐ mineral barren
- ☐ cliff and talus
- ☐ rockland
- ☐ meadow
- ☐ shrubland
- ☑ treed
- ☐ treed swamp
- ☐ shrub swamp
- ☐ fen
- ☐ bog
- ☐ marsh
- ☐ unvegetated ephemeral
- ☐ open water
- ☐ crevice / cave
- ☐ agriculture
- ☐ actively managed
- ☐ constructed

Classification	prevailing element code	element 2 code	element 3 code	element 4 code
❼ Vegetation Type	~~Coniferous woodland~~	nm keep	mmm	
❽ Substrate Type	VS1			
❾ Ecosite	~~Dry-Fresh Coniferous woodland~~			
⓫ Ecoelement	~~Dry-fresh Red-cedar~~ woodland			
1st or 2nd Approx	~~WOCM1-1~~ WOCM1-1			
	Inclusion / Complex			
Ecosystem Coverage (%)				

Polygon ID 25A-02 | Version: 25 June, 2013 | **Field Descriptions** | Page 2 of 2

plant species list for **prevailing** (1) ecosystem element

❷ plant species code	>10	2-10	0.5-2	0.5-0	0	0-0.5	>0.5
JUNVIRG	4	4	4	2			
POPTREM	3	2	0	0			
ABIBALS	3	2	2	0			
THUOCCI	3	3	2	2			
ZANAMER	0	0	3	2			
CORRACE	0	0	3	2			
GRA_SPP	0	0	0	4			
Aster_SPP	0	0	0	4			
soli__SPP	0	0	0	4			
FRA PENN	1	2	0	0			
BET PAPY	1	2	1	6			
~~A Sclep~~							
ASC SYRI	4	0	0	3			
JUN COMM	0	0	3	1			

plant species list for ecosystem element #:_____

plant species code	>10	2-10	0.5-2	0.5-0	0	0-0.5	>0.5

❹

element	type	Wildlife Species Code	#

Size Class Analysis

size class (cm)	< 10	10 - 25	25 - 50	> 50
❷ live	A	A	O	N
standing dead	O	O	N	N
deadfall	O	O	N	N

codes: **N** = none **R** = rare **O** = occasional **A** = abundant

Prism Sweeps prism factor 2

❷ tree species code	element # / prism sweep #					totals	rel avg
JUNVIRG	7						
Totals							100
Basal Area							
Dead							
basal area							
standing dead tally							

❸ element # / auger #						
depth sampled	15cm					
mottles	qqq					
gley	qqq					
Depth to / of: bedrock	15cm					
carbonates						
water table	qqq					
organics	qqq					
effective texture	SL					
moisture regime						
position on slope						
⑧ **Substrate Type**						

patches of bare rock in many places

ELC Primary Data Card

Version: 25 June 2013

❶ Polygon ID	25A
Plot(s) ID	25A-01
Site Name	property 25A
Date	TH: 29 October 1st, 2013
Time	
Surveyor(s)	Mike Woloshuck
Photo(s)	
Waypoint(s)	

UTM Zone | datum

Easting

Northing

sampling scale: ☐ Plot ☑ Polygon

sampling effort: ☐ verification ☑ survey ☐ Ecosite ☐ detailed (poly) ☐ research (plot)

size/shape: ☐ 1 m² ☐ 25 m² ☐ 100 m² ☑ 400 m² ☑ circular ☐ square ☐ rectangle

sampling cards: ☑ Field Desc's ☐ Assoc Desc's ☐ Assoc Desc's 2 ☐ Site+Substrate ☐ Species List ☐ DBH, Age, Ht ☐ Man. / Dist.

System ❻: ☑ terrestrial ☐ wetland ☐ aquatic ☐ subterranean

History: ☑ natural ☐ anthropogenic

Energy: ☐ active ☑ not active

Site: ☐ open water ☐ shallow water ☐ organic ☑ mineral ☐ rock

Page ___ of ___

Landform ❸: level

Topographic Feature ❸: Table lands

Weather ❶:

temperature	22°C
wind	2
cloud cover	40%
precipitation	none

Vegetation Summary of prevailing element (4 species per layer)

❷ Layer	Cover	species in order of decreasing cover (">>" much greater than, ">" greater than, "=" equal to	Ecosystem Coverage (%) 90
> 10 m	3	JUNVIRG >> POPTREM > THUOCCI > FRA PENN	
2 - 10 m	3	JUNVIRG >> THUOCCI > POPTREM	
0.5 - 2 m	3	JUNVIRG > ZANAMER > JUNCOMM > CORRACE	
0.5 - 0 m	4	GRA-SPP > Aster--SP > Soli-SPP > ECHVULG	
0 (surface)			
0 - 0.5 m deep			
> 0.5 m deep			

cover codes: **1** = < 10%, **2** = 10 - 24%, **3** = 25 - 59%, **4** = ≥ 60%

❸ depth sampled	25
mottles	nil
gley	nil
Depth to / of:	
bedrock	25
carbonates	✓
water table	nil
organics	nil
effective texture	VFSL
moisture regime	2
position on slope	6

0

Vegetation Cover: ☐ not vegetated ☐ non-vascular ☐ sparse herbaceous ☐ herbaceous ☐ sparse low shrub ☐ low shrub ☐ sparse tall shrub ☐ tall shrub ☐ sparse low treed ☐ low treed ☑ sparse tall treed ☐ semi-closed tall treed ☐ closed tall treed

❷↑↓

Vegetation Form: ☐ lichen ☐ algal ☐ bryophyte ☐ mixed non-vascular ☐ forb ☐ graminoid ☐ mixed herbaceous ☐ floating-lvd aquatic ☐ submerged aquatic ☐ mixed aquatic ☐ coniferous shrub ☐ evergreen shrub ☐ mixed shrub ☐ deciduous shrub ☑ coniferous treed ☐ mixed treed ☐ deciduous treed

Treed Com. Age: ☐ pioneer ☑ young ☐ mid - age ☐ mature ☐ old growth

element	Management / Disturbance	intensity	extent	score
❺→				

Surface Assessment (%)

20	bedrock (rockiness)
10	coarse frag. (stoniness)
5	mineral substrate
nil	organic material
5	woody debris
10	moss
90	vegetation
nil	vernal pooling

Material Family: ☐ bedrock ☐ coarse fragments ☑ sandy ☐ coarse loamy ☐ silty ☐ fine loamy ☐ clayey ☐ organic - folic (dry) ☐ organic - peat (wet)

Substrate Depth ❸↙: ☐ rock (< 5 cm) ☐ very shallow (6 - 15 cm) ☑ shallow (16 - 30 cm) ☐ moderate (31 - 60 cm) ☐ moderately deep (61 - 120 cm) ☐ deep (> 120 cm)

Chemistry: ☑ calcareous ☐ non-calcareous ☐ saline

Hydric Substrates ❽↓: ☐ hydric (MR 6, 7, 8) ☐ near hydric (MR 5) ☑ not hydric (MR<5)

❻→ **Community Class**: ☐ active shoreline ☐ sand dune ☐ mineral barren ☐ cliff and talus ☐ rockland ☐ meadow ☐ shrubland ☑ treed ☐ treed swamp ☐ shrub swamp ☐ fen ☐ bog ☐ marsh ☐ unvegetated ephemeral ☐ open water ☐ crevice / cave ☐ agriculture ☐ actively managed ☐ constructed

Classification	prevailing element code	element 2 code	element 3 code	element 4 code
❼ Vegetation Type	coniferous Savanna			
❽ Substrate Type				
❾ Ecosite	Dry-Fresh cedar coniferous			
⓫ Ecoelement				
1st or 2nd Approx	SVCM1			
Inclusion / Complex		MEMM3		
Ecosystem Coverage (%)				

would be a red cedar savanna but no code.

Polygon ID | Version: 25 June 2015 | **Field Descriptions** | Page ___ of ___

plant species list for prevailing (1) ecosystem element | plant species list for ecosystem element #:____ | ❹

❷ plant species code	>10	2-10	0.5-2	0.5-0	0	0-0.5	>0.5	plant species code	>10	2-10	0.5-2	0.5-0	0	0-0.5	>0.5	element	type	Wildlife Species Code	#
JUNVIRG																			
POPTREM																			
THUOCCI																			
FRAPEMN																			
ZANAMER																			
JUNCOMM																			
CORRACE																			
SYMLAWC																			
SYM NOAN																			
SYM ERIC																			
SYM PIL0																			
SOLALTI																			
SOL CANA																			
ECHVULG																			
BROINER																			

Size Class Analysis

size class (cm)	< 10	10 - 25	25 - 50	> 50
❷ live				
standing dead				
deadfall				

codes: N = none R = rare O = occasional A = abundant

Prism Sweeps prism factor ___

❸ element # / auger #						
depth sampled	25					
mottles	nnn					
gley	nnn					
Depth to / of: bedrock	25					
carbonates	✓					
water table	nnn					
organics	nnn					
effective texture	VFSL					
moisture regime	1					
position on slope	6					
⑧ Substrate Type	VFSL					

Bare rock patches in some areas.

❷ tree species code	element # / prism sweep #					totals	rel avg
Totals							100
Basal Area							
Dead							
basal area							
standing dead tally							

Sol-luce Kingston Solar PV Energy Project

Woodland A

Legend

- Freeway
- Expressway / Highway
- Arterial Road
- Collector Road
- Local Road
- Potential Stream
- Fence Line
- Project Location
- Amended Project Location
- 120 m Project Location Setback
- 300 m Project Location Setback
- 120 m Amended Project Location Setback
- 300 m Amended Project Location Setback
- 1 Wetland
- A Significant Woodland
- Woodland (MNR)
- Potential Water Body

*Identifiers in parentheses refer to the original AMEC prepared NHA reports (June 2012)

QUABBIN ROAD

VAN ORDER ROAD

HIGHWAY 38

A

8

10

5

11

9

Site
25b & 25a

N
W E
S

1:11,000

0 100 200 300 400 m

DILLON CONSULTING

Created By: GM
Checked By: JLP
Date Created: 9/17/2013
Date Modified: 11/6/2013
File Path: I:\GIS\138504 Kingston Solar REA Amendment\Mapping\Evaluation of Significance\Figure 3 Significant Wetlands & Woodlands.mxd

Sol-luce Kingston Solar PV Energy Project

Woodland A
Interior Forest

QUABBIN ROAD

VAN ORDER ROAD

HIGHWAY 38

Site
25b & 25a

Legend

- Expressway / Highway
- Arterial Road
- Collector Road
- Local Road
- Potential Stream
- × Fence Line
- Project Location
- Amended Project Location
- 120 m Project Location Setback
- 300 m Project Location Setback
- 120 m Amended Project Location Setback
- 300 m Amended Project Location Setback
- Woodland A2 Interior Forest (100 m) (21.04 ha)
- Woodland A1 Interior Forest (100 m) (32.08 ha)
- Woodland A2 (Woodland within Project Removed) (156.04 ha)
- Woodland A1 (Total Area) (175.57 ha)

N
W E
S

1:11,000

0 100 200 300 m

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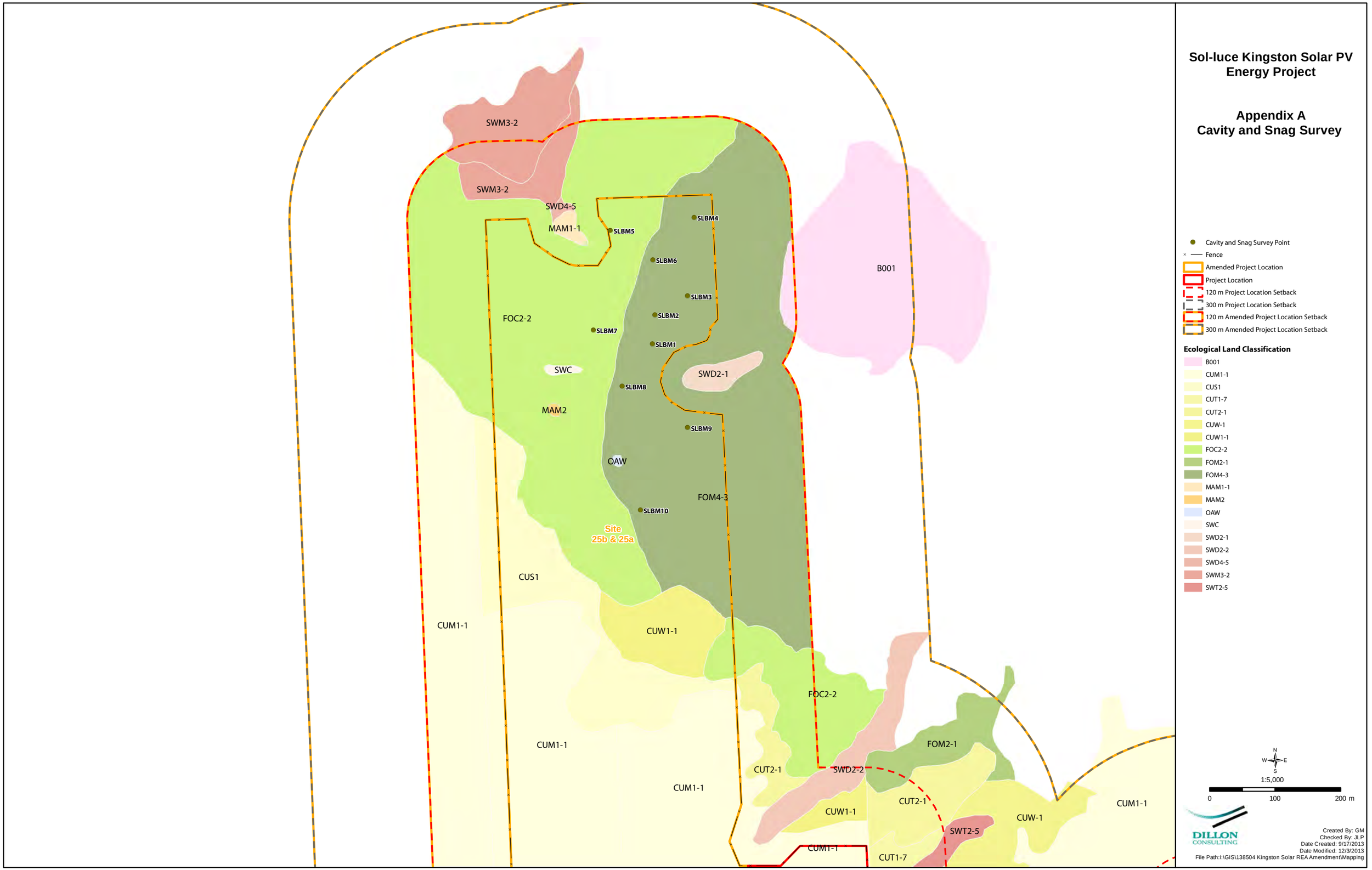
Sol-luce Kingston Solar PV Energy Project

Appendix A
Cavity and Snag Survey



- Cavity and Snag Survey Point
- Fence
- Amended Project Location
- Project Location
- 120 m Project Location Setback
- 300 m Project Location Setback
- 120 m Amended Project Location Setback
- 300 m Amended Project Location Setback

Ecological Land Classification

- B001
- CUM1-1
- CUS1
- CUT1-7
- CUT2-1
- CUW-1
- CUW1-1
- FOC2-2
- FOM2-1
- FOM4-3
- MAM1-1
- MAM2
- OAW
- SWC
- SWD2-1
- SWD2-2
- SWD4-5
- SWM3-2
- SWT2-5

N
W E
S

1:5,000

0 100 200 m

DILLON CONSULTING

Created By: GM
Checked By: JLP
Date Created: 9/17/2013
Date Modified: 12/3/2013
File Path:I:\GIS\138504 Kingston Solar REA Amendment\Mapping

Sol Luce Solar ...

Nov 20 '13
RLS

Bat Snag Survey

Temp ~5
Cloud 10%
Wind 0-2
Snow on ground

15:00 - 16:30

SLBM1 UTM 18T 369132, 4910252
Stand mainly Deciduous - ACERSAS, ULMUAME, OSTRVIR with some TSUGCAN & THUJOCC

only one cavity tree in plot.
ACERSAS - DBH ~30 cm (no type) - GPS 343
- small potential cavity ~4 m from ground just above "Y" crotch in main trunk, facing west
pics 2287-2289

SLBM2 UTM 18T 369136, 4910296
Stand QUEICOCC, ACERSAS, THUJOCC, [illegible]
CARYCOR

one cavity tree in plot
ACERSAS - DBH ~33
- large cavity, ~10 m of ground at "Y" crotch, facing roughly East.
pics 2290-2292 GPS - 344
- close to edge of plot

too big a hole :: not counted

Sol Luce Solar Farm

Nov 28 2013
RLB

SLBM3 UTM IBT 369196, 4191325

stand - ACERSAS, JUNIVIR, CARYOVA, OSTRVI

one cavity tree
ACERSAS - DBH ~ 40 cm
cavity ~ 8 m off ground on main trunk facing N
pics - 2293-2295 GPS 345
also other PIWO feeding holes on tree but they are shallow.

Nov 29 2013
VLCS

Sol Lake
Bat Maternity Tree Survey

11:00 – 14:00

Weather
Temp -5 °C
Cloud >10%
Wind B1
snow on ground ~15 cm

SLBM4 UTM 18T 369196, 4910445

Stand - QUERUBR, ACERSAS, OSTRVIR, BETPAP
CARCAR, TILAME, ULMAME, FRAPEN, PICGLA
THUJOC
some mature trees, most mid aged.

no cavity trees at this plot.

SLBM5 UTM 18T 369068, 4910425 FRAPEN

Stand - THUJOC, PICGLA, POPBAL, CARCOR
OSTVIR, QUERMAC, ACERSAS
mid aged.

One Cavity tree - FRAPEN - DBH 35 cm, height ~15 m
lots of dead wood but appears to have live buds/leaves in crown
- one potential cavity ~ 1 m from ground, small entry hole but probed with a stick + goes in at least ~30 cm upwards
- hole on SW side of tree GPS 24
pics 2296-2298

Sol Luce

Nov 29 2013
RLB

SLBM6 UTM 10T 369133, 4910380

stand - FAGGRA, THUJOC, POPGRA
OSTVIR, QUERUB

mainly younger trees with some mid aged trees
& one mature poplar.

no cavity trees in plot.

SLBM7 UTM 10T 369042, 4910273

stand - THUJOC, PICGLA, QUERMAC,
POPGRA, ACERSAC, OSTVIR

generally mid aged stand, one mature poplar.

no cavity trees in plot.

SLBM8 UTM 10T 369086, 4910187

stand - TSUGHE, ACERSAC, QUERUB
OSTVIR, FAGGRA

mature stand.

no cavity trees in plot.

Sol Luce

Nov 22 2013
RLG

SLBM9 UTM - 10T 369186, 4910124

Stand - ACERSAS, QUERUB, TSUCAN, OSTVIR
THUJOCC

2 county trees

TSUCAN - DBH ~ 30 GPS 347
7 cavities visible, difficult to determine depth some look like old branch holes
& some are old PILWO feeding holes
range from ~2-5 m from ground. E & N sides of trunk
pics 2304-2308
tree ~ 12 m tall with dead top.

QUERUB - DBH ~ 55 cm GPS 348
Tree ~ 20 m tall pics 2309-2313
difficult to see but appears to be ~4-5 small cavities in dead wood ~15 m up facing S

SLBM10 UTM 10T 369114, 4909998

Stand - FRAPEN, ACERSAS, CARCOR, JUNVIR
OSTVIR, THUJOCC, ABIBAL

Age - young to mid age.

Sol Luce

Nov 29 2013
RLS

SLBM10 cont'd.

1 cavity tree
THUJ OCC - DBH 25 cm GPS 349
Tree ~ 15 m tall

cavity on East side ~ 1 m from ground
looks like old PIWO feeding hole but goes
into large cavity in heart wood.

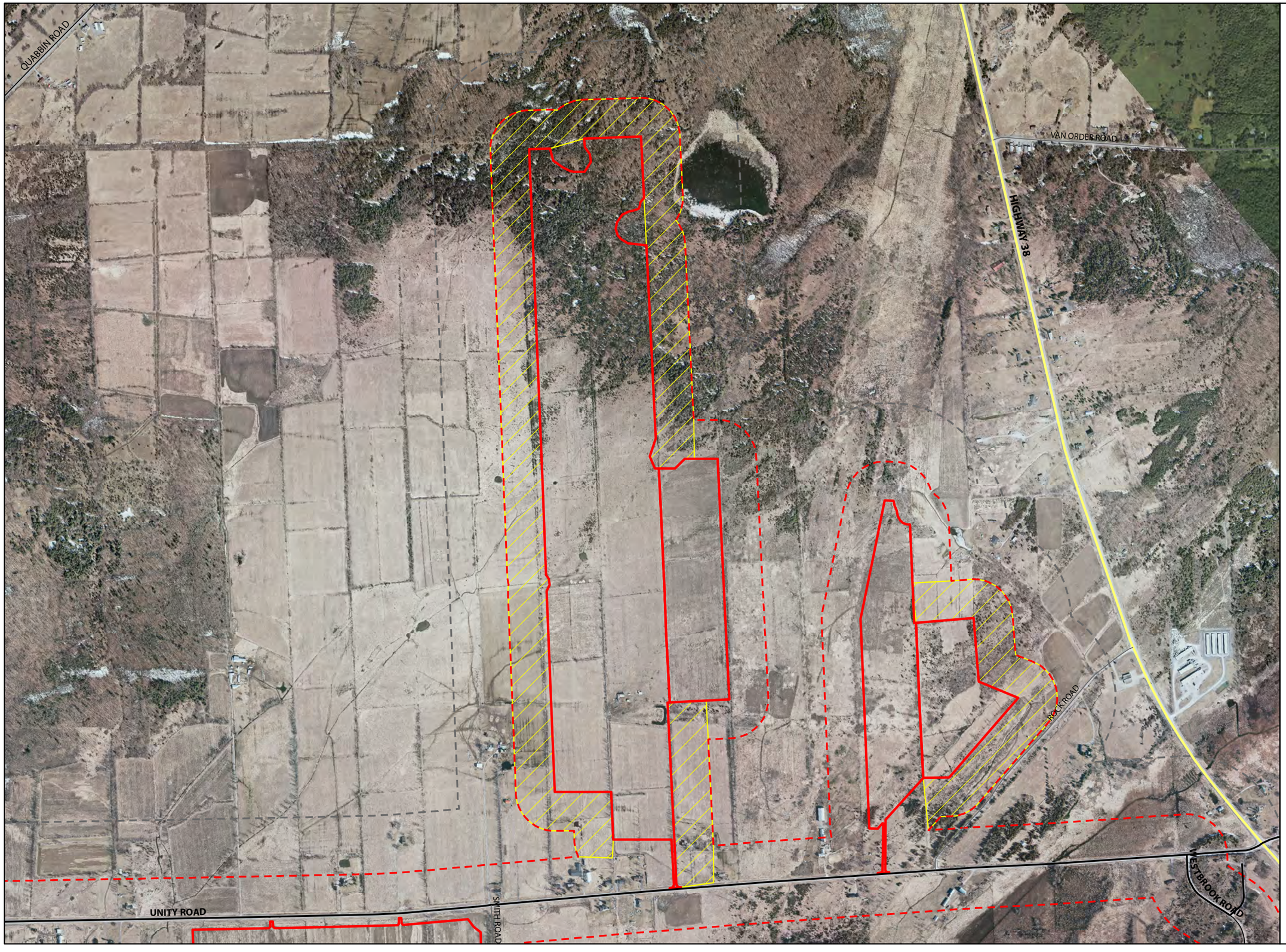
pics 2314-2317

Appendix B

Access to Adjacent Lands

Sol-luce Kingston Solar PV Energy Project

Appendix B
Project Location



Legend

- Expressway / Highway
- Arterial Road
- Collector Road
- Local Road
- Potential Watercourse
- Fence Line
- Addendum Alternate Site Investigation Area
- Project Location
- 120 m Project Location Setback
- 300 m Project Location Setback

N
W E
S

1:11,000

0 100 200 300 m

DILLON CONSULTING

Created By: GM
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Date Created: 9/17/2013
Date Modified: 11/6/2013
File Path:I:\GIS\138504 Kingston Solar REA Amendment\Mapping\103013 - SI Report\Appendix B.mxd

Appendix C

Site Photographs

Photo 1 October 2nd, 2013 Gray Dogwood Cultural Thicket Type	
Photo 2 October 1st, 2013 Red Cedar Cultural Woodland Type	

Photo 3 October 1st, 2013 Dry-Fresh White Cedar Coniferous Forest Type	
Photo 4 October 2nd, 2013 Dry-Fresh Upland Deciduous Forest	

Photo 5 October 1st, 2013 Dry-Fresh White Cedar-Hardwood Mixed Forest Type	
Photo 6 DATE Mineral Meadow Marsh (MAM2) within Site 25b	

Photo 7 October 2nd, 2013 Dry-Fresh Graminoid Meadow Ecosite	
Photo 8 October 1st, 2013 Mineral Cultural Savanna	

Photo 9 October 2nd, 2013 Cultural Woodland	
Photo 10 October 1st, 2013 Potential Reptile Hibernaculum on Site 25b	

Photo 11 October 2nd, 2013 Potential Reptile Hibernaculum on Site 2	
Photo 12 October 2nd, 2013 Potential Reptile Hibernaculum on Site 24	

Photo 13 October 2nd, 2013 Green Ash mineral deciduous swamp	
Photo 14 October12, 2013 Open Bog	

Photo 15 October 12, 2013 Small Pond (Open Aquatic)	
Photo 16 October 12, 2013 Reed Canary Grass Bedrock Meadow Marsh (MAM1-1)	

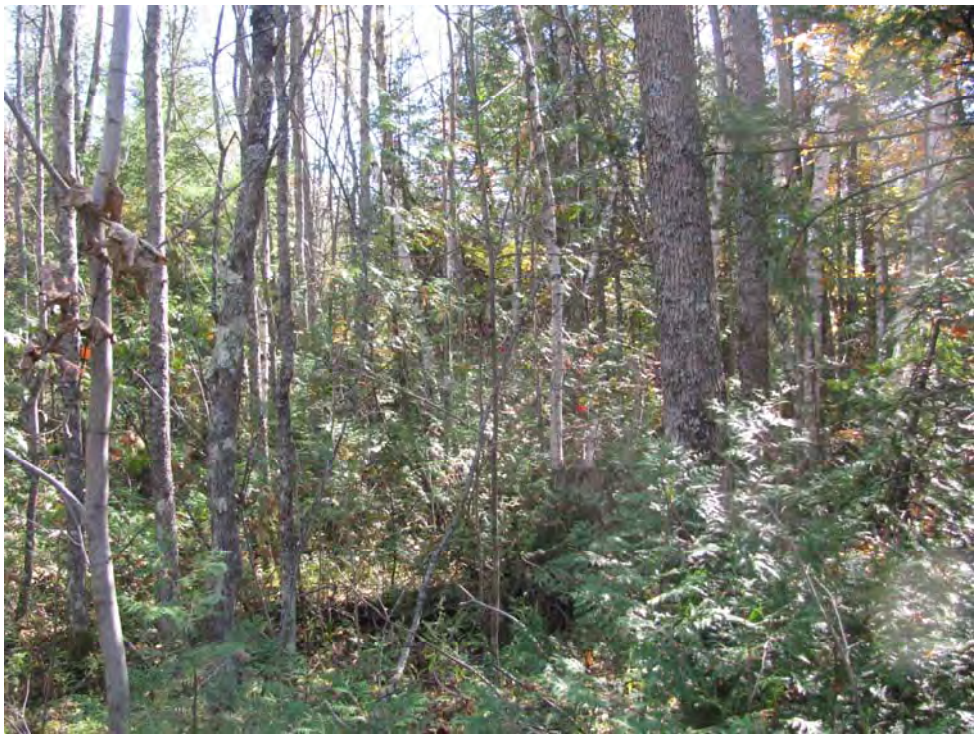
Photo 17 October 12, 2013 Coniferous Swamp	
Photo 18 October 12, 2013 Black Ash Mineral Deciduous Swamp (SWDM2-1)	

Photo 19 October 12, 2013 Poplar Mineral Deciduous Swamp (SWD4-5)	
Photo 20 October 12, 2013 Poplar Conifer Mineral Mixed Swamp (SWM3-2)	

Photo 21 October 12, 2013 potential Alvar rare vegetation community on Site 25a	
Photo 22 October 8, 2013 Open Water community identified as Pond A in the Water Assessment Report. View west Dug farm pond down to pavement stone Area has been actively disturbed and has no evident inflow/outflow	

Photo 23 October 8, 2013 Open Water community identified as Pond B in the Water Assessment Report. View north No evident inflow/outflow	

Appendix D

Species

Appendix D1

Species List

Table D1: Vascular Plant and Bryophyte Species Identified in Background Review and/or Observed in the General Area of the Project Location.

Scientific Name	Common Name	Conservation Status					Information Source	Observed in during Site Investigation
		National	Provincial					
		SARA[1]	*ESA, 2007*[2]	SRank[3]	Coefficient of Conservation	Coefficient of Wetness	NHIC[4]	
Abies balsamea	Balsam Fir	---	---	S5	5	-3	---	●
Acer rubrum	Red Maple	---	---	S5	4	0	---	●
Acer saccharum ssp. saccharum	Sugar Maple	---	---	S5	4	3	---	●
Alisma plantago-aquatica	Common Water-plantain	---	---	S5	3	-5	---	●
Ambrosia artemisiifolia	Common Ragweed	---	---	S5	0	3	---	●
Apocynum androsaemifolium ssp. androsaemifolium	Spreading Dogbane	---	---	S5	3	5	---	●
Asclepias incarnata ssp. incarnata	Swamp Milkweed	---	---	S5	6	-5	---	●
Asclepias syriaca	Common Milkweed	---	---	S5	0	5	---	●
Aster sp.	Aster species	---	---	---	---	---	---	●
Aster cordifolius	Heart-leaved Aster	---	---	S5	5	5	---	●
Aster ericoides var. ericoides	Heath Aster	---	---	S5	4	4	---	●
Aster novae-angliae	New England Aster	---	---	S5	2	-3	---	●
Betula papyrifera	White Birch	---	---	S5	2	2	---	●
Bidens cernua	Nodding Beggar-ticks	---	---	S5	2	-5	---	●
Bromus species	Brome species	---	---	---	---	---	---	●

Bromus inermis ssp. inermis	Smooth Brome	---	---	SE5	0	5	---	●
Carex sp.	Sedge species	---	---	---	---	---	---	●
Carex hystericina	Porcupine Sedge	---	---	S5	5	-5	---	●
Cicuta bulbifera	Bulb-bearing Water-hemlock	---	---	S5	5	-5	---	●
Cirsium arvense	Canada Thistle	---	---	SE5	0	3	---	●
Cornus foemina ssp. racemosa	Grey Dogwood	---	---	S5	2	-2	---	●
Cornus sp	Dogwood Species	---	---	---	---	---	---	●
Daucus carota	Wild Carrot	---	---	SE5	0	5	---	●
Dipsacus sp.	Teasel species	---	---	---	---	---	---	●
Draba reptans	Carolina Whitlow-grass*	---	---	S2	9	5	●	
Echium vulgare	Viper's Bugloss	---	---	SE5	0	5	---	●
Eleocharis sp.	Spikerush species	---	---	---	---	---	---	●
Elymus hystrix	Bottlebrush Grass	---	---	S5	5	5	---	●
Erigeron philadelphicus ssp. philadelphicus	Philadelphia Fleabane	---	---	S5	1	-3	---	●
Euthamia graminifolia	Grass-leaved Goldenrod	---	---	S5	2	-2	---	●
Fagus grandifolia	American Beech	---	---	S5	6	3	---	●
Fragaria virginiana ssp. virginiana	Common Strawberry	---	---	S5	2	1	---	●
Fraxinus pennsylvanica	Green Ash	---	---	S5	3	-3	---	●
Galium triflorum	Fragrant Bedstraw	---	---	S5	4	2	---	●
Geranium robertianum	Herb Robert	---	---	SE5	0	5	---	●
Gillenia trifoliate	Bowman's Root*	---	---	SX	---	---	●	

Grimmia olneyi	Olney's Dry Rock Moss*	---	---	S2	---	---	●	
Juniperus communis	Common Juniper	---	---	S5	4	3	---	●
Juniperus virginiana	Eastern Red Cedar	---	---	S5	4	3	---	●
Larix laricina	Tamarack	---	---	S5	7	-3	---	●
Lycopus europaeus	European Water-horehound	---	---	SE5	0	-5	---	●
Lythrum salicaria	Purple Loosestrife	---	---	SE5	0	-5	---	●
Medicago lupulina	Black Medick	---	---	SE5	0	1	---	●
Ostrya virginiana	Hop Hornbeam	---	---	S5	4	4	---	●
Pastinaca sativa	Wild Parsnip	---	---	SE5	0	5	---	●
Phalaris arundinacea	Reed Canary Grass	---	---	S5	0	-4	---	●
Phleum pratense	Timothy	---	---	SE5	0	3	---	●
Pinus strobus	Eastern White Pine	---	---	S5	4	3	---	●
Poa pratensis ssp. pratensis	Kentucky Blue Grass	---	---	S5	0	1	---	●
Populus tremuloides	Trembling Aspen	---	---	S5	2	0	---	●
Pteridium aquilinum var. latiusculum	Eastern Bracken Fern	---	---	S5	2	3	---	●
Quercus macrocarpa	Bur Oak	---	---	S5	5	1	---	●
Quercus rubra	Red Oak	---	---	S5	6	3	---	●
Rhus radicans ssp. negundo	Climbing Poison-ivy	---	---	S5	5	-1	---	●
Rhus sp	Sumac Species	---	---	---	---	---	---	●
Rhus typhina	Staghorn Sumac	---	---	S5	1	5	---	●
Salix bebbiana	Bebb's Willow	---	---	S5	4	-4	---	●
Salix eriocephala	Woolly-headed Willow	---	---	S5	4	-3	---	●
Scirpus atrovirens	Black Bulrush	---	---	S5	3	-5	---	●
Scirpus cyperinus	Wool Grass	---	---	S5	4	-5	---	●

Solidago altissima var. altissima	Tall Goldenrod	---	---	S5	1	3	---	●
Solidago canadensis var. canadensis	Canada Goldenrod	---	---	S5	1	3	---	●
Solidago nemoralis ssp. nemoralis	Gray Goldenrod	---	---	S5	2	5	---	●
Solidago rugosa ssp. rugosa	Rough Goldenrod	---	---	S5	4	-1	---	●
Spiraea alba	Narrow-leaved Meadowsweet	---	---	S5	3	-4	---	●
Syringa vulgaris	Common Lilac	---	---	SE5	0	5	---	●
Thuja occidentalis	Eastern White Cedar	---	---	S5	4	-3	---	●
Tilia americana	Basswood	---	---	S5	4	3	---	●
Trifolium pratense	Red Clover	---	---	SE5	0	2	---	●
Tsuga canadensis	Eastern Hemlock	---	---	S5	7	3	---	●
Vitis riparia	Riverbank Grape	---	---	S5	0	-2	---	●
Zanthoxylum americanum	Prickly-ash	---	---	S5	3	5	---	●

[1]Species at Risk Act; [2]Endangered Species Act; [3]SRank Code (see below); [4]MNR NHIC Database. For all codes, please see **Appendix C2**.

● denotes occurrence record; --- denotes no information, no status, or not applicable; *denotes Species of Conservation Concern

Table D2: Wildlife Species Identified as Potentially Occurring and/or Observed in the General Area of the Project Location.

Scientific Name	Common Name	Conservation Status			Information Source								Comments
		National	Provincial										
		SARA[1]	*ESA, 2007*[2]	SRank[3]	NHIC[2]	OBBA[5]	CBC[6]	Mammals[7]	Herpetofaunal Atlas[8]	Ontario Nature[9]	Odonata Atlas[10]		
BIRDS													
Accipiter cooperii	Cooper's Hawk	---	---	S4B, SZN		●	●						
Accipiter gentilis	Northern Goshawk	---	---	S4			●						
Accipiter striatus	Sharp-shinned Hawk	---	---	S5B, SZN		●							
Actitis macularia	Spotted Sandpiper	---	---	S5		●							
Aegolius acadicus	Northern Saw-whet Owl	---	---	S4			●						
Agelaius phoeniceus	Red-winged Blackbird	---	---	S4		●	●						
Aix sponsa	Wood Duck	---	---	S5		●							
Ammodramus savannarum	Grasshopper Sparrow	---	---	S4B, SZN		●							
Anas acuta	Northern Pintail	---	---	S5		●							
Anas crecca	Green-winged Teal	---	---	S4		●							
Anas discors	Blue-winged Teal	---	---	S4		●							
Anas platyrhynchos	Mallard	---	---	S5		●	●						
Anas rubripes	American Black Duck	---	---	S4		●	●						
Anas strepera	Gadwall	---	---	S4B		●							
Anthus rubescens	American Pipit	---	---	S4			●						

Archilochus colubris	Ruby-throated Hummingbird	---	---	S5B		●						
Ardea herodias	Great Blue Heron	---	---	S4		●						
Asio flammeus	Short-eared Owl*	SC	SC	S2N, S4B			●					
Aythya collaris	Ring-necked Duck	---	---	S5		●						
Bartramia longicauda	Upland Sandpiper	---	---	S4B		●						
Bombycilla cedrorum	Cedar Waxwing	---	---	S5B		●						Obs
Bonasa umbellus	Ruffed Grouse	---	---	S4		●						
Botaurus lentiginosus	American Bittern	---	---	S4B		●						
Branta canadensis	Canada Goose	---	---	S5		●						
Bubo scandiacus	Snowy Owl	---	---	SNA			●					
Bubo virginianus	Great Horned Owl	---	---	S4		●						
Bucephala albeola	Bufflehead	---	---	S4			●					
Bucephala clanula	Common Goldeneye	---	---	S5			●					
Buteo lagopus	Rough-legged Hawk	---	---	S1B, S4N			●					
Buteo jamaicensis	Red-tailed Hawk	---	---	S5		●	●					
Buteo lineatus	Red-shouldered Hawk	SC	---	S4B		●						
Butorides virescens	Green Heron	---	---	S4B		●						
Cardinalis cardinalis	Northern Cardinal	---	---	S5		●	●					
Carduelis flammea	Common Redpoll	---	---	S4B			●					
Carduelis pinus	Pine Siskin	---	---	S4B			●					
Carduelis tristis	American Goldfinch	---	---	S5B		●	●					Obs
Carpodacus mexicanus	House Finch	---	---	SNA		●	●					
Carpodacus purpureus	Purple Finch	---	---	S4B		●						
Cathartes aura	Turkey Vulture	---	---	S5B		●						Obs
Catharus fuscenscens	Veery	---	---	S4B		●						

Catharus guttatus	Hermit Thrush	---	---	S5B		●						
Ceryle alcyon	Belted Kingfisher	---	---	S4B		●						
Charadrius vociferus	Killdeer	---	---	S5B, S5N		●						
Chlidonias niger	Black Tern*	---	SC	S3B		●						
Chordeiles minor	Common Nighthawk*	THR	SC	S4B		●						
Circus cyaneus	Northern Harrier	---	---	S4B		●	●					
Cistothorus platensis	Sedge Wren	---	---	S4B		●						
Cistothorus palustris	Marsh Wren	---	---	S4B		●						
Clangula hyemalis	Long-tailed Duck	---	---	S3B			●					
Coccyzus americanus	Yellow-billed Cuckoo	---	---	S4B, SZN		●						
Coccyzus erythropthalmus	Black-billed Cuckoo	---	---	S5B		●						
Colaptes auratus	Northern Flicker	---	---	S4B		●	●					Obs
Columba livia	Rock Dove	---	---	SNA		●	●					
Contopus virens	Eastern Wood-pewee	---	---	S4B		●						
Corvus brachyrhynchos	American Crow	---	---	S5B		●	●					Obs
Corvus corax	Common Raven	---	---	S5		●	●					
Cyanocitta cristata	Blue Jay	---	---	S5		●	●					Obs
Cygnus buccinator	Trumpeter Swan	---	---	S4		●						
Cygnus columbianus	Tundra Swan	---	---	S4			●					
Cygnus olor	Mute Swan	---	---	SNA		●	●					
Dendroica coronata	Yellow-rumped Warbler	---	---	S5B		●						
Dendroica fusca	Blackburnian Warbler	---	---	S5B		●						
Dendroica pensylvanica	Chestnut-sided Warbler	---	---	S5B		●						
Dendroica petechia	Yellow Warbler	---	---	S5B		●						
Dendroica pinus	Pine Warbler	---	---	S5B		●						

Dendroica virens	Black-throated Green Warbler	---	---	S5B		●						
Dryocopus pileatus	Pileated Woodpecker	---	---	S5		●	●					
Dumetella carolinensis	Gray Catbird	---	---	S4B		●						
Empidonax alnorum	Alder Flycatcher	---	---	S5B		●						
Empidonax minimus	Least Flycatcher	---	---	S4B		●						
Empidonax traillii	Willow Flycatcher	---	---	S5B, SZN		●						
Eremophila alpestris	Horned Lark	---	---	S5B, SZN		●	●					
Falcipennis canadensis	Spruce Grouse	---	---	S5			●					
Falco columbarius	Merlin	---	---	S5B								Obs Site 25a/25b
Falco sparverius	American Kestrel	---	---	S4		●	●					
Gallinago gallinago	Wilson's Snipe	---	---	S5B, SZN		●						
Gallinula chloropus	Common Moorhen	---	---	S4B, SZN		●						
Gavia immer	Common Loon	---	---	S5B, S5N		●						
Geothlypis trichas	Common Yellowthroat	---	---	S5B		●						
Grus canadensis	Sandhill Crane	---	---	S5B		●						
Haliaeetus leucocephalus	Bald Eagle*	---	SC	S4B, SZN			●					
Hylocichla mustelina	Wood Thrush	---	---	S4B		●						
Icterus galbula	Baltimore Oriole	---	---	S4B		●						
Icterus spurius	Orchard Oriole	---	---	S4B		●						
Junco hyemalis	Dark-eyed Junco	---	---	S5B			●					
Lanius excubitor	Northern Shrike	---	---	SNA			●					

Larus argentatus	Herring Gull	---	---	S5B, S5N			●					
Larus delawarensis	Ring-billed Gull	---	---	S5B, S4N			●					
Lophodytes cucullatus	Hooded Merganser	---	---	S5B, S5N			●					
Melanerpes carolinus	Red-bellied Woodpecker	---	---	S4			●					
Meleagris gallopavo	Wild Turkey	---	---	S5		●						Obs
Melospiza georgiana	Swamp Sparrow	---	---	S5B		●						
Melospiza lincolnii	Lincoln's Sparrow	---	---	S5B		●						
Melospiza melodia	Song Sparrow	---	---	S5B		●	●					Obs
Mergus merganser	Common Merganser	---	---	S5B, S5N			●					
Mergus serrator	Red-breasted Merganser	---	---	S4B, S5N			●					
Mniotilta varia	Black-and-white Warbler	---	---	S5B		●						
Mimus polyglottos	Northern Mockingbird	---	---	S4		●	●					
Molothrus ater	Brown-headed Cowbird	---	---	S4B		●						
Myiarchus crinitus	Great Crested Flycatcher	---	---	S4B		●						
Oporornis philadelphia	Mourning Warbler	---	---	S4B		●						
Otus asio	Eastern Screech-owl	---	---	S4		●						
Pandion haliaetus	Osprey	---	---	S5B		●						
Passer domesticus	House Sparrow	---	---	SNA		●	●					
Passerculus sandwichensis	Savannah Sparrow	---	---	S4B		●	●					
Passerina cyanea	Indigo Bunting	---	---	S4B		●						

Petrochelidon pyrrhonota	Cliff Swallow	---	---	S4B		●						
Phasianus colchicus	Ring-necked Pheasant	---	---	SNA		●	●					
Pheucticus ludovicianus	Rose-breasted Grosbeak	---	---	S4B		●						
Picoides pubescens	Downy Woodpecker	---	---	S5		●	●					Obs
Picoides villosus	Hairy Woodpecker	---	---	S5		●	●					
Pipilo erythrophthalmus	Eastern Towhee	---	---	S4B		●						
Piranga olivacea	Scarlet Tanager	---	---	S4B		●						
Plectrophenax nivalis	Snow Bunting	---	---	SNA			●					
Podilymbus podiceps	Pied-billed Grebe	---	---	S4B, S4N		●						
Poecile atricapillus	Black-capped Chickadee	---	---	S5		●	●					Obs
Pooecetes gramineus	Vesper Sparrow	---	---	S4B		●						
Porzana carolina	Sora	---	---	S4B, SZN		●						
Progne subis	Purple Martin	---	---	S4B		●						
Quiscalus quiscula	Common Grackle	---	---	S5B		●						
Rallus limicola	Virginia Rail	---	---	S5B		●						
Regulus satrapa	Golden-crowned Kinglet	---	---	S5B			●					
Riparia riparia	Bank Swallow	---	---	S4B		●						
Sayornis phoebe	Eastern Phoebe	---	---	S5B		●						
Scolopax minor	American Woodcock	---	---	S4B		●						
Seiurus aurocapillus	Ovenbird	---	---	S4B		●						
Seiurus noveboracensis	Northern Waterthrush	---	---	S5B		●						
Setophaga ruticilla	American Redstart	---	---	S5B		●						
Sialia sialis	Eastern Bluebird	---	---	S5B		●						
Sitta canadensis	Red-breasted Nuthatch	---	---	S5		●	●					

Sitta carolinensis	White-breasted Nuthatch	---	---	S5		●	●					
Sphyrapicus varius	Yellow-bellied Sapsucker	---	---	S5B			●					
Spizella arborea	American Tree Sparrow	---	---	S4B			●					
Spizella pallida	Clay-coloured Sparrow	---	---	S4B		●						
Spizella passerina	Chipping Sparrow	---	---	S5B		●						
Spizella pusilla	Field Sparrow	---	---	S4B		●						
Stelgidopteryx serripennis	Northern Rough-winged Swallow	---	---	S4B		●						
Strix varia	Barred Owl	---	---	S5			●					
Sturnus vulgaris	European Starling	---	---	SNA		●	●					Obs
Tachycineta bicolor	Tree Swallow	---	---	S4B		●						
Toxostoma rufum	Brown Thrasher	---	---	S4B		●						
Troglodytes aedon	House Wren	---	---	S5B		●						Obs
Turdus migratorius	American Robin	---	---	S5B		●						
Tyrannus tyrannus	Eastern Kingbird	---	---	S4B		●						
Vermivora ruficapilla	Nashville Warbler	---	---	S5B		●						
Vireo flavifrons	Yellow-throated Vireo	---	---	S4B		●						
Vireo gilvus	Warbling Vireo	---	---	S5B		●						
Vireo olivaceus	Red-eyed Vireo	---	---	S5B		●						
Zenaida macroura	Mourning Dove	---	---	S5		●	●					Obs
Zonotrichia albicollis	White-throated Sparrow	---	---	S5B		●						
Zonotrichia leucophrys	White-crowned Sparrow	---	---	S4B			●					
MAMMALS												
Castor canadensis	Beaver	---	---	S5				●				
Condylura cristata	Star-nosed Mole	---	---	S5				●				

Eptesicus fuscus	Big Brown Bat	---	---	S5				●				
Erethizon dorsatum	Porcupine	---	---	S5				●				
Lepus americanus	Snowshoe Hare	---	---	S5				●				
Lontra canadensis	River Otter	---	---	S5				●				
Marmota monax	Woodchuck	---	---	S5				●				
Mephitis mephitis	Striped Skunk	---	---	S5				●				
Microtus pennsylvanicus	Meadow Vole	---	---	S5				●				
Mustela vison	Mink	---	---	S5				●				
Odocoileus virginianus	White-tailed Deer	---	---	S5				●				Obs. Site 2/25a/25b
Ondatra zibethicus	Muskrat	---	---	S5				●				
Procyon lotor	Raccoon	---	---	S5				●				
Sciurus carolinensis	Gray Squirrel	---	---	S5				●				
Sylvilagus floridanus	Eastern Cottontail	---	---	S5				●				
Tamias striatus	Eastern Chipmunk	---	---	S5				●				
Tamiasciurus hudsonicus	Red Squirrel	---	---	S5				●				
HERPETOZOA												
Ambystoma jeffersonianum-laterale "complex	Jefferson / Blue-spotted Salamander Complex*	---	---	S2						●		
Bufo americanus	American Toad	---	---	S5						●		
Chrysemys picta marginata	Midland Painted Turtle	---	---	S5						●		
Lampropeltis triangulum	Eastern Milksnake*	SC	SC	S3						●		
Nerodia sipedon sipedon	Northern Water Snake	---	---	S5						●		
Pseudacris crucifer	Spring Peeper	---	---	S5						●		

Pseudacris triseriata	Western Chorus Frog	THR	---	S3								Heard in. Setback area of Site 25a
Rana catesbeiana	Bullfrog	---	---	S4						●		
Rana clamitans	Green Frog	---	---	S5						●		
Rana palustris	Pickerel Frog	---	---	S4						●		
Thamnophis sirtalis sirtalis	Eastern Garter Snake	---	---	S5						●		
ODONATA												
Aeshna constricta	Lance-tipped Darner	---	---	S5							●	
Aeshna eremita	Lake Darner	---	---	S5							●	
Anax junius	Common Green Darner	---	---	S5							●	
Argia fumipennis violacea	Violet Dancer	---	---	S5							●	
Argia moesta	Powdered Dancer	---	---	S5							●	
Basiaeschna janata	Springtime Darner	---	---	S5							●	
Calopteryx maculata	Ebony Jewelwing	---	---	S5							●	
Celithemis elisa	Calico Pennant	---	---	S5							●	
Celithemis eponina	Halloween Pennant	---	---	S4							●	
Enallagma boreale	Boreal Bluet	---	---	S5							●	
Enallagma carunculatum	Tule Bluet	---	---	S5							●	
Enallagma exsulans	Stream Bluet	---	---	S5							●	
Erythemis simplicicollis	Eastern Pondhawk	---	---	S5							●	
Ischnura posita	Fragile Forktail	---	---	S4							●	
Ischnura verticalis	Eastern Forktail	---	---	S5							●	
Lestes congener	Spotted Spreadwing	---	---	S5							●	

Lestes forcipatus	Sweetflag Spreadwing	---	---	S4							●	
Leucorrhinia intacta	Dot-tailed Whiteface	---	---	S5							●	
Libellula luctuosa	Widow Skimmer	---	---	S5							●	
Libellula pulchella	Twelve-spotted Skimmer	---	---	S5							●	
Nehalennia irene	Sedge Sprite	---	---	S5							●	
Pachydiplax longipennis	Blue Dasher	---	---	S5							●	
Sympetrum vicinum	Yellow-legged Meadowhawk	---	---	S5							●	
LEPIDOPTERANS												
Callophyrys gryneus	Juniper Hairstreak*	---	---	S2							●	2
Danaus plexippus	Monarch Butterfly*	SC	SC	S2N,S4 B								Obs. Site 2

[1]Species at Risk Act; [2]Endangered Species Act; [3]SRank Code (see below); [4]MNR NHIC Database; [5]Ontario Breeding Bird Atlas (Square #18UQ60 and #18UQ70); [6]Christmas Bird Count; [7]Dobbyn (1994); [8]Oldham and Weller (200); [9]Ontario Nature (2010) Ontario Reptile and Amphibian Atlas; [10]Ontario Odonata Atlas. For all codes, please see **Appendix D2**.

● denotes occurrence record; --- denotes no information, no status, or not applicable; *denotes Species of Conservation Concern

Appendix D2

Species Codes

Overview of Codes for the Conservation Status of Species

Federal Conservation Status

Federal Status: Status assigned by the Committee on the Status of Endangered Wildlife in Canada. (COSEWIC, 2007) and listed under the *Species at Risk Act*

EXT Extinct. A wildlife species that no longer exists.

EXP Extirpated. A wildlife species no longer existing in the wild in Canada, but occurring elsewhere.

END Endangered. A wildlife species facing imminent extirpation or extinction.

THR Threatened. A wildlife species likely to become endangered if limiting factors are not reversed.

SC Special Concern. A wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.

DD Data Deficient - A wildlife species for which there is inadequate information to make a direct, or indirect, assessment of its risk of extinction.

NAR Not At Risk. A wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances.

Provincial Conservation Status

Provincial Status: Status assigned by the Ontario Ministry of Natural Resources (OMNR, 2006) under the *Endangered Species Act, 2007*

EXT Extinct. A species that no longer exists anywhere.

EXP Extirpated. A species that no longer exists in the wild in Ontario but still occurs elsewhere.

END Endangered. A species facing imminent extinction or extirpation in Ontario which is a candidate for regulation under Ontario's ESA.

THR Threatened. A species that is at risk of becoming endangered in Ontario if limiting factors are not reversed.

SC Special Concern. A species with characteristics that make it sensitive to human activities or natural events.

DD Data Deficient. A species for which there is insufficient information for a provincial status recommendation.

NAR Not At Risk. A species that is currently not listed as risk.

Provincial (S) Rank

Provincial (or Subnational) ranks are used by the Natural Heritage Information Centre (2007) to set protection priorities for rare species and natural communities. These ranks are not legal designations. Provincial ranks are assigned in a manner similar to that described for global ranks, but consider only those factors within the political boundaries of Ontario. By comparing the global and provincial ranks, the status, rarity, and the urgency of conservation needs can be ascertained. The NHIC evaluates provincial ranks on a continual basis and produces updated lists at least annually.

S1 *Critically Imperiled*. Extremely rare in Ontario; usually 5 or fewer occurrences in the province or very few remaining individuals; often especially vulnerable to extirpation.

S2 *Imperiled*. Very rare in Ontario; usually between 5 and 20 occurrences in the province or with many individuals in fewer occurrences; often susceptible to extirpation.

S3 *Vulnerable.* Rare to uncommon in Ontario; usually between 20 & 100 occurrences in the province; may have fewer occurrences, but with a large number of individuals in some populations; may be susceptible to large-scale disturbances. Most species with an S3 rank are assigned to the watch list, unless they have a relatively high global rank.

S4 *Apparently Secure*. Common and apparently secure in Ontario; usually with more than 100 occurrences in the province.

S5 *Secure*. Very common and demonstrably secure in Ontario.

SH Historically known from Ontario, but not verified recently (typically not recorded in the province in the last 20 years); however suitable habitat is thought to be still present in the province and there is reasonable expectation that the species may be rediscovered.

SR Reported for Ontario, but without persuasive documentation which would provide a basis for either accepting or rejecting the report.

SRF Reported falsely from Ontario.

SX Apparently extirpated from Ontario, with little likelihood of rediscovery. Typically not seen in the province for many decades, despite searches at known historic sites.

SE Exotic; not believed to be a native component of Ontario's flora.

S? Not Ranked Yet, or if following a ranking, Rank Uncertain (e.g. S3?). S? Species have not had a rank assigned.

SU Unrankable, often because of low search effort or cryptic nature of the species, there is insufficient information available to assign a more accurate rank; more data is needed.

Coefficient of Conservatism (CC) Definition (Plants)

Each native taxon was assigned a rank of 0 to 10 ("coefficient of conservatism") based on its degree of fidelity to a range of synecological parameters. Plants found in a wide variety of plant communities, including disturbed sites, were assigned ranks of 0 to 3. Taxa that typically are associated with a specific plant community, but tolerate moderate disturbance, were assigned ranks of 4 to 6. Rankings of 7 to 8 were applied to those taxa associated with a plant community in an advanced successional stage that has undergone minor disturbance. Those plants with high degrees of fidelity to a narrow range of synecological parameters were assigned a value of 9 to 10

Wetness Index (CW) (Plants)

The wetness index gives an indication of were plant species are typically found. A wetness value (coefficient of wetness) between -5 and 5. A value of -5 was assigned to Obligate Wetland (OBL) species and a value of 5 to Obligate Upland species (UPL), with intermediate values assigned to the remaining categories. The wetland categories and their corresponding values are as follows:

These categories are defined as follows:

OBL	-5	OBL Wetland	Obligate	Occurs almost always in wetlands under natural conditions (estimated >

				99% probability).
FACW+	-4	FACW	Facultative Wetland	Usually occurs in wetlands, but occasionally found in non-wetlands (estimated 67-99% probability).
FACW	-3			
FACW-	-2			
FAC +	-1	FAC	Facultative	Equally likely to occur in wetlands or non-wetlands (estimated 34-66% probability).
FAC	0			
FAC-	1			
FACU+	2	FACU	Facultative Upland	Occasionally occurs in wetlands, but usually occurs in non-wetlands (estimated 1-33 % probability).
FACU	3			
FACU-	4			
UPL	5	UPL	Obligate Upland	Occurs almost never in wetlands under natural conditions (estimated <1 % probability).