

# ENVIRONMENTAL IMPACT STUDY

## *Southgate Solar Project*

DRAFT- December 2014

***Table of Contents***

	<b>Page</b>
1. Introduction .....	1
2. The Proponent .....	2
3. Project Location .....	3
4. Summary of Natural Heritage Assessment.....	6
5. Environmental Impact Study Purpose .....	22
6. Rationale for Development within a Setback to a Natural Feature .....	23
7. Project Activities .....	24
7.1 Construction.....	24
7.2 Operations and Maintenance .....	28
7.3 Decommissioning.....	30
7.3.1 Site Restoration.....	31
7.3.2 Managing Excess Materials and Waste .....	32
8. Existing Environmental Conditions of Relevant Natural Features.....	35
8.1 Overview .....	35
8.2 Description of Significant Natural Features.....	35
8.2.1 Wetlands.....	35
8.2.2 Woodlands.....	46
8.2.3 Wildlife Habitat .....	53
9. Environmental Effects of the Project.....	78
10. Environmental Effects Mitigation and Monitoring Plan.....	104
11. Negative Environmental Effects, Design and Operations.....	108
12. Negative Environmental Effects, Construction.....	109
13. Conclusions .....	110
14. References .....	112

***List of Figures***

Figure 1: General Location of the Southgate Solar Project in Ontario ..... 4

Figure 2: Project Location ..... 5

Figure 3: Significant Wetlands ..... 36

Figure 4: Significant Woodlands ..... 47

Figure 5: Significant Wildlife Habitat ..... 54

***List of Tables***

Table 1: Summary of the Natural Heritage Assessment for the Southgate Solar Project..... 7

Table 2: Anticipated Duration of Construction Activities ..... 24

Table 3: Construction Activities ..... 24

Table 4: Operations and Maintenance Activities..... 29

Table 5: Decommissioning Activities ..... 31

Table 6: Managing Excess Materials and Waste..... 32

Table 7: Significant Southern Wetlands within the Project Location and Surrounding 50m ..... 32

Table 8: Significant Woodlands within the Project Location and Surrounding 50 m ..... 51

Table 9: Evaluation of Significant Wildlife Habitat in the Project Location and 50 m Setback ... 66

Table 10: Summary of Key Features and Attributes that may serve as Indicators of Negative Environmental Effects ..... 79

Table 11: Summary of Potential Negative Effects and Mitigation Measures for Significant Natural Features ..... 85

Table 12: Environmental Effects Mitigation and Monitoring Plan ..... 105

***List of Appendices***

Appendix A: Pre-Construction Survey Methodology

## 1. INTRODUCTION

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

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

O. Reg. 359/09 requires that all renewable energy projects conduct an environmental impact study for all natural heritage features that fall within the Project Location or the prescribed setback area (REA Section 26). This *Natural Heritage Assessment (NHA) Environmental Impact Study Report (EIS)* was completed to address the regulatory requirements for the REA process and is the fourth and final report in a series that fulfills the requirements of the NHA as required by O. Reg. 359/09. The NHA EIS will detail the potential impacts, mitigation and monitoring requirements to protect natural features within and adjacent to the Project Location. These reports will be submitted to the Ministry of Natural Resources and Forestry (MNRF) for review and comment, as required in O. Reg. 359/09. Discussion of Species at Risk, fish habitat and other information needs, as outlined in the MNRF’s *Approval and Permitting Requirements Document (APRD) for Renewable Energy (MNRF 2009)*, are discussed in separate reports, under direction from the MNRF and in compliance with the REA and other applicable legislation.

**2. THE PROPONENT**

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

Contact information for the Proponent is as follows:

**Full Name of Company:** Southgate Solar LP

**Prime Contacts:** - Simon Kim, Project Manager  
- A. José De Armas, Manager, Project Development

**Address:** 2050 Derry Road West 2<sup>nd</sup> Floor, Mississauga, ON, L5N 0B9

**Telephone:** 1-866-234-7094

**Email:** ssp@samsungrenewableenergy.ca

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

**Full Name of Company:** Dillon Consulting Limited

**Prime Contact:** Michael Enright, Project Manager

**Address:** 1155 North Service Road West, Unit 14, Oakville, Ontario, L6M 3E3

**Telephone:** (905) 901-2912 ext. 3401

**Email:** menright@dillon.ca

### 3. PROJECT LOCATION

The proposed Class 3 Solar Facility is to be located within the Township of Southgate, in the County of Grey, approximately 11 kilometres north of the community of Mount Forest. **Figure 1** shows the general location of the Project in Southwestern Ontario. The proposed Project Location consists of approximately 235 hectares (581 acres) and is contained within an area bounded on the north by Southgate Road 24, Southgate Road 14 to the south, Southgate Road 47 to the east, and Highway 6 to the west. The proposed Project Location, consisting of multiple privately-owned parcels, is to be leased by Southgate Solar LP. It has an approximate centroid at the following geographic coordinates:

- Latitude: 44° 6' 7.78" N
- Longitude: 80° 44' 49.91" W

**Figure 1** shows the general location of the Project in Ontario. The Project Location is defined in O. Reg. 359/09 to be “a part of land and all or part of any building or structure in, on or over which a person is engaging in or proposes to engage in the project”.

**Figure 2** shows the Project Location as defined by O. Reg. 359/09. Project components, including solar modules and electrical facilities such as inverters, transformers, Main HV substation and electrical lines, will be located on private land. Areas within the Project Location but outside of the perimeter fence are “Areas of Operational Flexibility”. These areas have been reserved to accommodate other Project requirements (ex. stormwater measures, temporary laydown areas, etc.). This is discussed in greater detail on Section 4 of the *Project Description Report*.

**Figure 2** also includes the 50 m, 120 m and 300 m setbacks from the Project Location. Each setback distance is applicable to various components of the REA process. Setback development prohibitions for solar facilities are outlined in Part V, Sections 37 and 38 of O. Reg. 359/09 (revised in November 2012).



**SOUTHGATE SOLAR PROJECT**

**FIGURE 1  
GENERAL PROJECT LOCATION**



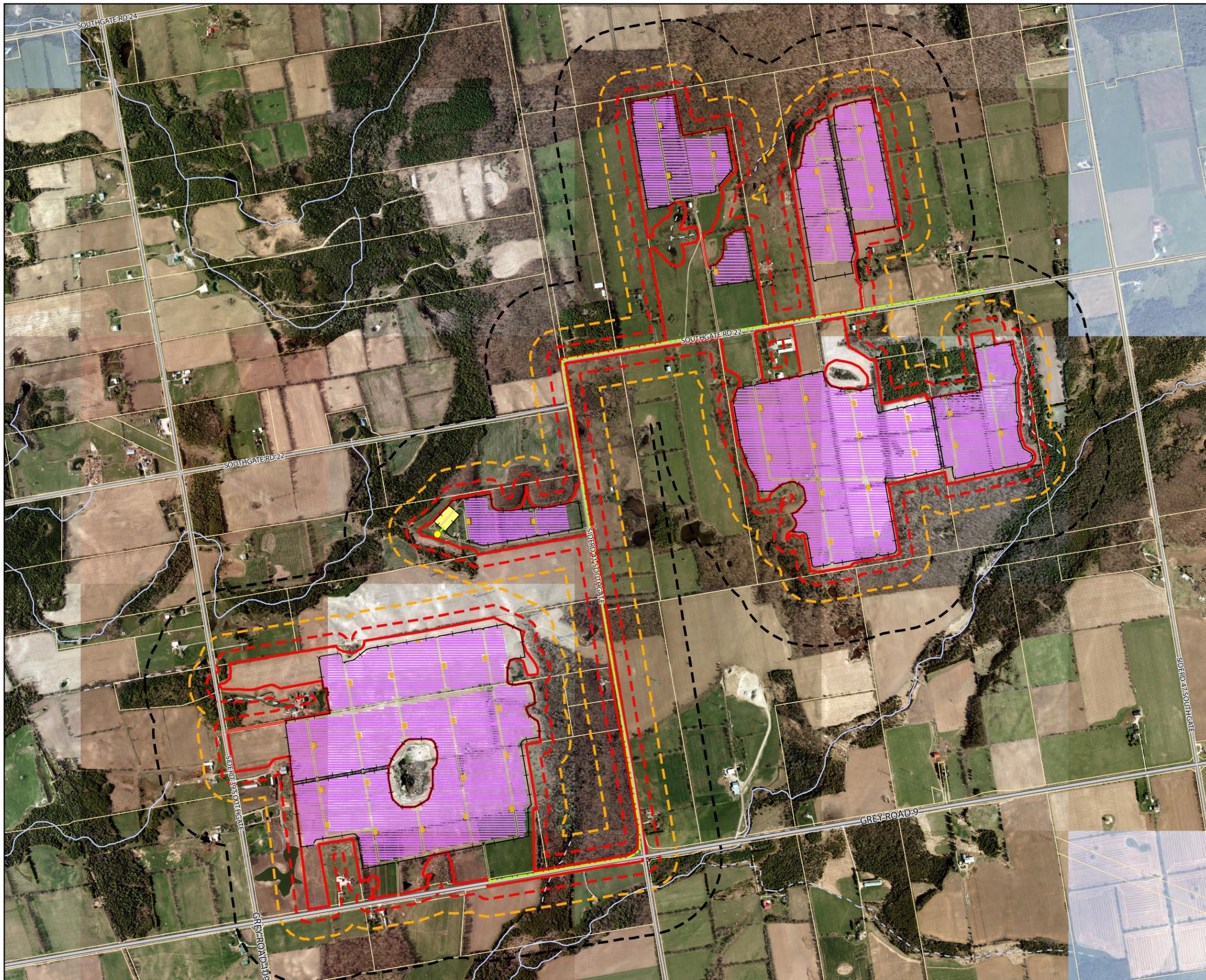
MAP DRAWING INFORMATION:  
DATA PROVIDED BY MNR

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

FILE LOCATION: I:\GIS\149154 - Samsung Southgate\mxd\Records Review



PROJECT: 149154  
STATUS: DRAFT  
DATE: 9/25/2014



## SOUTHGATE SOLAR PROJECT

**FIGURE 2  
PROJECT LOCATION**

- Point of Common Coupling
- Overhead Cable
- Fence
- Access Road
- Inverter
- Solar Panel
- Permanent Watercourse
- Intermittent Watercourse
- Project Location
- Project Location 50 m Setback
- Project Location 120 m Setback
- Project Location 300 m Setback
- Substation
- Parcel Boundary

The area between the fence line and the Project Location is the Area of Operational Flexibility.



MAP DRAWING INFORMATION:  
DATA PROVIDED BY MNR

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

FILE LOCATION: I:\GIS\149154 - Samsung Southgate\mxd\Records Review



PROJECT: 149154  
STATUS: DRAFT  
DATE: 11/28/2014

#### 4. SUMMARY OF NATURAL HERITAGE ASSESSMENT

An evaluation of significance was completed according to Section 27 of O. Reg. 359/09. This evaluation was preceded by a records review and site investigation, as per Sections 25 and 26 of O. Reg. 359/09, respectively. A summary of natural features detailed in previous reports is outlined in **Table 1**. This table summarizes the results of all NHA work completed for the Project and identifies all natural features within the Project Location and surrounding 50 m, including those that have been identified as significant, during the NHA process and require an EIS.

DRAFT

Table 1: Summary of the Natural Heritage Assessment for the Southgate Solar Project

Natural Feature	Applicable Project Component(s)	Distance Between Natural Feature and Project Location (m)	Summary of Natural Heritage Assessment			EIS Required?
			Identified During Records Review?	Identified, Verified or Refined During Site Investigation?	Evaluation of Significance Results	
<b>Provincial Parks and Conservation Reserves</b>						
None identified within the Project Location or within 50m						
<b>ANSI, Life Science</b>						
None identified within the Project Location or within 50m						
<b>ANSI, Earth Science</b>						
None identified within the Project Location or within 50m						
<b>Southern Wetlands</b>						
4	- Perimeter fence - Solar panels - Access roads - Area of Operational Flexibility	30 m	Yes	Verified – Boundary revised	Assumed provincially significant	Y
6	- Perimeter fence - Solar panels	20 m	Yes	Verified – Boundary revised	Assumed provincially significant	Y
7	- Perimeter fence - Solar panels	45 m	Yes	Verified – Boundary revised	Assumed provincially significant	Y
9	- Overhead cable	18 m	Yes	Verified – Boundary revised	Assumed provincially significant	Y
11	- Perimeter fence - Solar panels - Area of Operational Flexibility	47 m	Yes	Verified – Boundary revised	Assumed provincially significant	Y
13	- Perimeter fence - Solar panels - Access roads - Main HV substation	33 m	Yes	Verified – Boundary revised	Assumed provincially significant	Y
14	- Perimeter fence - Solar panels - Access roads	30 m	Yes	Verified – Boundary revised	Assumed provincially significant	Y

Natural Feature	Applicable Project Component(s)	Distance Between Natural Feature and Project Location (m)	Summary of Natural Heritage Assessment			EIS Required?
			Identified During Records Review?	Identified, Verified or Refined During Site Investigation?	Evaluation of Significance Results	
17	- Overhead cable	0 m	Yes	Verified – Boundary revised	Assumed provincially significant	Y
18	- Area of Operational Flexibility	30 m	No	Identified	Assumed provincially significant	Y
20	- Overhead cable - Area of Operational Flexibility	0 m	Yes	Verified – Boundary revised	Assumed provincially significant	Y
21	- Perimeter fence - Solar panels - Access roads - Inverter station	30 m	Yes	Verified – Boundary revised	Assumed provincially significant	Y
22	- Area of Operational Flexibility	21 m	Yes	Verified – Boundary revised	Assumed provincially significant	Y
23	- Access Road - Area of Operational Flexibility	4 m	Yes	Verified – Boundary revised	Assumed provincially significant	Y
25	- Perimeter fence - Solar panels - Access roads - Inverter station - Area of Operational Flexibility	8 m	No	Identified	Not significant	N
26	- Perimeter fence - Solar panels - Area of Operational Flexibility	30 m	No	Identified	Assumed provincially significant	Y
27	- Perimeter fence - Solar panels - Access roads - Area of Operational Flexibility	30 m	No	Identified	Not significant	N
28	- Perimeter fence - Solar panels - Access roads - Area of Operational Flexibility	5 m	No	Identified	Not significant	N

Natural Feature	Applicable Project Component(s)	Distance Between Natural Feature and Project Location (m)	Summary of Natural Heritage Assessment			EIS Required?
			Identified During Records Review?	Identified, Verified or Refined During Site Investigation?	Evaluation of Significance Results	
29	- Perimeter fence - Solar panels - Access roads	30 m	No	Identified	Assumed provincially significant	Y
30	- Overhead cable	0 m	No	Identified	Assumed provincially significant	Y
31	- Perimeter fence - Solar panels - Access road - Area of Operational Flexibility	30 m	No	Identified	Not significant	N
32	- Area of Operational Flexibility	37 m	No	Identified	Assumed provincially significant	Y
<b>Woodlands</b>						
A	- Perimeter fence - Solar panels - Access roads - Inverter station - Main HV substation - Overhead cable - Area of Operational Flexibility	0 m Part of this feature is located within the Project Location	Yes	Verified – Boundary revised	Significant	Y
B	- Perimeter fence - Solar panels - Access roads - Inverter station - Area of Operational Flexibility	0 m Part of this feature is located within the Project Location	Yes	Verified – Boundary revised	Not Significant	N
C	- Perimeter fence - Solar panels - Access roads - Inverter station - Area of Operational Flexibility	0 m	Yes	Verified – Boundary revised	Significant	Y
D	- Perimeter fence - Solar panels - Access roads - Area of Operational Flexibility	0 m	Yes	Verified – Boundary revised	Significant	Y

Natural Feature	Applicable Project Component(s)	Distance Between Natural Feature and Project Location (m)	Summary of Natural Heritage Assessment			EIS Required?
			Identified During Records Review?	Identified, Verified or Refined During Site Investigation?	Evaluation of Significance Results	
E	- Overhead cable - Area of Operational Flexibility	0 m	Yes	Verified – Boundary revised	Significant	Y
F	- Perimeter fence - Solar panels - Access roads - Area of Operational Flexibility	2 m	Yes	Verified	Not Significant	N
H	- Perimeter fence - Solar panels - Access roads	30 m	Yes	Verified – Boundary revised	Not Significant	N
I	- Area of Operational Flexibility	4 m	Yes	Verified – Boundary revised	Significant	Y
K	- Overhead cable	0 m	Yes	Verified – Boundary revised	Not Significant	N
L	- Perimeter fence - Solar panels - Access roads - Area of Operational Flexibility	30 m	No	Identified	Not Significant	N
M	- Perimeter fence - Solar panels - Access roads - Area of Operational Flexibility	0 m part of this feature is located within the Project Location	No	Identified	Not Significant	N
<b>Wildlife Habitat</b>						
<b>Seasonal Concentration Areas</b>						
Colonially Nesting Bird Breeding habitat (Bank and Cliff) CNBC1	- Perimeter fence - Solar panels - Access roads - Inverter station	0 m	No	Identified	Not Significant	N
Colonially Nesting Bird Breeding habitat (Tree/Shrubs) CNTS1	- Perimeter fence - Solar panels - Access roads	30 m	No	Identified	Not Significant	N

Natural Feature	Applicable Project Component(s)	Distance Between Natural Feature and Project Location (m)	Summary of Natural Heritage Assessment			EIS Required?
			Identified During Records Review?	Identified, Verified or Refined During Site Investigation?	Evaluation of Significance Results	
Colonially Nesting Bird Breeding habitat (Tree/Shrubs) CNTS2	- Perimeter fence - Solar panels - Access roads - Area of Operational Flexibility	22 m	No	Identified	Not Significant	N
Colonially Nesting Bird Breeding habitat (Tree/Shrubs) CNTS3	- Perimeter fence - Solar panels - Access roads - Area of Operational Flexibility	30 m	No	Identified	Not Significant	N
Colonially Nesting Bird Breeding habitat (Tree/Shrubs) CNTS4	- Perimeter fence - Solar panels	20 m	No	Identified	Not Significant	N
Colonially Nesting Bird Breeding habitat (Tree/Shrubs) CNTS5	- Overhead cable	18 m	No	Identified	*Treated as Significant	Y
Colonially Nesting Bird Breeding habitat (Tree/Shrubs) CNTS6	- Overhead cable	0 m	No	Identified	*Treated as Significant	Y
Colonially Nesting Bird Breeding habitat (Tree/Shrubs) CNTS7	- Perimeter fence - Solar panels - Area of Operational Flexibility	49 m	No	Identified	Not Significant	N
Colonially Nesting Bird Breeding habitat (Tree/Shrubs) CNTS8	- Perimeter fence - Solar panels - Access roads - Main HV substation	30 m	No	Identified	Not Significant	N

Natural Feature	Applicable Project Component(s)	Distance Between Natural Feature and Project Location (m)	Summary of Natural Heritage Assessment			EIS Required?
			Identified During Records Review?	Identified, Verified or Refined During Site Investigation?	Evaluation of Significance Results	
Colonially Nesting Bird Breeding habitat (Tree/Shrubs) CNTS9	- Access roads - Area of Operational Flexibility	4 m	No	Identified	Not Significant	N
Colonially Nesting Bird Breeding habitat (Tree/Shrubs) CNTS10	- Perimeter fence - Solar panels - Access roads	30 m	No	Identified	Not Significant	N
Colonially Nesting Bird Breeding habitat (Tree/Shrubs) CNTS11	- Overhead cable - Area of Operational Flexibility	0 m	No	Identified	Not Significant	N
Colonially Nesting Bird Breeding Habitat (Ground) CNG1	- Perimeter fence - Solar panels - Area of Operational Flexibility	30 m	No	Identified	Not Significant	N
Colonially Nesting Bird Breeding Habitat (Ground) CNG2	- Area of Operational Flexibility	30 m	No	Identified	Not Significant	N
Turtle Wintering Area TWA1	- Access road - Area of Operational Flexibility	0 m	No	Identified	*Treated as Significant	Y
Turtle Wintering Area TWA2	- Perimeter fence - Solar panels - Access roads - Area of Operational Flexibility	0 m	No	Identified	*Treated as Significant	Y

Natural Feature	Applicable Project Component(s)	Distance Between Natural Feature and Project Location (m)	Summary of Natural Heritage Assessment			EIS Required?
			Identified During Records Review?	Identified, Verified or Refined During Site Investigation?	Evaluation of Significance Results	
Deer Winter Congregation Areas DWCA1	<ul style="list-style-type: none"> <li>- Perimeter fence</li> <li>- Solar panels</li> <li>- Access roads</li> <li>- Inverter station</li> <li>- Main HV substation</li> <li>- Overhead cable</li> <li>- Area of Operational Flexibility</li> </ul>	0 m	No	Identified	Significant	Y
<b>Rare Vegetation Communities</b>						
None identified within the Project Location or adjacent lands within 50 m						
<b>Specialized Wildlife Habitat</b>						
Turtle Nesting Areas TNA1	<ul style="list-style-type: none"> <li>- Perimeter fence</li> <li>- Solar panels</li> <li>- Access roads</li> <li>- Inverter station</li> </ul>	30 m	No	Identified	*Treated as Significant	Y
Woodland Raptor Nesting Area WRNA1	<ul style="list-style-type: none"> <li>- Perimeter fence</li> <li>- Solar panels</li> <li>- Access roads</li> <li>- Inverter station</li> <li>- Main HV substation</li> <li>- Overhead cable</li> <li>- Area of Operational Flexibility</li> </ul>	0 m	No	Identified	Not Significant	N
Amphibian Breeding Habitat (Wetland) ABHWE1	<ul style="list-style-type: none"> <li>- Perimeter fence</li> <li>- Solar panels</li> <li>- Access roads</li> <li>- Area of Operational Flexibility</li> </ul>	7 m	No	Identified	*Treated as Significant	Y
Amphibian Breeding Habitat (Wetland) ABHWE2	<ul style="list-style-type: none"> <li>- Perimeter fence</li> <li>- Solar panels</li> <li>- Access roads</li> <li>- Inverter station</li> <li>- Area of Operational Flexibility</li> </ul>	8 m	No	Identified	*Treated as Significant	Y

Natural Feature	Applicable Project Component(s)	Distance Between Natural Feature and Project Location (m)	Summary of Natural Heritage Assessment			EIS Required?
			Identified During Records Review?	Identified, Verified or Refined During Site Investigation?	Evaluation of Significance Results	
Amphibian Breeding Habitat (Wetland) ABHWE3	- Perimeter fence - Solar panels - Access roads - Area of Operational Flexibility	30 m	No	Identified	Not Significant	N
Amphibian Breeding Habitat (Wetland) ABHWE5	- Perimeter fence - Solar panels - Access roads - Area of Operational Flexibility	5 m	No	Identified	*Treated as Significant	Y
Amphibian Breeding Habitat (Wetland) ABHWE6	- Overhead cable	18 m	No	Identified	*Treated as Significant	Y
Amphibian Breeding Habitat (Wetland) ABHWE7	- Overhead cable	0 m	No	Identified	*Treated as Significant	Y
Amphibian Breeding Habitat (Wetland) ABHWE8	- Overhead cable - Area of Operational Flexibility	0 m	No	Identified	*Treated as Significant	Y
Amphibian Breeding Habitat (Wetland) ABHWE9	- Access Road - Area of Operational Flexibility	0 m	No	Identified	*Treated as Significant	Y
Amphibian Breeding Habitat (Wetland) ABHWE10	- Perimeter fence - Solar panels - Access roads - Area of Operational Flexibility	0 m	No	Identified	Not Significant	N
Amphibian Breeding Habitat (Wetland) ABHWE11	- Perimeter fence - Solar panels - Access roads	30 m	No	Identified	Significant	Y

Natural Feature	Applicable Project Component(s)	Distance Between Natural Feature and Project Location (m)	Summary of Natural Heritage Assessment			EIS Required?
			Identified During Records Review?	Identified, Verified or Refined During Site Investigation?	Evaluation of Significance Results	
Amphibian Breeding Habitat (Wetland) ABHWE12	- Perimeter fence - Solar panels - Area of Operational Flexibility	9 m	No	Identified	*Treated as Significant	Y
Amphibian Breeding Habitat (Wetland) ABHWE13	- Access roads - Area of Operational Flexibility	4 m	No	Identified	*Treated as Significant	Y
Amphibian Breeding Habitat (Wetland) ABHWE14	- Perimeter fence - Solar panels - Access roads - Area of Operational Flexibility	0 m	No	Identified	*Treated as Significant	Y
Amphibian Breeding Habitat (Wetland) ABHWE15	- Perimeter fence - Solar panels - Area of Operational Flexibility	30 m	No	Identified	*Treated as Significant	Y
Amphibian Breeding Habitat (Woodland) ABHWO1	- Perimeter fence - Solar panels - Access roads - Area of Operational Flexibility	0 m	No	Identified	Significant	Y
Amphibian Breeding Habitat (Woodland) ABHWO2	- Perimeter fence - Solar panels - Access roads - Main HV substation	0 m	No	Identified	Significant	Y
Amphibian Breeding Habitat (Woodland) ABHWO3	- Perimeter fence - Solar panels - Access roads - Main HV substation - Overhead cable - Area of Operational Flexibility	10 m	No	Identified	Significant	Y

Natural Feature	Applicable Project Component(s)	Distance Between Natural Feature and Project Location (m)	Summary of Natural Heritage Assessment			EIS Required?
			Identified During Records Review?	Identified, Verified or Refined During Site Investigation?	Evaluation of Significance Results	
Amphibian Breeding Habitat (Woodland) ABHWO4	<ul style="list-style-type: none"> <li>- Perimeter fence</li> <li>- Solar panels</li> <li>- Access roads</li> <li>- Overhead cable</li> <li>- Area of Operational Flexibility</li> </ul>	0 m	No	Identified	Not Significant	N
<b><i>Habitat of Species of Conservation Concern</i></b>						
Marsh Breeding Bird Habitat MBBH1 (for Green Herons only)	<ul style="list-style-type: none"> <li>- Perimeter fence</li> <li>- Solar panels</li> <li>- Access roads</li> <li>- Inverter station</li> </ul>	0 m	No	Identified	Not Significant	N
Marsh Breeding Bird Habitat MBBH2 (for Green Herons only)	<ul style="list-style-type: none"> <li>- Perimeter fence</li> <li>- Solar panels</li> <li>- Access roads</li> <li>- Inverter station</li> </ul>	0 m	No	Identified	Not Significant	N
Marsh Breeding Bird Habitat MBBH3 (for Green Herons only)	<ul style="list-style-type: none"> <li>- Perimeter fence</li> <li>- Solar panels</li> <li>- Access roads</li> <li>- Inverter station</li> </ul>	0 m	No	Identified	Not Significant	N
Marsh Breeding Bird Habitat MBBH4 (for Green Herons only)	<ul style="list-style-type: none"> <li>- Perimeter fence</li> <li>- Solar panels</li> <li>- Access roads</li> <li>- Area of Operational Flexibility</li> </ul>	0 m	No	Identified	Not Significant	N
Marsh Breeding Bird Habitat MBBH5 (for Green Herons only)	<ul style="list-style-type: none"> <li>- Perimeter fence</li> <li>- Area of Operational Flexibility</li> </ul>	0 m	No	Identified	Not Significant	N
Marsh Breeding Bird Habitat MBBH6 (for Green Herons only)	<ul style="list-style-type: none"> <li>- Perimeter fence</li> <li>- Solar panels</li> <li>- Access roads</li> <li>- Area of Operational Flexibility</li> </ul>	0 m	No	Identified	Not Significant	N

Natural Feature	Applicable Project Component(s)	Distance Between Natural Feature and Project Location (m)	Summary of Natural Heritage Assessment			EIS Required?
			Identified During Records Review?	Identified, Verified or Refined During Site Investigation?	Evaluation of Significance Results	
Woodland Area-sensitive Bird Breeding Habitat ASBB1	<ul style="list-style-type: none"> <li>- Perimeter fence</li> <li>- Solar panels</li> <li>- Access roads</li> <li>- Inverter station</li> <li>- Main HV substation</li> <li>- Overhead cable</li> <li>- Area of Operational Flexibility</li> </ul>	0 m	No	Identified	Significant	Y
American Gromwell AG1	<ul style="list-style-type: none"> <li>- Perimeter fence</li> <li>- Solar panels</li> <li>- Access roads</li> <li>- Area of Operational Flexibility</li> </ul>	0 m	No	Identified	Not Significant	N
American Gromwell AG2	<ul style="list-style-type: none"> <li>- Overhead cable</li> </ul>	0 m	No	Identified	*Treated as Significant	Y
American Gromwell AG3	<ul style="list-style-type: none"> <li>- Perimeter fence</li> <li>- Solar panels</li> <li>- Access roads</li> <li>- Inverter station</li> <li>- Main HV substation</li> <li>- Area of Operational Flexibility</li> </ul>	10 m	No	Identified	Not Significant	N
American Gromwell AG4	<ul style="list-style-type: none"> <li>- Perimeter fence</li> <li>- Solar panels</li> <li>- Access road</li> </ul>	8 m	No	Identified	Not Significant	N
American Gromwell AG5	<ul style="list-style-type: none"> <li>- Overhead cable</li> </ul>	0 m	No	Identified	Not Significant	N
American Gromwell AG6	<ul style="list-style-type: none"> <li>- Perimeter fence</li> <li>- Solar panels</li> <li>- Access roads</li> <li>- Overhead cable</li> <li>- Area of Operational Flexibility</li> </ul>	0 m	No	Identified	Not Significant	N
Hill's Pondweed HP1	<ul style="list-style-type: none"> <li>- Perimeter fence</li> <li>- Solar panels</li> <li>- Access roads</li> <li>- Area of Operational Flexibility</li> </ul>	7 m	No	Identified	*Treated as Significant	Y

Natural Feature	Applicable Project Component(s)	Distance Between Natural Feature and Project Location (m)	Summary of Natural Heritage Assessment			EIS Required?
			Identified During Records Review?	Identified, Verified or Refined During Site Investigation?	Evaluation of Significance Results	
Hill's Pondweed HP3	- Perimeter fence - Solar panels - Access roads - Area of Operational Flexibility	0 m	No	Identified	*Treated as Significant	Y
Hill's Pondweed HP4	- Perimeter fence - Solar panel - Area of Operational Flexibility	9 m	No	Identified	*Treated as Significant	Y
Hill's Pondweed HP5	- Perimeter fence - Solar panels - Access road - Area of Operational Flexibility	0 m	No	Identified	*Treated as Significant	Y
Hill's Pondweed HP6	- Access road - Area of Operational Flexibility	0 m	No	Identified	*Treated as Significant	Y
Scarlet Beebalm SB1	- Perimeter fence - Solar panels - Access roads	10 m	No	Identified	Not Significant	N
Scarlet Beebalm SB2	- Perimeter fence - Solar panels - Access roads	4 m	No	Identified	Not Significant	N
Scarlet Beebalm SB3	- Overhead cable	0 m	No	Identified	Not Significant	N
Scarlet Beebalm SB4	- Perimeter fence - Solar panels - Access roads - Main HV substation - Area of Operational Flexibility	10 m	No	Identified	Not Significant	N
Scarlet Beebalm SB5	- Overhead cable	0 m	No	Identified	Not Significant	N
Scarlet Beebalm SB6	- Perimeter fence - Solar panels - Access roads - Overhead cable - Area of Operational Flexibility	0 m	No	Identified	Not Significant	N

Natural Feature	Applicable Project Component(s)	Distance Between Natural Feature and Project Location (m)	Summary of Natural Heritage Assessment			EIS Required?
			Identified During Records Review?	Identified, Verified or Refined During Site Investigation?	Evaluation of Significance Results	
Scarlet Beebalm SB8	<ul style="list-style-type: none"> <li>- Perimeter fence</li> <li>- Solar panels</li> <li>- Access roads</li> <li>- Area of Operational Flexibility</li> </ul>	0 m	No	Identified	Not Significant	N
Soft-hairy False Gromwell SHFG1	<ul style="list-style-type: none"> <li>- Perimeter fence</li> <li>- Solar panels</li> <li>- Access roads</li> <li>- Inverter station</li> <li>- Area of Operational Flexibility</li> </ul>	0 m	No	Identified	Not Significant	N
Soft-hairy False Gromwell SHFG2	<ul style="list-style-type: none"> <li>- Perimeter fence</li> <li>- Solar panels</li> <li>- Access road</li> </ul>	0 m	No	Identified	Not Significant	N
Soft-hairy False Gromwell SHFG3	<ul style="list-style-type: none"> <li>- Perimeter fence</li> <li>- Solar panels</li> <li>- Access roads</li> <li>- Inverter station</li> <li>- Area of Operational Flexibility</li> </ul>	0 m	No	Identified	Not Significant	N
Soft-hairy False Gromwell SHFG4	<ul style="list-style-type: none"> <li>- Overhead cable</li> </ul>	0 m	No	Identified	*Treated as Significant	Y
Soft-hairy False Gromwell SHFG5	<ul style="list-style-type: none"> <li>- Perimeter fence</li> <li>- Solar panels</li> <li>- Access roads</li> <li>- Inverter station</li> </ul>	0 m	No	Identified	*Treated as Significant	Y
Soft-hairy False Gromwell SHFG6	<ul style="list-style-type: none"> <li>- Overhead cable</li> <li>- Area of Operational Flexibility</li> </ul>	10 m	No	Identified	*Treated as Significant	Y
Common Nighthawk CN1	<ul style="list-style-type: none"> <li>- Perimeter fence</li> <li>- Solar panels</li> <li>- Access roads</li> <li>- Inverter station</li> </ul>	0 m	No	Identified	Not Significant	N
Common Nighthawk CN2	<ul style="list-style-type: none"> <li>- Perimeter fence</li> <li>- Solar panels</li> <li>- Overhead cable</li> <li>- Area of Operational Flexibility</li> </ul>	0 m	No	Identified	Not Significant	N
Common Nighthawk CN3	<ul style="list-style-type: none"> <li>- Overhead cable</li> </ul>	0 m	No	Identified	Not Significant	N

Natural Feature	Applicable Project Component(s)	Distance Between Natural Feature and Project Location (m)	Summary of Natural Heritage Assessment			EIS Required?
			Identified During Records Review?	Identified, Verified or Refined During Site Investigation?	Evaluation of Significance Results	
Common Nighthawk CN4	- Perimeter fence - Solar panels - Access roads - Inverter station	0 m	No	Identified	Not Significant	N
Common Nighthawk CN5	- Perimeter fence - Solar panels - Access road - Area of Operational Flexibility	2 m	No	Identified	Not Significant	N
Redheaded Woodpecker RHW1	- Perimeter fence - Solar panels - Access roads - Main HV substation	10 m	No	Identified	Significant	Y
Golden-Winged Warbler GWWA1	- Perimeter fence - Solar panels - Access roads - Inverter station	0 m	No	Identified	Not Significant	N
Harlequin Darner HD1	- Perimeter fence - Solar panels	30 m	No	Identified	Not Significant	N
Harlequin Darner HD2	- Perimeter fence - Solar panels - Access roads - Area of Operational Flexibility	30 m	No	Identified	Not Significant	N
Harlequin Darner HD3	- Perimeter fence - Solar panels	20 m	No	Identified	Not Significant	N
Harlequin Darner HD4	- Overhead cable	18 m	No	Identified	Not Significant	N
Harlequin Darner HD5	- Overhead cable	0 m	No	Identified	*Treated as Significant	Y
Harlequin Darner HD6	- Perimeter fence - Solar panels - Overhead cable - Area of Operational Flexibility	49 m	No	Identified	*Treated as Significant	Y
Harlequin Darner HD7	- Perimeter fence - Solar panels - Access roads - Main HV substation	30 m	No	Identified	Not Significant	N

Natural Feature	Applicable Project Component(s)	Distance Between Natural Feature and Project Location (m)	Summary of Natural Heritage Assessment			EIS Required?
			Identified During Records Review?	Identified, Verified or Refined During Site Investigation?	Evaluation of Significance Results	
Harlequin Darner HD8	<ul style="list-style-type: none"> <li>- Access road</li> <li>- Area of Operational Flexibility</li> </ul>	4 m	No	Identified	Not Significant	N
Harlequin Darner HD9	<ul style="list-style-type: none"> <li>- Perimeter fence</li> <li>- Solar panels</li> <li>- Access roads</li> </ul>	30 m	No	Identified	Not Significant	N
Harlequin Darner HD10	<ul style="list-style-type: none"> <li>- Overhead cable</li> <li>- Area of Operational Flexibility</li> </ul>	0 m	No	Identified	*Treated as Significant	Y
Harlequin Darner HD11	<ul style="list-style-type: none"> <li>- Perimeter fence</li> <li>- Solar panels</li> <li>- Access roads</li> <li>- Area of Operational Flexibility</li> </ul>	22 m	No	Identified	Not Significant	N
<b><i>Animal Movement Corridors</i></b>						
None identified within the Project Location or adjacent lands within 50 m						
<b><i>Generalized Candidate Significant Wildlife Habitat</i></b>						
Various habitats	Various	Various	No	Identified	Generalized	Y

## 5. ENVIRONMENTAL IMPACT STUDY PURPOSE

The completion of an *NHA EIS* report in accordance with procedures established by the MNRF, Subsection (1) of Section 38 (O. Reg. 359/09) may permit project components to be constructed and installed within 50 m of a significant or provincially significant feature. This report is consistent with Section 38 of O. Reg. 359/09, which details that an EIS report must include the following:

- Identification and assessment of negative environmental effects of the Project on a natural feature, provincial park or conservation reserve;
- Identification of mitigation measures in respect of negative environmental effects;
- Description of how the environmental effects mitigation and monitoring plan in the *Design and Operations Report* addresses negative environmental effects; and,
- Description of how the *Construction Plan Report* addresses negative environmental effects.

The focus of this EIS report will be to fulfill the requirements of Section 38 for the significant natural features identified in **Table 1** as being within 50 m of the Project Location.

## 6. RATIONALE FOR DEVELOPMENT WITHIN A SETBACK TO A NATURAL FEATURE

The location of the Project has been subject to numerous field investigations and a thorough review of constraints to development was undertaken prior to delineating the Project Location. Based on the natural environment information collected, the Project Location was refined to avoid impacts to significant natural heritage features, where possible. The layout of the Project has been developed to prioritize the protection of sensitive features and minimize environmental effects where possible.

Where Candidate Significant Wildlife Habitat has been generalized, there are development prohibitions applicable to defining the use of the “Area of Operational Flexibility”. In accordance, access roads will not be constructed or operated within 50 m of any habitats of plant Species of Conservation Concern or amphibian breeding habitat that has been generalized. Development is permitted within 50 m of all other habitats that are generalized within 50 m of the Project Location (Figure 7T of the *NHA Site Investigation*) without having to further assess the habitats, as described in Appendix D of the *Natural Heritage Assessment Guide for Renewable Energy Projects* (MNRF 2012).

## 7. PROJECT ACTIVITIES

The following subsections outline the Project activities during the construction, operations and decommissioning phases. **Table 2** outlines the anticipated duration of construction activities for this Project. It is expected that the Project will remain operational for a period of at least 20 years, after which time its value will be evaluated.

Table 2: Anticipated Duration of Construction Activities

Construction Activity	Estimated Timing
Site Preparation	Q1/2016-Q3/2016
Installation of solar components (structural supports, racking, modules, collection system)	Q1/2016-Q4/2016
Installation of Main HV substation and operations and maintenance building	Q2/2016-Q4/2016
Site Clean-up and restoration	Q3/2016-Q4/2016

### 7.1 Construction

It is anticipated that construction would last approximately 10-12 months. Pending receipt of all necessary approvals and permits, construction is tentatively scheduled to begin in early 2016. **Table 3** outlines the construction activities for the Project. Pre-construction activities at the Project Location include: geotechnical study, and archaeological and cultural heritage assessments.

Table 3: Construction Activities

Activity	Description
Survey and Staking of Project Location	Prior to the construction phase, the Project Location will be surveyed and staked to delineate the boundaries for fencing, access roads, excavations and foundation locations. Areas to be avoided will be fenced and/or flagged for public safety.
Clearing, ground levelling and grading	The Project Location will be minimally graded to facilitate construction activities based on a grading plan, and a preliminary Stormwater Management Report (see the <i>Design and Operations Report</i> ) will be implemented to maintain the pre-construction off-site drainage patterns as much as possible. Selective vegetation clearing may be necessary. If necessary, a detailed design Stormwater Management Plan will be completed by the project contractor prior to the start of construction.

Activity	Description
Drainage and Erosion Control	It is not anticipated that the construction of the Project will have a significant impact on stormwater peak flows at the Project Location. A detailed Stormwater Management Plan will be developed prior to construction to address any temporary and/or permanent systems to manage flow and protect natural features during construction and operations. This detailed plan will be consistent with the preliminary Stormwater Management Report documented as part of the <i>Design and Operations Report</i> . Temporary erosion and sediment control measures will be installed prior to and during site construction to protect natural features and other considerations identified in the NHA.
Installation of the perimeter fence and Security Lighting	<p>Fencing will be installed for the duration of the project lifespan around the perimeter of the Project Location. The fence will be installed in accordance with the requirements of the Electrical Safety Authority (ESA) but is anticipated to be a chain-link fence with three strands of barbed wire on top. Alternatively, consideration will also be given to the installation of an anti-climb fence or predator-proof fencing to facilitate potential livestock (sheep) grazing during operations. Gated entrances will be installed at the site entrances. Temporary entrances may be in place during the construction phases. For security and maintenance purposes, lights may be installed near the entrance of the solar facility and task-specific lights will be provided as necessary.</p> <p>During construction, the site will be monitored by the supervising construction staff and if necessary, 24-hour on-site security will also be utilized. Lights will be installed near the main HV substation transformer and site entrances to the solar facility and task-specific lights will be installed where necessary.</p>
Construction of Access Roads and Installation of Temporary Power	<p>The main entrances to the solar facility will be located off Grey Road 9, Southgate Sideroad 41 and Southgate Road 22. Other existing internal access roads will be utilized. In addition, temporary and/or permanent gravel access roads will be constructed to facilitate installation and delivery of equipment as well as maintenance requirements during operations. These granular access roads will be approximately 6 m wide and constructed as appropriate for the Project Location and final engineering design. It is anticipated that geo-textile mats will be installed under all Project access roads to be constructed, to reduce the need for land rehabilitation during decommissioning.</p> <p>During the construction period, it is anticipated that on-site electricity will be obtained from the local distribution utility from nearby suitable distribution lines to provide the Project Location with auxiliary power as required to power equipment and for temporary construction offices, lighting and other purposes. If no distribution supply is available nearby, the requirements for an auxiliary generator will be determined once the layout of the solar facility is reviewed in detail.</p>

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

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

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

Construction activities will be conducted by licensed contractors in accordance with required standards and codes and all activities will abide by local laws and requirements. Construction-related activities will be conducted within the Project Location boundary outlined in **Figure 2**. Testing and commissioning of the facility will occur over the last few weeks of construction. During construction, no hazardous materials, including fuel, oils or grease will be stored on site, although equipment may require their use. Disposal of hazardous wastes will only be required in the case of accidental spills and will follow the procedures outlined in the Spills Response Plan. Decisions on waste disposal or recycling during, and immediately after, construction will be made by the on-site contractor who will refer to the *Environmental Protection Act*.

## **7.2 Operations and Maintenance**

The following activities, outlined in **Table 4**, are associated with the operation and maintenance of the solar facility. These activities will take place over the lifetime of the facility. Overall, few activities are associated with the operational phase of the Project. It will operate year round and generate electricity during daylight hours only and the amount of daily power generated will depend on weather conditions. The proposed solar facility will be monitored and managed remotely; therefore, minimal on-site activity is required for its daily operation and there will be no permanent on-site employees. Security and minor maintenance will be the only regular activities anticipated on-site.

Table 4: Operations and Maintenance Activities

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

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

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

### **7.3 Decommissioning**

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

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

- Disconnection and removal of above and below-ground wiring
- Removal of PV modules, steel/aluminum structures and electrical equipment
- Removal of foundations and any maintenance buildings or other structures
- Removal of access roads
- Topsoil replacement as necessary
- Site grading and rehabilitation as necessary
- Removal of waste from the Project Location

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

### 7.3.1 Site Restoration

Decommissioning activities are outlined in **Table 5**.

Table 5: Decommissioning Activities

Activity	Description
<i>Above-ground Structures</i>	
PV Arrays	<ul style="list-style-type: none"> <li>• Disconnect all above ground wirings, cables and electrical interconnections.</li> <li>• Remove PV modules from racks and temporarily store on-site in delineated area before removal by truck to appropriate facility(ies).</li> <li>• Dismantle and remove all racks and support structures, including extraction of in-ground support structures (see below). Temporarily store on-site before removal by truck to recycling facility.</li> </ul>
Medium Voltage (MV) Stations, Substation	<ul style="list-style-type: none"> <li>• Disconnect and remove all electrical equipment.</li> <li>• Remove inverters and associated components including combiners, medium voltage transformers, medium voltage switch gear and transport off-site to appropriate facility.</li> <li>• Unbolt high voltage substation transformer and remove from the foundation with a crane and dismantle all other substation component and transport off-site to appropriate facility.</li> <li>• Remove concrete foundations for MV Stations and substation components (see below).</li> </ul>
Access roads and other components	<ul style="list-style-type: none"> <li>• Consult with landowners to determine if access roads should be left in place for their continued use.</li> <li>• If one or more access roads are removed after consultation with the landowners, the aggregate materials will be excavated by a backhoe/front-end loader, along with any underlying geotextile fabric.</li> <li>• All compacted areas will be tilled in a manner adequate to restore the sub-grade material to the proper density and depth, consistent with the surrounding fields. Clean, compatible sub-grade material, followed by topsoil will be applied as necessary.</li> <li>• Overhead lines and poles that are not owned by Hydro One Networks Inc. (HONI) will be removed along with associated equipment (isolation switches, fuses, metering) and holes will be filled in with clean fill or on-site fill, as appropriate.</li> <li>• Removal of the perimeter fencing, followed by removal of fence pole foundations.</li> </ul>
<i>Below-ground Structures</i>	

Activity	Description
Underground cables	<ul style="list-style-type: none"> <li>Underground electrical lines running between inverters and the substation will be removed.</li> </ul>
Equipment foundations	<ul style="list-style-type: none"> <li>The substation, MV Stations and steel racking for the solar modules will have foundations that require removal. These foundations will likely consist of steel piles but may also include concrete. Other underground infrastructure requiring removal may include concrete protective electrical structures. It is anticipated that structures will be fully removed from the ground and that the affected area shall be backfilled as necessary.</li> <li>In the event that a structure breaks during excavation, it is not anticipated that any waste materials will be left on-site with the possible exception of foundations or steel piles broken off below 1.2 metres in depth and/or disconnected underground electrical wires buried below 1 metre in depth. Waste concrete will be recycled off-site by a concrete recycler or crushed on-site and used as backfill material.</li> <li>All foundation materials will be removed from the site via truck and managed at appropriate facilities.</li> </ul>

### **7.3.2 Managing Excess Materials and Waste**

During the decommissioning phase a variety of excess materials and wastes will be generated (see **Table 3**). Most of the materials used in a solar facility are reusable or recyclable and some equipment may have manufacturer take-back and recycling requirements. Any remaining materials will be removed and disposed of off-site at an appropriate facility. Southgate Solar LP will maximize recycling and reuse and will work with manufacturers, local subcontractors and waste firms to segregate material to be disposed of, recycled and/or reused (see **Table 6**).

Southgate Solar LP will be responsible for the logistics of collecting and recycling the PV modules and to minimize the potential for modules to be discarded. Southgate Solar LP proposes to determine the best way of recycling the solar modules at the time of decommissioning based on best management practices.

**Table 6: Managing Excess Materials and Waste**

Material/Waste	Means of Managing Excess Materials and Waste
PV panels	If there is no possibility for reuse, the PV panels will either be returned to the manufacturer for appropriate recycling/disposal or will be transported to a facility where the glass, metal and semiconductor materials will be separated and recycled. Panels will be managed as per best management practices that may be in effect at the time of decommissioning.

Material/Waste	Means of Managing Excess Materials and Waste
Metal array mounting racks and steel supports	These materials will be recycled off-site at an approved facility.
Transformers and substation components	Oil from the transformers will be removed on-site to reduce the potential for spills and will be transported to an approved facility for disposal. The main HV substation transformer and step-up transformers at the MV Stations will be transported off-site to be sent back to the manufacturer, recycled, reused, or safely disposed of off-site in accordance with standards and best practices of the day.
Inverters, fans, fixtures	The metal components of the inverters, fans and fixtures will be recycled, where possible. Remaining components will be disposed of in accordance with the standards of the day.
Gravel (or other granular)	It is possible that the municipality may accept uncontaminated material without processing for use on local roads, however, for the purpose of this report it is assumed that the material will be removed from the Project Location by truck to a location where the aggregate can be processed for salvage. It will then be reused as fill for construction. In the unlikely event that the aggregate or portions of the aggregate is contaminated it will be transported to an MOECC-approved hazardous waste/disposal facility.
Geotextile fabric	It is assumed that during excavation of the aggregate, a large portion of the geotextile will be “picked up” and sorted out of the aggregate at the aggregate reprocessing site. Geotextile fabric that is remaining or large pieces that can be readily removed from the excavated aggregate will be disposed of off-site at an MOECC-approved disposal facility.
Concrete inverter/transformer foundations	Concrete foundations will be broken down and transported by certified and licensed contractor to a recycling or MOECC-approved disposal facility.
Cables and wiring	The electrical line that connects the substation to the Point of Common Coupling (PCC) will be disconnected and recycled, if possible, or disposed of at an approved facility. Support poles, if made of untreated wood, will be chipped for reuse. Associated electronic equipment (isolation switches, fuses, metering) will be transported off-site to be sent back to the manufacturer, recycled, reused, or safely disposed off-site in accordance with standards and best practices of the day.
Fencing	Fencing will be removed and recycled at a metal recycling facility.
Debris	Remaining debris on the site will be separated into recyclables/residual wastes and will be transported from the site and managed as appropriate.

Recyclable materials will be transported off-site by truck and managed at appropriate facilities in accordance with provincial waste management regulations. Residual waste materials for disposal will be removed by a licensed contractor and transported to an MOECC-approved facility. It is not anticipated that any waste materials will be left on-site with the possible

exception of foundations or steel piles broken off below 1.2 metres in depth and/or disconnected underground electrical wires buried below 1 metre in depth. The final decision on waste disposal or recycling will be made by the on-site contractor who will refer to the standards of the day for waste generated at the facility. Given that methods of managing wastes and recyclables may change in the future, information in this report will be updated as necessary to conform to future local and provincial requirements.

DRAFT

## 8. EXISTING ENVIRONMENTAL CONDITIONS OF RELEVANT NATURAL FEATURES

Existing environmental conditions for the Project Location and surrounding areas were determined through the records review and site investigation, which comply with Section 25 and 26 of the REA process. Below, we provide a summary of the natural environment associated with the Project Location with a specific focus on natural features of significance that required an EIS. The function, composition, attributes and characteristics that make natural features significant, contribute to their persistence, may be sensitive to development and serve as a good indicator of negative environmental effects are described below.

### 8.1 Overview

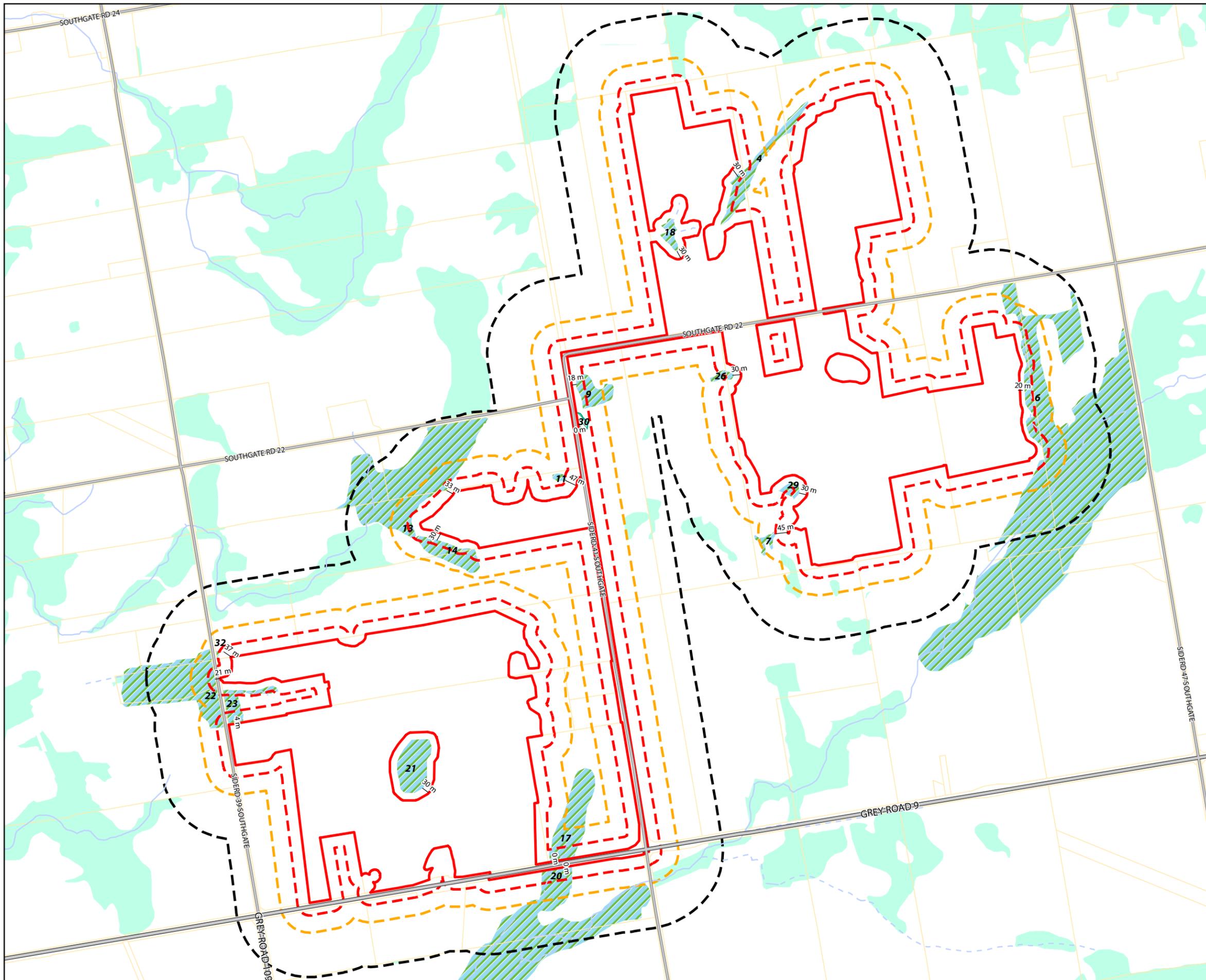
Through the records review, site investigation and evaluation of significance work, it was confirmed that the following natural features either did not occur in the Project Location or relevant adjacent lands or were not evaluated to be significant or provincially significant:

- Provincial Parks and Conservation Reserves
- ANSI, Life Science
- ANSI, Earth Science

### 8.2 Description of Significant Natural Features

#### 8.2.1 Wetlands

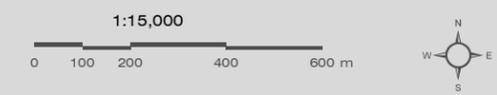
The boundaries of southern wetland units in or within 50 m of the Project Location were delineated using the OWES protocol during the site investigation work and are shown on **Figure 3**. **Table 7** outlines the attributes, composition and function of each assumed significant wetland unit identified during the site investigation to be within 50 m of the Project Location and confirms if the wetland was included in the records review or was identified as a result of these site investigations. **Table 7** also outlines the project components that fall within 50 m of each assumed provincially significant wetland boundary. Characteristics that contribute to wetland persistence, may be sensitive to development and serve as a good indicator of negative environmental effects are described below in **Table 10**.



## SOUTHGATE SOLAR PROJECT

**FIGURE 3  
SIGNIFICANT WETLANDS**

- Permanent Watercourse
- Intermittent Watercourse
- Project Location
- Project Location 50 m Setback
- Project Location 120 m Setback
- Project Location 300 m Setback
- Parcel Boundary
- Assumed Provincially Significant Wetland
- Dillon Delineated Wetland (Non-Provincially Significant)
- Unevaluated Wetland



MAP DRAWING INFORMATION:  
DATA PROVIDED BY MNR

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

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



PROJECT: 149154  
STATUS: DRAFT  
DATE: 12/4/2014

Table 7: Significant Southern Wetlands within the Project Location and Surrounding 50m

Wetland ID Number	Wetland Size (ha)	Wetland Type	Site Type	Vegetation Communities (* denotes dominant vegetation form)	Proximity to Other Wetlands	Interspersion	Open Water Type	Flood Attenuation	Water Quality Improvement	Shoreline Erosion Control	Groundwater Recharge	Species Rarity	Significant Features and Habitat	Fish Habitat
4	2.15  Wetland boundaries were delineated during fieldwork and it was found that the wetland does not occur within project location. 0.54 ha of the wetland unit occurs within 50 m of the Project Location.	Wetland contains Swamp and Marsh  Wetland is comprised of 62% swamp and marsh type 38%.  The OWES wetland types present are treed swamp with deciduous trees the dominant vegetation form, and marsh with narrow-leaved emergents the dominant vegetation form.  The ELC communities present are Black Ash Mineral Deciduous Swamp (SWDM2-1) and Mixed Mineral Meadow Marsh (MAMM3-1) which are considered common vegetation communities in Ontario.	Palustrine  This palustrine wetland appears to be connected to wetland 25 through seasonal overland flow.  The construction of the solar facility will not significantly change the flow of water to or from the wetland unit.	1. *H – <i>Fraxinus nigra</i> , <i>Tilia americana</i> , <i>Ulmus americana</i> Gc – <i>Matteuccia struthiopteris</i> , <i>Onoclea sensibilis</i> , <i>Athyrium filix-femina</i> var. <i>angustum</i> Ne – <i>Poa palustris</i> , <i>Carex vulpinoidea</i> , <i>Equisetum arvense</i>  2. Ls – <i>Cornus sericea</i> ssp. <i>sericea</i> , <i>Spiraea alba</i> var. <i>alba</i> *Ne – <i>Phalaris arundinacea</i>	32 m to Wetland Unit 25	Interspersion count of 218 intersections. The interspersion value used was for wetlands in the entire 5117 ha catchment this wetland unit is part of, which form a wetland complex. This interspersion value will persist with the development of the Southgate Solar Project.	Type 1  (less than 5% of wetland area).  The construction of a solar facility on adjacent lands will not decrease or increase the value of the wetland unit's open water.	Wetland unit is small in comparison to its upstream catchment area of 5117 ha, which was determined using topographic and drainage mapping. Since no part of the wetland unit will be removed the unit will still attenuate flood peaks.	Catchment area determined to be >50% agricultural (cropland, hayfield and pasture). The quality of water entering the wetland unit adjacent to the Project Location should remain unchanged or improved with the development of a solar facility. The solar facility will not require input of chemicals to adjacent lands.	N/A – no shoreline is present in the wetland	The wetland unit is palustrine and contains mineral silt soils, meaning the unit may be valuable as a source of groundwater recharge. Since there will be no change to the wetland, the unit's ability to recharge groundwater will remain the same.	No rare species were observed in this wetland unit.  Common Snapping Turtle was observed in the general larger study area.  The development of the Southgate Solar Project is not expected to impact rare species.	<ul style="list-style-type: none"> <li>• Deer Winter Congregation Area</li> <li>• Amphibian Breeding Habitat (Woodland)</li> <li>• Woodland Area-Sensitive Bird Breeding Habitat</li> <li>• Generalized Candidate Significant Wildlife Habitat</li> </ul>	N/A – no fish spawning or migration/staging habitat is present

Wetland ID Number	Wetland Size (ha)	Wetland Type	Site Type	Vegetation Communities (* denotes dominant vegetation form)	Proximity to Other Wetlands	Interspersion	Open Water Type	Flood Attenuation	Water Quality Improvement	Shoreline Erosion Control	Groundwater Recharge	Species Rarity	Significant Features and Habitat	Fish Habitat
6	39.7  Wetland boundaries were delineated during fieldwork and it was found that the wetland does not occur within project location. 1.84 ha of the wetland unit occurs within 50 m of the project location.	Wetland consists of Swamp  Wetland is comprised of 100% swamp type.  The OWES wetland type is a treed swamp, with coniferous trees the dominant vegetation form.  The ELC community present is Balsam Fir Hardwood Mixed Mineral Swamp (SWMM5-1) which is considered a common vegetation community in Ontario.	Palustrine  This palustrine wetland likely experiences seasonal overland drainage towards the watercourse that flows through it.  The construction of the solar facility will not significantly change the flow of water to or from the wetland unit.	1. H – <i>Betula alleghaniensis</i> var. <i>falax</i> , <i>Acer saccharinum</i> *C – <i>Abies balsamea</i> , <i>Thuja occidentalis</i> Gc – <i>Onoclea sensibilis</i> , <i>Matteuccia struthiopteris</i>	42 m to Wetland Unit 28	Interspersion count of 218 intersections. The interspersion value used was for wetlands in the entire 5117 ha catchment this wetland unit is part of, which form a wetland complex. This interspersion value will persist with the development of the Southgate Solar Project.	Type 1  (less than 5% of wetland area).  The construction of a solar facility on adjacent lands will not decrease or increase the value of the wetland unit's open water.	Wetland unit is small in comparison to its upstream catchment area of 5117 ha, which was determined using topographic and drainage mapping. Since no part of the wetland unit will be removed the unit will still attenuate flood peaks.	Catchment area determined to be >50% agricultural (cropland, hayfield and pasture). The quality of water entering the wetland unit adjacent to the project location should remain unchanged or improved with the development of a solar facility. The solar facility will not require input of chemicals to adjacent lands.	This swamp contains a permanent watercourse. Shoreline vegetation is treed providing strong shoreline erosion control.	The wetland unit is palustrine and contains mineral silty sand soils, meaning the unit may be valuable as a source of groundwater recharge. Since there will be no change to the wetland, the unit's ability to recharge groundwater will remain the same.	No rare species were observed in this wetland unit.  Common Snapping Turtle was observed in the general larger study area.  The development of the Southgate Solar Project is not expected to impact rare species.	<ul style="list-style-type: none"> <li>Amphibian Breeding Habitat (Woodland)</li> <li>Generalized Candidate Significant Wildlife Habitat</li> </ul>	A permanent watercourse is present in this wetland that may provide spawning and migration/staging habitat. This permanent watercourse is located outside of the 50 m setback and will not be impacted by the development of the Southgate Solar Project.

Wetland ID Number	Wetland Size (ha)	Wetland Type	Site Type	Vegetation Communities (* denotes dominant vegetation form)	Proximity to Other Wetlands	Interspersion	Open Water Type	Flood Attenuation	Water Quality Improvement	Shoreline Erosion Control	Groundwater Recharge	Species Rarity	Significant Features and Habitat	Fish Habitat
7	0.31  Wetland boundaries were delineated during fieldwork and it was found that the wetland does not occur within project location. 0.004 ha of the wetland unit occurs within 50 m of the project location.	Wetland is Marsh  Wetland is comprised of 100% marsh type.  The OWES wetland type is a marsh with narrow-leaved emergents the dominant vegetation form.  The ELC community present is Reed Canary Grass Mineral Shallow Marsh (MASM1-14) which is considered a common vegetation community in Ontario.	Isolated  This isolated wetland likely receives water from ground water inputs, as well as precipitation.  The construction of the solar facility will not significantly change the inputs of water to or from the wetland unit.	1. *Ne – <i>Phalaris arundinacea</i> , <i>Carex</i> sp. Be – <i>Iris versicolor</i> F – <i>Pericaria amphibia</i> var. <i>emersa</i>	36 m to wetland unit to south east	Interspersion count of 218 intersections. The interspersion value used was for wetlands in the entire 5117 ha catchment this wetland unit is part of, which form a wetland complex. This interspersion value will persist with the development of the Southgate Solar Project.	Type 2  (5-25% of wetland area)  The construction of a solar facility on adjacent lands will not decrease or increase the value of the wetland unit's open water.	Wetland unit is small in comparison to its upstream catchment area of 5117 ha, which was determined using topographic and drainage mapping. Since no part of the wetland unit will be removed the unit will still attenuate flood peaks.  Due to its isolated nature this wetland unit will provide maximum attenuation benefits.	Catchment area determined to be >50% agricultural (cropland, hayfield and pasture). The quality of water entering the wetland unit adjacent to the project location should remain unchanged or improved with the development of a solar facility. The solar facility will not require input of chemicals to adjacent lands.	N/A – no shoreline is present in the wetland	The wetland unit is isolated and contains mineral sandy soils, meaning the unit may be valuable as a source of groundwater recharge. Since there will be no change to the wetland, the unit's ability to recharge groundwater will remain the same.	No rare species were observed in this wetland unit.  Common Snapping Turtle was observed in the general larger study area.  The development of the Southgate Solar Project is not expected to impact rare species.	<ul style="list-style-type: none"> <li>Amphibian Breeding Habitat (Woodland)</li> <li>Generalized Candidate Significant Wildlife Habitat</li> </ul>	N/A – no fish spawning or migration/ staging habitat is present

Wetland ID Number	Wetland Size (ha)	Wetland Type	Site Type	Vegetation Communities (* denotes dominant vegetation form)	Proximity to Other Wetlands	Interspersion	Open Water Type	Flood Attenuation	Water Quality Improvement	Shoreline Erosion Control	Groundwater Recharge	Species Rarity	Significant Features and Habitat	Fish Habitat
9	1.27  Wetland boundaries were delineated during fieldwork and it was found that the wetland does not occur within project location. 0.33 ha of the wetland unit occurs within 50 m of the project location.	Wetland is Swamp  Wetland is comprised of 100% swamp type.  The OWES wetland type is a swamp with tall shrub the dominant vegetation form.  The ELC community present is Willow Mineral Deciduous Thicket Swamp (SWTM3) which is considered a common vegetation community in Ontario.	Palustrine  This wetland appears to have seasonal overland flow connection to wetland 30.  The construction of the solar facility will not significantly change the flow of water to or from the wetland unit.	1. *Ts – <i>Salix</i> sp.	25 m to Wetland Unit 30	Interspersion count of 218 intersections. The interspersion value used was for wetlands in the entire 5117 ha catchment this wetland unit is part of, which form a wetland complex. This interspersion value will persist with the development of the Southgate Solar Project.	Type 1  (less than 5% of wetland area).  The construction of a solar facility on adjacent lands will not decrease or increase the value of the wetland unit's open water.	Wetland unit is small in comparison to its upstream catchment area of 5117 ha, which was determined using topographic and drainage mapping. Since no part of the wetland unit will be removed the unit will still attenuate flood peaks.	Catchment area determined to be >50% agricultural (cropland, hayfield and pasture). The quality of water entering the wetland unit adjacent to the project location should remain unchanged or improved with the development of a solar facility. The solar facility will not require input of chemicals to adjacent lands.	N/A – no shoreline is present in the wetland	The wetland unit is palustrine, meaning the unit may be valuable as a source of groundwater recharge. Since there will be no change to the wetland, the unit's ability to recharge groundwater will remain the same.	No rare species were observed in this wetland unit.  Common Snapping Turtle was observed in the general larger study area.  The development of the Southgate Solar Project is not expected to impact rare species.	<ul style="list-style-type: none"> <li>Amphibian Breeding Habitat (Wetland)</li> <li>Generalized Candidate Significant Wildlife Habitat</li> </ul>	N/A – no fish spawning or migration/ staging habitat is present
11	0.14  Wetland boundaries were delineated during fieldwork and it was found that the wetland does not occur within project location. 0.004 ha of the wetland unit occurs within 50 m of the project	Wetland is Swamp  Wetland is comprised of 100% swamp type.  The OWES wetland type is a swamp with deciduous trees the dominant vegetation form.	Isolated  This isolated wetland likely receives water from ground water inputs, as well as precipitation.  The construction of the solar facility will not significantly change the inputs of water	1. *H – <i>Fraxinus pennsylvanica</i> Ls – <i>Rubus sachalinensis</i> var. <i>sachalinensis</i> Gc – <i>Ranunculus acris</i> , <i>Impatiens capensis</i>	181 m to Wetland Unit 30	Interspersion count of 218 intersections. The interspersion value used was for wetlands in the entire 5117 ha catchment this wetland unit is part of, which form a wetland	Type 1  (less than 5% of wetland area).  The construction of a solar facility on adjacent lands will not decrease or increase the value of the wetland unit's open water.	Wetland unit is small in comparison to its upstream catchment area of 5117 ha, which was determined using topographic and drainage mapping. Since no part of the wetland unit will be removed the unit will still attenuate flood peaks.	Catchment area determined to be >50% agricultural (cropland, hayfield and pasture). The quality of water entering the wetland unit adjacent to the project location should remain unchanged or improved with the development of a solar facility. The solar facility will not require input of	N/A – no shoreline is present in the wetland	The wetland unit is isolated, meaning the unit may be valuable as a source of groundwater recharge. Since there will be no change to the wetland, the unit's ability to recharge groundwater will remain the same.	No rare species were observed in this wetland unit.  Common Snapping Turtle was observed in the general larger study area.  The development of the Southgate Solar Project is not expected to impact rare species.	<ul style="list-style-type: none"> <li>Woodland Area-Sensitive Bird Breeding Habitat</li> <li>Deer Winter Congregation Area</li> <li>Amphibian Breeding Habitat (Woodland)</li> <li>Generalized Candidate Significant Wildlife</li> </ul>	N/A – no fish spawning or migration/ staging habitat is present

Wetland ID Number	Wetland Size (ha)	Wetland Type	Site Type	Vegetation Communities (* denotes dominant vegetation form)	Proximity to Other Wetlands	Interspersion	Open Water Type	Flood Attenuation	Water Quality Improvement	Shoreline Erosion Control	Groundwater Recharge	Species Rarity	Significant Features and Habitat	Fish Habitat
	location.	The ELC community present is Green Ash Mineral Deciduous Swamp (SWDM2-2) which is considered a common vegetation community in Ontario.	to or from the wetland unit.			complex. This interspersion value will persist with the development of the Southgate Solar Project.		Due to its isolated nature this wetland unit will provide maximum attenuation benefits.	chemicals to adjacent lands.				Habitat	
13	12.22  Wetland boundaries were delineated during fieldwork and it was found that the wetland does not occur within project location. 0.23 ha of the wetland unit occurs within 50 m of the project location.	Wetland is Swamp  Wetland is comprised of 100% swamp type.  The OWES wetland type is a swamp with coniferous trees the dominant vegetation form.  The ELC communities present are White Cedar Hardwood Mineral Mixed Swamp (SWMM1-1) and White Cedar Hardwood Organic Mixed Swamp (SWMO1-1) which are considered common	Palustrine  This palustrine wetland likely experiences seasonal overland drainage towards the watercourse that flows through it.  The construction of the solar facility will not significantly change the flow of water to or from the wetland unit.	1. H – <i>Fraxinus nigra</i> , <i>Acer rubrum</i> , <i>Betula alleghaniensis</i> var. <i>falax</i>  *C – <i>Thuja occidentalis</i> , <i>Abies balsamea</i>  Ts – <i>Sambucus canadensis</i>  Gc – <i>Dryopteris cristata</i> , <i>Osmunda regalis</i> var. <i>spectabilis</i> , <i>Caltha palustris</i> , <i>Impatiens capensis</i> , <i>Coptis trifolia</i>  Ne – <i>Carex</i> sp.  2. H – <i>Acer rubrum</i> , <i>Fraxinus pennsylvanica</i> , <i>Populus tremuloides</i>  *C – <i>Thuja occidentalis</i> , <i>Larix</i>	6 m to Wetland Unit 14	Interspersion count of 118 intersections. The interspersion value used was for wetlands in the entire 689 ha catchment this wetland unit is part of, which form a wetland complex. This interspersion value will persist with the development of the Southgate Solar Project.	Type 1  (less than 5% of wetland area).  The construction of a solar facility on adjacent lands will not decrease or increase the value of the wetland unit's open water.	Wetland unit is small in comparison to its upstream catchment area of 689 ha, which was determined using topographic and drainage mapping. Since no part of the wetland unit will be removed the unit will still attenuate flood peaks.	Catchment area determined to be >50% agricultural (cropland, hayfield and pasture). The quality of water entering the wetland unit adjacent to the project location should remain unchanged or improved with the development of a solar facility. The solar facility will not require input of chemicals to adjacent lands.	This swamp contains a permanent watercourse. Shoreline vegetation is treed providing strong shoreline erosion control.	The wetland unit is palustrine with organic soils, meaning the unit may be valuable as a source of groundwater recharge. Since there will be no change to the wetland, the unit's ability to recharge groundwater will remain the same.	No rare species were observed in this wetland unit.  Common Snapping Turtle was observed in the general larger study area.  The development of the Southgate Solar Project is not expected to impact rare species.	<ul style="list-style-type: none"> <li>Woodland Area-Sensitive Bird Breeding Habitat</li> <li>Deer Winter Congregation Area</li> <li>Amphibian Breeding Habitat (Woodland)</li> <li>Generalized Candidate Significant Wildlife Habitat</li> </ul>	A permanent watercourse is present in this wetland that may provide spawning and migration/staging habitat. This permanent watercourse is located outside of the 50 m setback and will not be impacted by the development of the Southgate Solar Project.

Wetland ID Number	Wetland Size (ha)	Wetland Type	Site Type	Vegetation Communities (* denotes dominant vegetation form)	Proximity to Other Wetlands	Interspersion	Open Water Type	Flood Attenuation	Water Quality Improvement	Shoreline Erosion Control	Groundwater Recharge	Species Rarity	Significant Features and Habitat	Fish Habitat
		vegetation communities in Ontario.		<i>laricina, Tsuga canadensis, Abies balsamea</i>  Gc – <i>Maianthemum canadense, Dryopteris cristata, Caltha palustris, Aralia nudicaulis, Thelypteris palustris var. pubescens</i>										
14	1.73  Wetland boundaries were delineated during fieldwork and it was found that the wetland does not occur within project location. 0.55 ha of the wetland unit occurs within 50 m of the project location.	Wetland is Swamp  Wetland is comprised of 100% swamp type.  The OWES wetland type is a swamp with coniferous trees the dominant vegetation form.  The ELC community present is White Cedar Hardwood Mineral Mixed Swamp (SWMM1-1) which is considered a common vegetation community in Ontario.	Palustrine  This palustrine wetland likely experiences seasonal overland drainage towards the watercourse that flows through it.  The construction of the solar facility will not significantly change the flow of water to or from the wetland unit.	1. H – <i>Acer rubrum, Fraxinus pennsylvanica, Populus tremuloides</i> *C – <i>Thuja occidentalis, Larix laricina, Tsuga canadensis, Abies balsamea</i> Gc – <i>Maianthemum canadense, Dryopteris cristata, Caltha palustris, Aralia nudicaulis, Thelypteris palustris var. pubescens</i>	6 m to Wetland Unit 13	Interspersion count of 118 intersections. The interspersion value used was for wetlands in the entire 689 ha catchment this wetland unit is part of, which form a wetland complex. This interspersion value will persist with the development of the Southgate Solar Project.	Type 1 (less than 5% of wetland area).  The construction of a solar facility on adjacent lands will not decrease or increase the value of the wetland unit's open water.	Wetland unit is small in comparison to its upstream catchment area of 689 ha, which was determined using topographic and drainage mapping. Since no part of the wetland unit will be removed the unit will still attenuate flood peaks.	Catchment area determined to be >50% agricultural (cropland, hayfield and pasture). The quality of water entering the wetland unit adjacent to the project location should remain unchanged or improved with the development of a solar facility. The solar facility will not require input of chemicals to adjacent lands.	N/A – no shoreline is present in the wetland	The wetland unit is palustrine and contains mineral sand soils, meaning the unit may be valuable as a source of groundwater recharge. Since there will be no change to the wetland, the unit's ability to recharge groundwater will remain the same.	No rare species were observed in this wetland unit.  Common Snapping Turtle was observed in the general larger study area.  The development of the Southgate Solar Project is not expected to impact rare species.	<ul style="list-style-type: none"> <li>Woodland Area-Sensitive Bird Breeding Habitat</li> <li>Deer Winter Congregation Area</li> <li>Amphibian Breeding Habitat (Woodland)</li> <li>Generalized Candidate Significant Wildlife Habitat</li> </ul>	N/A – no fish spawning or migration/staging habitat is present

Wetland ID Number	Wetland Size (ha)	Wetland Type	Site Type	Vegetation Communities (* denotes dominant vegetation form)	Proximity to Other Wetlands	Interspersion	Open Water Type	Flood Attenuation	Water Quality Improvement	Shoreline Erosion Control	Groundwater Recharge	Species Rarity	Significant Features and Habitat	Fish Habitat
17	3.54  Wetland boundaries were delineated during fieldwork and it was found that the wetland does not occur within project location. 0.54 ha of the wetland unit occurs within 50 m of the project location.	Wetland is Swamp  Wetland is comprised of 100% swamp type.  The OWES wetland type is a swamp with deciduous trees the dominant vegetation form.  The ELC community present is White Cedar Hardwood Mineral Mixed Swamp (SWMM1-1) which is considered a common vegetation community in Ontario.	Palustrine  This wetland likely has seasonal overland flow connection with Wetland 20.  The construction of the solar facility will not significantly change the flow of water to or from the wetland unit.	1. *H – <i>Ulmus americana</i> , <i>Fraxinus pennsylvanica</i> , <i>Populus tremuloides</i> C – <i>Thuja occidentalis</i> Ts – <i>Salix bebbiana</i> Ne – <i>Phalaris arundinacea</i> , <i>Glyceria striata</i> Re – <i>Typha latifolia</i> Gc – <i>Onoclea sensibilis</i> , <i>Solanum dulcamara</i>	30 m to Wetland Unit 20	Interspersion count of 218 intersections. The interspersion value used was for wetlands in the entire  5117 ha catchment this wetland unit is part of, which form a wetland complex. This interspersion value will persist with the development of the Southgate Solar Project.	Type 1  (less than 5% of wetland area).  The construction of a solar facility on adjacent lands will not decrease or increase the value of the wetland unit's open water.	Wetland unit is small in comparison to its upstream catchment area of 5117 ha, which was determined using topographic and drainage mapping. Since no part of the wetland unit will be removed the unit will still attenuate flood peaks.	Catchment area determined to be >50% agricultural (cropland, hayfield and pasture). The quality of water entering the wetland unit adjacent to the project location should remain unchanged or improved with the development of a solar facility. The solar facility will not require input of chemicals to adjacent lands.	N/A – no shoreline is present in the wetland	The wetland unit is palustrine, meaning the unit may be valuable as a source of groundwater recharge. Since there will be no change to the wetland, the unit's ability to recharge groundwater will remain the same.	No rare species were observed in this wetland unit.  Common Snapping Turtle was observed in the general larger study area.  The development of the Southgate Solar Project is not expected to impact rare species.	• Generalized Candidate Significant Wildlife Habitat	N/A – no fish spawning or migration/ staging habitat is present
18	0.47  Wetland boundaries were delineated during fieldwork and it was found that the wetland does not occur within project location. 0.47 ha of the wetland unit occurs within 50 m of the project	Wetland is Marsh  Wetland is comprised of 100% marsh type.  The OWES wetland type is a marsh with robust emergents the dominant vegetation form.	Palustrine  This wetland appears to receive water from ephemeral watercourse drainage.  The construction of the solar facility will not significantly change the flow of water to or	1. *Re – <i>Typha</i> sp. Ne – <i>Phalaris arundinacea</i>	120 m to Wetland Unit 25	Interspersion count of 218 intersections. The interspersion value used was for wetlands in the entire  5117 ha catchment this wetland unit is part of, which form a	Type 2  (5-25% of wetland area)  The construction of a solar facility on adjacent lands will not decrease or increase the value of the wetland unit's open water.	Wetland unit is small in comparison to its upstream catchment area of 5117 ha, which was determined using topographic and drainage mapping. Since no part of the wetland unit will be removed the unit will still attenuate flood	Catchment area determined to be >50% agricultural (cropland, hayfield and pasture). The quality of water entering the wetland unit adjacent to the project location should remain unchanged or improved with the development of a solar facility. The solar facility will not	N/A – no shoreline is present in the wetland	The wetland unit is palustrine, meaning the unit may be valuable as a source of groundwater recharge. Since there will be no change to the wetland, the unit's ability to recharge groundwater will remain the same.	No rare species were observed in this wetland unit.  Common Snapping Turtle was observed in the general larger study area.  The development of the Southgate Solar Project is not expected to impact rare	• Generalized Candidate Significant Wildlife Habitat	N/A – no fish spawning or migration/ staging habitat is present

Wetland ID Number	Wetland Size (ha)	Wetland Type	Site Type	Vegetation Communities (* denotes dominant vegetation form)	Proximity to Other Wetlands	Interspersion	Open Water Type	Flood Attenuation	Water Quality Improvement	Shoreline Erosion Control	Groundwater Recharge	Species Rarity	Significant Features and Habitat	Fish Habitat
	location.	The ELC community present is Cattail Graminoid Mineral Meadow Marsh (MAMM1-2) which is considered a common vegetation community in Ontario.	from the wetland unit.			wetland complex. This interspersion value will persist with the development of the Southgate Solar Project.		peaks.	require input of chemicals to adjacent lands.			species.		
20	37.57  Wetland boundaries were delineated during fieldwork and it was found that the wetland does not occur within project location. 0.62 ha of the wetland unit occurs within 50 m of the project location.	Wetland is Swamp  Wetland is comprised of 100% swamp type.  The OWES wetland type is a swamp with deciduous trees the dominant vegetation form.  The ELC community present is White Cedar Hardwood Mineral Mixed Swamp (SWMM1-1) which is considered a common vegetation community in Ontario.	Palustrine  This wetland likely has seasonal overland flow connection with Wetland 17.  The construction of the solar facility will not significantly change the flow of water to or from the wetland unit.	1. *H – <i>Ulmus americana</i> , <i>Fraxinus pennsylvanica</i> , <i>Populus tremuloides</i> C – <i>Thuja occidentalis</i> Ts – <i>Salix bebbiana</i> Ne – <i>Phalaris arundinacea</i> , <i>Glyceria striata</i> Re – <i>Typha latifolia</i> Gc – <i>Onoclea sensibilis</i> , <i>Solanum dulcamara</i>	30 m to Wetland Unit 17	Interspersion count of 218 intersections. The interspersion value used was for wetlands in the entire 5117 ha catchment this wetland unit is part of, which form a wetland complex. This interspersion value will persist with the development of the Southgate Solar Project.	Type 1  (less than 5% of wetland area).  The construction of a solar facility on adjacent lands will not decrease or increase the value of the wetland unit's open water.	Wetland unit is small in comparison to its upstream catchment area of 5117 ha, which was determined using topographic and drainage mapping. Since no part of the wetland unit will be removed the unit will still attenuate flood peaks.	Catchment area determined to be >50% agricultural (cropland, hayfield and pasture). The quality of water entering the wetland unit adjacent to the project location should remain unchanged or improved with the development of a solar facility. The solar facility will not require input of chemicals to adjacent lands.	N/A – no shoreline is present in the wetland	The wetland unit is palustrine, meaning the unit may be valuable as a source of groundwater recharge. Since there will be no change to the wetland, the unit's ability to recharge groundwater will remain the same.	No rare species were observed in this wetland unit.  Common Snapping Turtle was observed in the general larger study area.  The development of the Southgate Solar Project is not expected to impact rare species.	<ul style="list-style-type: none"> <li>• Amphibian Breeding Habitat (Wetland)</li> <li>• Generalized Candidate Significant Wildlife Habitat</li> </ul>	N/A – no fish spawning or migration/ staging habitat is present

Wetland ID Number	Wetland Size (ha)	Wetland Type	Site Type	Vegetation Communities (* denotes dominant vegetation form)	Proximity to Other Wetlands	Interspersion	Open Water Type	Flood Attenuation	Water Quality Improvement	Shoreline Erosion Control	Groundwater Recharge	Species Rarity	Significant Features and Habitat	Fish Habitat
21	2.3  Wetland boundaries were delineated during fieldwork and it was found that the wetland does not occur within project location. 2.3 ha of the wetland unit occurs within 50 m of the project location.	Wetland contains Swamp and Marsh  Wetland is comprised of 70% swamp type and 30% marsh type.  The OWES wetland types are swamp with deciduous trees the dominant vegetation form and marsh with narrow-leaved emergents the dominant form.  The ELC communities present are Poplar Mineral Deciduous Swamp (SWDM4-5); Reed Canary Grass Graminoid Mineral Meadow Marsh (MAMM1-3) which are considered common vegetation communities in Ontario.	Isolated  This isolated wetland likely receives water from ground water inputs, as well as precipitation.  The construction of the solar facility will not significantly change the inputs of water to or from the wetland unit.	1. *H – <i>Populus tremuloides</i> Dh – dead deciduous trees Ls – <i>Cornus sericea ssp. sericea</i> , <i>Rhamnus cathartica</i> Gc – <i>Onoclea sensibilis</i> , <i>Impatiens capensis</i> Ne – <i>Phalaris arundinacea</i> , <i>Equisetum arvense</i> , <i>Carex crinita</i> Ff – <i>Lemna minor</i>  2. Ts – <i>Salix eriocephala</i> , <i>Salix bebbiana</i> , <i>Salix petiolaris</i> *Ne – <i>Phalaris arundinacea</i> , <i>Scirpus cyperinus</i>	559 m to Wetland Unit 23	Interspersion count of 118 intersections. The interspersion value used was for wetlands in the entire 689 ha catchment this wetland unit is part of, which form a wetland complex. This interspersion value will persist with the development of the Southgate Solar Project.	Type 5  (26-75% of wetland area occurring in an irregular pattern)  The construction of a solar facility on adjacent lands will not decrease or increase the value of the wetland unit's open water.	Wetland unit is small in comparison to its upstream catchment area of 689 ha, which was determined using topographic and drainage mapping. Since no part of the wetland unit will be removed the unit will still attenuate flood peaks.  Due to its isolated nature this wetland unit will provide maximum attenuation benefits.	Catchment area determined to be >50% agricultural (cropland, hayfield and pasture). The quality of water entering the wetland unit adjacent to the project location should remain unchanged or improved with the development of a solar facility. The solar facility will not require input of chemicals to adjacent lands.	N/A – no shoreline is present in the wetland	The wetland unit is isolated and contains mineral sand soils, meaning the unit may be valuable as a source of groundwater recharge. Since there will be no change to the wetland, the unit's ability to recharge groundwater will remain the same.	No rare species were observed in this wetland unit.  Common Snapping Turtle was observed in the general larger study area.  The development of the Southgate Solar Project is not expected to impact rare species.	<ul style="list-style-type: none"> <li>• Amphibian Breeding Habitat (Wetland)</li> <li>• Turtle Nesting Area</li> <li>• Generalized Candidate Significant Wildlife Habitat</li> </ul>	N/A – no fish spawning or migration/ staging habitat is present

Wetland ID Number	Wetland Size (ha)	Wetland Type	Site Type	Vegetation Communities (* denotes dominant vegetation form)	Proximity to Other Wetlands	Interspersion	Open Water Type	Flood Attenuation	Water Quality Improvement	Shoreline Erosion Control	Groundwater Recharge	Species Rarity	Significant Features and Habitat	Fish Habitat
22	2.22  Wetland boundaries were delineated during fieldwork and it was found that the wetland does not occur within project location. 0.35 ha of the wetland unit occurs within 50 m of the project location.	Wetland is Swamp  Wetland is comprised of 100% swamp type.  The OWES wetland type is a swamp with coniferous trees the dominant vegetation form.  The ELC community present is Tamarack Organic Coniferous Swamp (SWCO2-2) which is considered a common vegetation community in Ontario.	Palustrine  This wetland likely has seasonal overland flow connection with Wetland 23.  The construction of the solar facility will not significantly change the flow of water to or from the wetland unit.	1. *C – <i>Larix laricina</i> , <i>Thuja occidentalis</i> Gc – <i>Impatiens capensis</i> , <i>Caltha palustris</i> , <i>Rubus pubescens</i> Ne – <i>Phalaris arundinacea</i> , <i>Carex flava</i> , <i>Carex vulpinoidea</i>	19 m to Wetland Unit 23	Interspersion count of 118 intersections. The interspersion value used was for wetlands in the entire 689 ha catchment this wetland unit is part of, which form a wetland complex. This interspersion value will persist with the development of the Southgate Solar Project.	Type 1  (less than 5% of wetland area).  The construction of a solar facility on adjacent lands will not decrease or increase the value of the wetland unit's open water.	Wetland unit is small in comparison to its upstream catchment area of 689 ha, which was determined using topographic and drainage mapping. Since no part of the wetland unit will be removed the unit will still attenuate flood peaks.	Catchment area determined to be >50% agricultural (cropland, hayfield and pasture). The quality of water entering the wetland unit adjacent to the project location should remain unchanged or improved with the development of a solar facility. The solar facility will not require input of chemicals to adjacent lands.	N/A – no shoreline is present in the wetland	The wetland unit is palustrine and contains organic soils, as such the unit may be valuable as a source of groundwater recharge. Since there will be no change to the wetland, the unit's ability to recharge groundwater will remain the same.	No rare species were observed in this wetland unit.  Common Snapping Turtle was observed in the general larger study area.  The development of the Southgate Solar Project is not expected to impact rare species.	<ul style="list-style-type: none"> <li>Amphibian Breeding Habitat (Wetland)</li> <li>Generalized Candidate Significant Wildlife Habitat</li> </ul>	N/A – no fish spawning or migration/ staging habitat is present
23	1.15  Wetland boundaries were delineated during fieldwork and it was found that the wetland does not occur within project location. 0.71 ha of the wetland unit occurs within 50 m of the project	Wetland contains Swamp and Marsh  Wetland is comprised of 68% swamp type and of 32% marsh type.  The OWES wetland types are swamp dominated by coniferous trees and marsh	Palustrine  This wetland likely has seasonal overland flow connection with Wetland 22.  The construction of the solar facility will not significantly	1. H – <i>Acer rubrum</i> , <i>Betula alleghaniensis</i> var. <i>falax</i> *C – <i>Thuja occidentalis</i> , <i>Picea glauca</i> , <i>Tsuga canadensis</i> Gc – <i>Impatiens capensis</i> , <i>Caltha palustris</i> , <i>Mitella nuda</i> ,	19 m to Wetland Unit 22	Interspersion count of 118 intersections. The interspersion value used was for wetlands in the entire 689 ha catchment this wetland unit is part of, which form a	Type 2  (5-25% of wetland area)  The construction of a solar facility on adjacent lands will not decrease or increase the value of the wetland unit's open water.	Wetland unit is small in comparison to its upstream catchment area of 689 ha, which was determined using topographic and drainage mapping. Since no part of the wetland unit will be removed the unit will still attenuate flood	Catchment area determined to be >50% agricultural (cropland, hayfield and pasture). The quality of water entering the wetland unit adjacent to the project location should remain unchanged or improved with the development of a solar facility. The solar facility will not	N/A – no shoreline is present in the wetland	The wetland unit is palustrine and contains organic soils, meaning the unit may be valuable as a source of groundwater recharge. Since there will be no change to the wetland, the unit's ability to recharge groundwater will	No rare species were observed in this wetland unit.  Common Snapping Turtle was observed in the general larger study area.  The development of the Southgate Solar Project is not expected to impact rare	<ul style="list-style-type: none"> <li>Amphibian Breeding Habitat (Wetland)</li> <li>Generalized Candidate Significant Wildlife Habitat</li> </ul>	N/A – no fish spawning or migration/ staging habitat is present

Wetland ID Number	Wetland Size (ha)	Wetland Type	Site Type	Vegetation Communities (* denotes dominant vegetation form)	Proximity to Other Wetlands	Interspersion	Open Water Type	Flood Attenuation	Water Quality Improvement	Shoreline Erosion Control	Groundwater Recharge	Species Rarity	Significant Features and Habitat	Fish Habitat
	location.	dominated by narrow-leaved emergents.  The ELC communities for the wetland unit are White Cedar Hardwood Organic Mixed Swamp (SWMO1-1); Reed Canary Grass Graminoid Mineral Meadow Marsh (MAMM1-3) which are considered common vegetation communities in Ontario.	change the flow of water to or from the wetland unit.	<i>Aralia nudicaulis</i>  2. *Ne – <i>Phalaris arundinacea</i>		wetland complex. This interspersion value will persist with the development of the Southgate Solar Project.		peaks.	require input of chemicals to adjacent lands.		remain the same.	species.		
26	0.25  Wetland boundaries were delineated during fieldwork and it was found that the wetland does not occur within project location. 0.13 ha of the wetland unit occurs within 50 m of the project location.	Wetland is Marsh  Wetland is comprised of 100% marsh type.  The OWES wetland type is a marsh with robust emergents the dominant vegetation form.  The ELC community present is Cattail Graminoid Mineral	Isolated  This isolated wetland likely receives water from ground water inputs, as well as precipitation.  The construction of the solar facility will not significantly change the inputs of water to or from the wetland unit.	1. Ne – <i>Phalaris arundinacea</i> , <i>Carex</i> sp. Be – <i>Caltha palustris</i> *Re – <i>Typha latifolia</i>	308 m to wetland unit to south west	Interspersion count of 218 intersections. The interspersion value used was for wetlands in the entire 5117 ha catchment this wetland unit is part of, which form a wetland complex. This interspersion value will persist with	Type 1  (less than 5% of wetland area).  The construction of a solar facility on adjacent lands will not decrease or increase the value of the wetland unit's open water.	Wetland unit is small in comparison to its upstream catchment area of 5117 ha, which was determined using topographic and drainage mapping. Since no part of the wetland unit will be removed the unit will still attenuate flood peaks.  Due to its isolated nature this wetland unit will provide maximum	Catchment area determined to be >50% agricultural (cropland, hayfield and pasture). The quality of water entering the wetland unit adjacent to the project location should remain unchanged or improved with the development of a solar facility. The solar facility will not require input of chemicals to adjacent lands.	N/A – no shoreline is present in the wetland	The wetland unit is isolated and contains mineral silt soils, meaning the unit may be valuable as a source of groundwater recharge. Since there will be no change to the wetland, the unit's ability to recharge groundwater will remain the same.	No rare species were observed in this wetland unit.  Common Snapping Turtle was observed in the general larger study area.  The development of the Southgate Solar Project is not expected to impact rare species.	<ul style="list-style-type: none"> <li>• Amphibian Breeding Habitat (Woodland)</li> <li>• Generalized Candidate Significant Wildlife Habitat</li> </ul>	N/A – no fish spawning or migration/ staging habitat is present

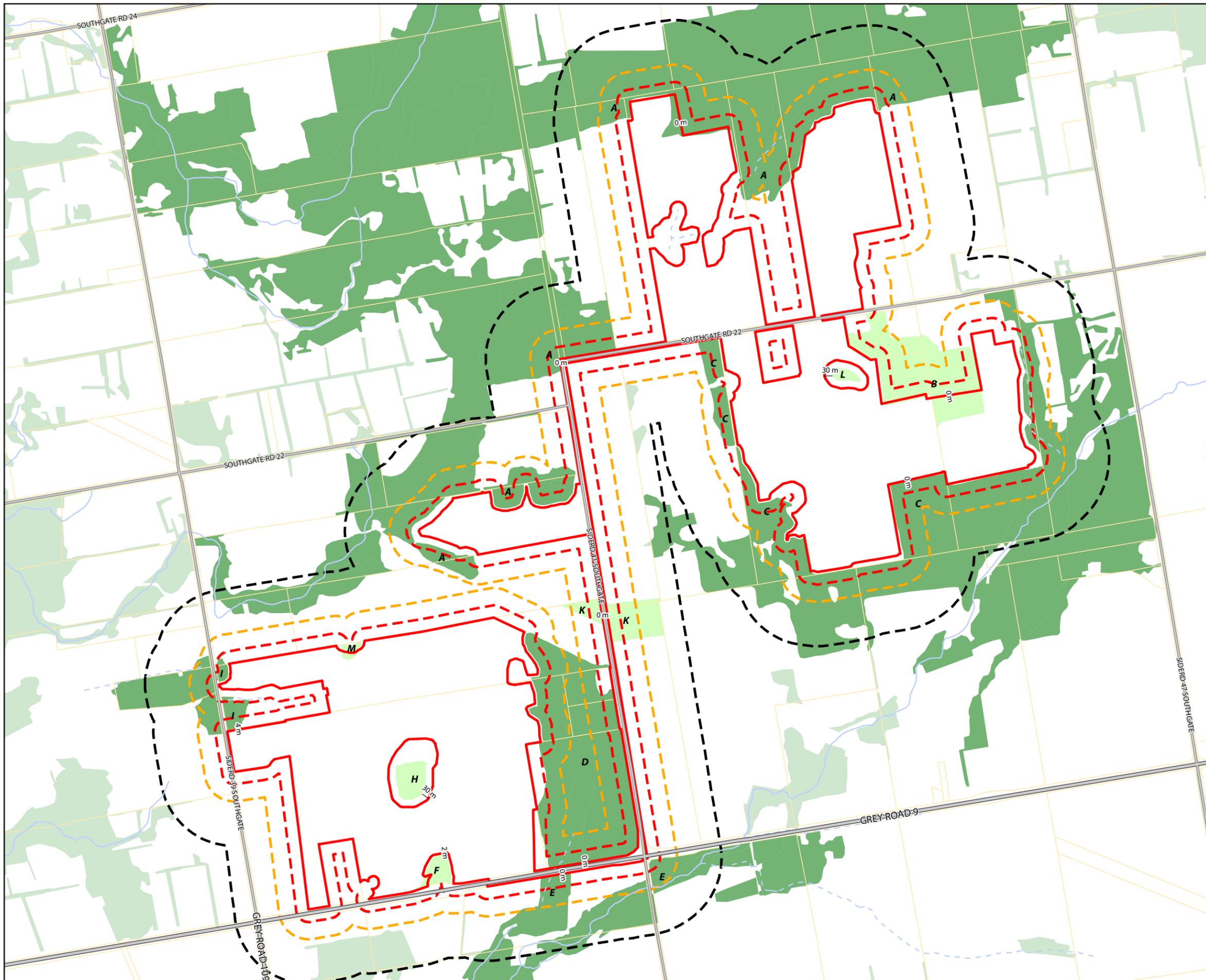
Wetland ID Number	Wetland Size (ha)	Wetland Type	Site Type	Vegetation Communities (* denotes dominant vegetation form)	Proximity to Other Wetlands	Interspersion	Open Water Type	Flood Attenuation	Water Quality Improvement	Shoreline Erosion Control	Groundwater Recharge	Species Rarity	Significant Features and Habitat	Fish Habitat
		Meadow Marsh (MAMM1-2) which is considered a common vegetation community in Ontario.				the development of the Southgate Solar Project.		attenuation benefits.						
29	0.32  Wetland boundaries were delineated during fieldwork and it was found that the wetland does not occur within project location. 0.24 ha of the wetland unit occurs within 50 m of the project location.	Wetland is Marsh  Wetland is comprised of 100% marsh type.  The OWES wetland type is a marsh with robust emergents the dominant vegetation form.  The ELC community present is Cattail Mineral Shallow Marsh (MASM1-1) which is considered a common vegetation community in Ontario.	Isolated  This isolated wetland likely receives water from ground water inputs, as well as precipitation.  The construction of the solar facility will not significantly change the inputs of water to or from the wetland unit.	1. Ne – <i>Phalaris arundinacea</i> , <i>Carex</i> sp. *Re – <i>Typha latifolia</i> Ff – <i>Lemna minor</i>	150 m to Wetland Unit 7	Interspersion count of 218 intersections. The interspersion value used was for wetlands in the entire 5117 ha catchment this wetland unit is part of, which form a wetland complex. This interspersion value will persist with the development of the Southgate Solar Project.	Type 1  (less than 5% of wetland area).  The construction of a solar facility on adjacent lands will not decrease or increase the value of the wetland unit's open water.	Wetland unit is small in comparison to its upstream catchment area of 5117 ha, which was determined using topographic and drainage mapping. Since no part of the wetland unit will be removed the unit will still attenuate flood peaks.  Due to its isolated nature this wetland unit will provide maximum attenuation benefits.	Catchment area determined to be >50% agricultural (cropland, hayfield and pasture). The quality of water entering the wetland unit adjacent to the project location should remain unchanged or improved with the development of a solar facility. The solar facility will not require input of chemicals to adjacent lands.	N/A – no shoreline is present in the wetland	The wetland unit is isolated, as such the unit may be valuable as a source of groundwater recharge. Since there will be no change to the wetland, the unit's ability to recharge groundwater will remain the same.	No rare species were observed in this wetland unit.  Common Snapping Turtle was observed in the general larger study area.  The development of the Southgate Solar Project is not expected to impact rare species.	<ul style="list-style-type: none"> <li>Amphibian Breeding Habitat (Woodland)</li> <li>Generalized Candidate Significant Wildlife Habitat</li> </ul>	N/A – no fish spawning or migration/ staging habitat is present
30	0.22  Wetland boundaries were delineated during fieldwork and it was found that the wetland does	Wetland is Swamp  Wetland is comprised of 100% swamp type.	Palustrine  The construction of the solar facility will not significantly change the flow	1. *Ts – <i>Salix</i> sp.	25 m to Wetland Unit 9	Interspersion count of 218 intersections. The interspersion value used was for wetlands in	Type 4  (26-75% of wetland area)  The construction of a solar facility	Wetland unit is small in comparison to its upstream catchment area of 5117 ha, which was determined using topographic	Catchment area determined to be >50% agricultural (cropland, hayfield and pasture). The quality of water entering the wetland unit	N/A – no shoreline is present in the wetland	The wetland unit is palustrine, as such the unit may be valuable as a source of groundwater recharge. Since there will be no	No rare species were observed in this wetland unit.  Common Snapping Turtle was observed in the general larger	<ul style="list-style-type: none"> <li>Amphibian Breeding Habitat (Wetland)</li> <li>Generalized Candidate Significant Wildlife</li> </ul>	N/A – no fish spawning or migration/ staging habitat is present

Wetland ID Number	Wetland Size (ha)	Wetland Type	Site Type	Vegetation Communities (* denotes dominant vegetation form)	Proximity to Other Wetlands	Interspersion	Open Water Type	Flood Attenuation	Water Quality Improvement	Shoreline Erosion Control	Groundwater Recharge	Species Rarity	Significant Features and Habitat	Fish Habitat
	not occur within project location. 0.22 ha of the wetland unit occurs within 50 m of the project location.	The OWES wetland type is a swamp with tall shrub the dominant vegetation form. The ELC community present is Willow Mineral Deciduous Thicket Swamp (SWTM3) which is considered a common vegetation community in Ontario.	of water to or from the wetland unit.			the entire 5117 ha catchment this wetland unit is part of, which form a wetland complex. This interspersion value will persist with the development of the Southgate Solar Project.	on adjacent lands will not decrease or increase the value of the wetland unit's open water.	and drainage mapping. Since no part of the wetland unit will be removed the unit will still attenuate flood peaks.	adjacent to the project location should remain unchanged or improved with the development of a solar facility. The solar facility will not require input of chemicals to adjacent lands.		change to the wetland, the unit's ability to recharge groundwater will remain the same.	study area. The development of the Southgate Solar Project is not expected to impact rare species.	Habitat	
32	0.04 Wetland boundaries were delineated during fieldwork and it was found that the wetland does not occur within project location. 0.01 ha of the wetland unit occurs within 50 m of the project location.	Wetland is Marsh Wetland is comprised of 100% marsh type. The OWES wetland type is a marsh with narrow-leaved emergent the dominant vegetation form. The ELC community present is Reed Canary Grass Graminoid Meadow Marsh (MAMM1-3) which is	Palustrine This wetland may have seasonal overland flow connection with Wetlands 22 and 23. The construction of the solar facility will not significantly change the flow of water to or from the wetland unit.	1. *Ne - <i>Phalaris arundinacea</i>	20 m to Wetland Unit 22	Interspersion count of 118 intersections. The interspersion value used was for wetlands in the entire 689 ha catchment this wetland unit is part of, which form a wetland complex. This interspersion value will persist with the development of the Southgate	Type 1 (less than 5% of wetland area). The construction of a solar facility on adjacent lands will not decrease or increase the value of the wetland unit's open water.	Wetland unit is small in comparison to its upstream catchment area of 689 ha, which was determined using topographic and drainage mapping. Since no part of the wetland unit will be removed the unit will still attenuate flood peaks.	Catchment area determined to be >50% agricultural (cropland, hayfield and pasture). The quality of water entering the wetland unit adjacent to the project location should remain unchanged or improved with the development of a solar facility. The solar facility will not require input of chemicals to adjacent lands.	N/A – no shoreline is present in the wetland	The wetland unit is palustrine, as such the unit may be valuable as a source of groundwater recharge. Since there will be no change to the wetland, the unit's ability to recharge groundwater will remain the same.	No rare species were observed in this wetland unit. Common Snapping Turtle was observed in the general larger study area. The development of the Southgate Solar Project is not expected to impact rare species.	<ul style="list-style-type: none"> <li>Amphibian Breeding Habitat (Wetland)</li> <li>Generalized Candidate Significant Wildlife Habitat</li> </ul>	N/A – no fish spawning or migration/ staging habitat is present

Wetland ID Number	Wetland Size (ha)	Wetland Type	Site Type	Vegetation Communities (* denotes dominant vegetation form)	Proximity to Other Wetlands	Interspersion	Open Water Type	Flood Attenuation	Water Quality Improvement	Shoreline Erosion Control	Groundwater Recharge	Species Rarity	Significant Features and Habitat	Fish Habitat
		considered a common vegetation community in Ontario.				Solar Project.								

### 8.2.2 Woodlands

The boundaries of woodland units in or within 50 m of the Project Location were delineated using ELC protocol during the site investigation work and shown on **Figure 4**. **Table 8** outlines the attributes, composition and function of each significant woodland unit identified during the site investigation to be within 50 m of the amended project location and confirms if the woodland was included in the records review or was identified as a result of these site investigations. **Table 8** also outlines the project components that fall within each significant woodland boundary and/or within 50 m. Characteristics that contribute to woodland persistence, may be sensitive to development and serve as a good indicator of negative environmental effects are described below in **Table 10**.



**SOUTHGATE SOLAR PROJECT**

**FIGURE 4  
SIGNIFICANT WOODLANDS**

- Permanent Watercourse
- Intermittent Watercourse
- Project Location
- Project Location 50 m Setback
- Project Location 120 m Setback
- Project Location 300 m Setback
- Parcel Boundary
- Significant Woodland
- Dillon Delineated Woodland (Non-Significant)
- Woodland



MAP DRAWING INFORMATION:  
DATA PROVIDED BY MNR

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

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



PROJECT: 149154  
STATUS: DRAFT  
DATE: 12/5/2014

Table 8: Significant Woodlands within the Project Location and Surrounding 50 m

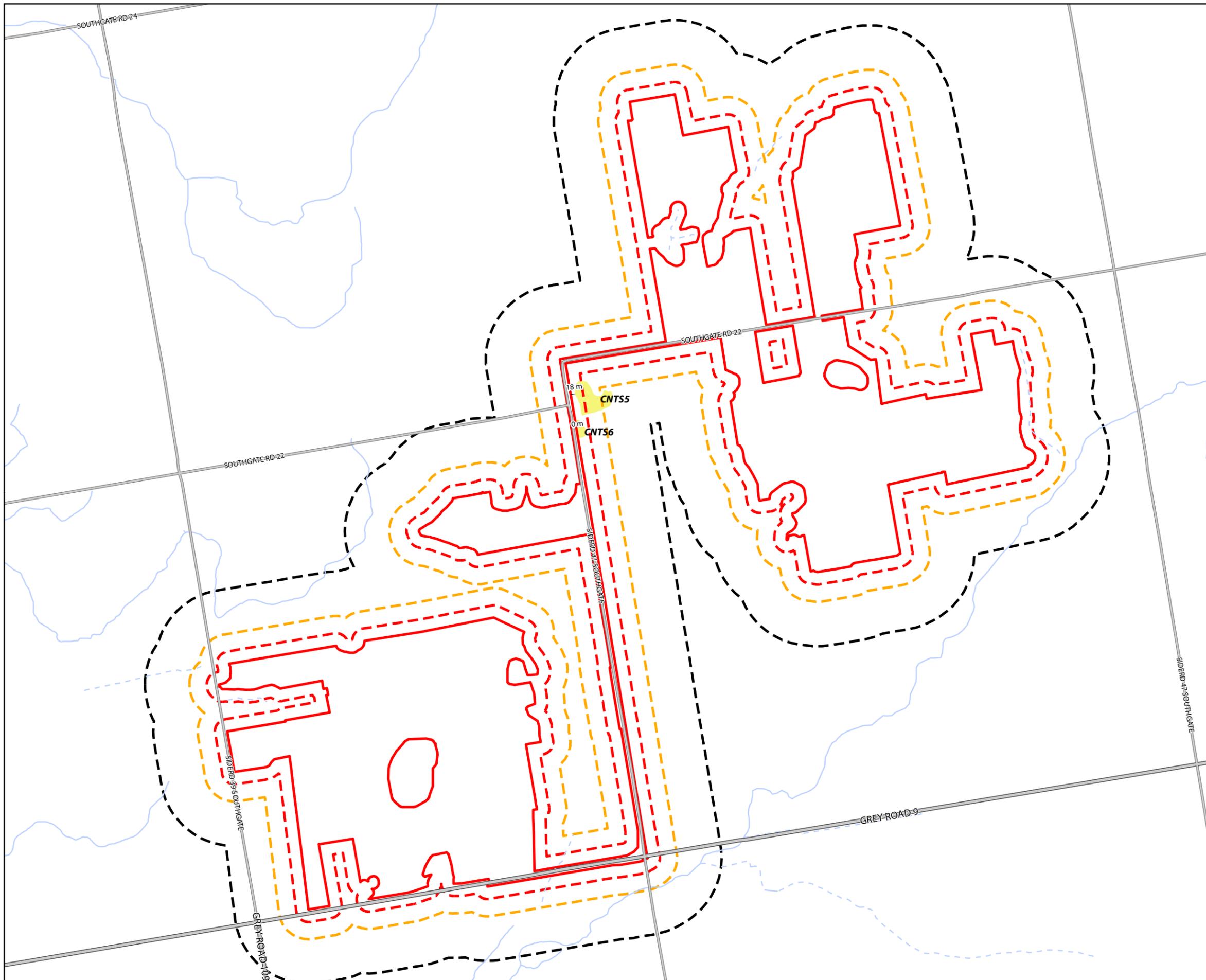
Woodland ID	Size Criterion		Ecological Function Criteria				Woodland Uncommon Characteristics (0.5 – 4 ha)	Project Components within 50 m	Evaluation of Significance	
	Woodland Size (ha) (>50 ha)	Woodland Interior (ha) (8 ha)	Proximity to Other Significant Woodlands or Habitats (10 ha)	Linkages (10 ha)	Water Protection (4 ha)	Woodland Diversity Representation (10 ha)			Significant	Not Significant
A	291.27	70.7	<ul style="list-style-type: none"> <li>Woodland Area-sensitive Bird Breeding Habitat</li> <li>Deer Winter Congregation Area</li> <li>Red-Headed Woodpecker Habitat</li> <li>American Gromwell Habitat*</li> <li>Generalized Candidate Significant Wildlife Habitat</li> </ul>	Woodland A is large and provides direct connectivity to other woodland to the east and west within Grey County.	Woodland contains an ephemeral watercourse within a wetland and has other mapped watercourses traversing the feature	Identified as Fresh-Moist Sugar Maple Deciduous (FODM6-5); Dry-Fresh Sugar Maple- Black Cherry Deciduous (FODM5-7); Coniferous Plantation (TAGM1); Black Ash Deciduous Swamp (SWDM2-1).  Dominant canopy species include Sugar Maple ( <i>Acer saccharum</i> ), White Pine ( <i>Pinus strobus</i> ) and Black Ash ( <i>Fraxinus nigra</i> ).	No uncommon characteristics.	<ul style="list-style-type: none"> <li>Perimeter fence</li> <li>Solar panels</li> <li>Access roads</li> <li>Inverter station</li> <li>Main HV substation</li> <li>Overhead cable</li> <li>Area of Operational Flexibility</li> </ul>	✓	
C	104.51	18.12	<ul style="list-style-type: none"> <li>Amphibian Breeding Habitat (Woodland)</li> <li>Western Chorus Frog was heard in a wetland unit within this woodland (an unnumbered wetland unit outside of 50 m setback).</li> <li>Generalized Candidate Significant Wildlife Habitat</li> </ul>	Woodland C is large and is connected to other woodlots to the southwest and north east via a watercourse.	Woodland contains several wetland units with standing water and a permanent watercourse flows through its southeast corner.	Identified as Dry-Fresh Sugar Maple Deciduous (FODM5-1); Dry-Fresh Sugar Maple Hardwood Deciduous (FODM5-9); Balsam Fir Hardwood Mixed Mineral (SWMM5-1); and Dry-Fresh Deciduous Woodland (WODM4).  Dominant canopy species include Sugar Maple and Balsam Fir ( <i>Abies balsamea</i> ).	No uncommon characteristics.	<ul style="list-style-type: none"> <li>Perimeter fence</li> <li>Solar panels</li> <li>Access roads</li> <li>Inverter station</li> <li>Area of Operational Flexibility</li> </ul>	✓	
D	28.49	7.95	<ul style="list-style-type: none"> <li>Amphibian Breeding Habitat (Woodland)</li> <li>Soft-hairy False Gromwell Habitat*</li> <li>Harlequin Darner Habitat*</li> <li>Generalized Candidate Significant Wildlife Habitat</li> </ul>	Woodlot D is within 120 m of various wildlife habitat treated as significant in this NHA. It likely provides a linkage function in the landscape and meets this criterion	Woodland does not contain any notable surface water and is not identified as a source water protection area.	Identified as Fresh-Moist Sugar Maple Hardwood Deciduous (FODM6-5); and White Cedar Hardwood Mixed Mineral (SWMM1-1).  Dominant canopy species include Sugar Maple and Eastern White Cedar ( <i>Thuja occidentalis</i> ).	No uncommon characteristics.	<ul style="list-style-type: none"> <li>Perimeter fence</li> <li>Solar panels</li> <li>Access roads</li> <li>Area of Operational Flexibility</li> </ul>	✓	

Woodland ID	Size Criterion	Ecological Function Criteria					Woodland Uncommon Characteristics (0.5 – 4 ha)	Project Components within 50 m	Evaluation of Significance	
	Woodland Size (ha) (>50 ha)	Woodland Interior (ha) (8 ha)	Proximity to Other Significant Woodlands or Habitats (10 ha)	Linkages (10 ha)	Water Protection (4 ha)	Woodland Diversity Representation (10 ha)			Significant	Not Significant
E	34.52	0	<ul style="list-style-type: none"> <li>• Amphibian Breeding Habitat (Wetland)*</li> <li>• Harlequin Darner Habitat*</li> <li>• Generalized Candidate Significant Wildlife Habitat</li> </ul>	Woodland E is large and is connected to other woodlands to the southwest and north east via a watercourse.	Woodland contains a permanent watercourse.	Identified as Mixed Swamp (SWM); and White Cedar Hardwood Mixed Mineral (SWMM1-1).  Dominant canopy species include Eastern White Cedar and White Elm ( <i>Ulmus americana</i> ).	No uncommon characteristics.	<ul style="list-style-type: none"> <li>- Overhead cable</li> <li>- Area of Operational Flexibility</li> </ul>	✓	
I	7.75	0	Woodland does not meet the minimum area threshold	Woodland does not meet the minimum area threshold	Woodland has an intermittent watercourse associated with it that may contribute to fish habitat. The watercourse is fed by a groundwater seep.	Woodland does not meet the minimum area threshold	No uncommon characteristics.	<ul style="list-style-type: none"> <li>- Area of Operational Flexibility</li> </ul>	✓	

### 8.2.3 Wildlife Habitat

The occurrence and boundaries of significant wildlife habitat in or within 50 m of the Project Location were delineated using information collected during the site investigation (e.g. ELC, observation of suitable site characteristics, etc.) and evaluation of significance (e.g., area search surveys, etc.) following criteria outlined in the Significant Wildlife Habitat Technical Guide (MNRF 2000) and Ecoregion 6E Criteria Schedule (MNRF 2012). Wildlife habitats requiring inclusion in this *NHA EIS* are shown in **Figures 5A- 5L**.

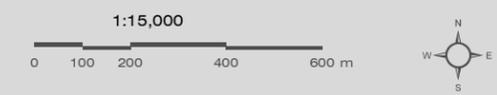
**Table 9** outlines the attributes, composition and function of each identified significant/ treated as significant wildlife habitat and the distance of Project components that fall within 50 m of each wildlife habitat boundary. Characteristics that contribute to wildlife habitat persistence, may be sensitive to development and serve as a good indicator of negative environmental effects are described below in **Table 10**. For “Generalized Candidate Significant Wildlife Habitat” outlined in the *NHA Site Investigation Report*, general mitigation measures proposed in **Table 12** will address effects due to construction activities only. Habitats treated as significant, on lands in which access has been granted, will be evaluated pre-construction following the methodology outlined in **Appendix A**.



**SOUTHGATE SOLAR PROJECT**

**FIGURE 5A  
SIGNIFICANT WILDLIFE HABITAT  
COLONIAALLY NESTING BIRD BREEDING  
HABITAT (TREE & SHRUB)**

- Permanent Watercourse
- Intermittent Watercourse
- Project Location
- Project Location 50 m Setback
- Project Location 120 m Setback
- Project Location 300 m Setback
- Treated as Significant Colonially Nesting Bird Breeding Habitat (Tree & Shrub)



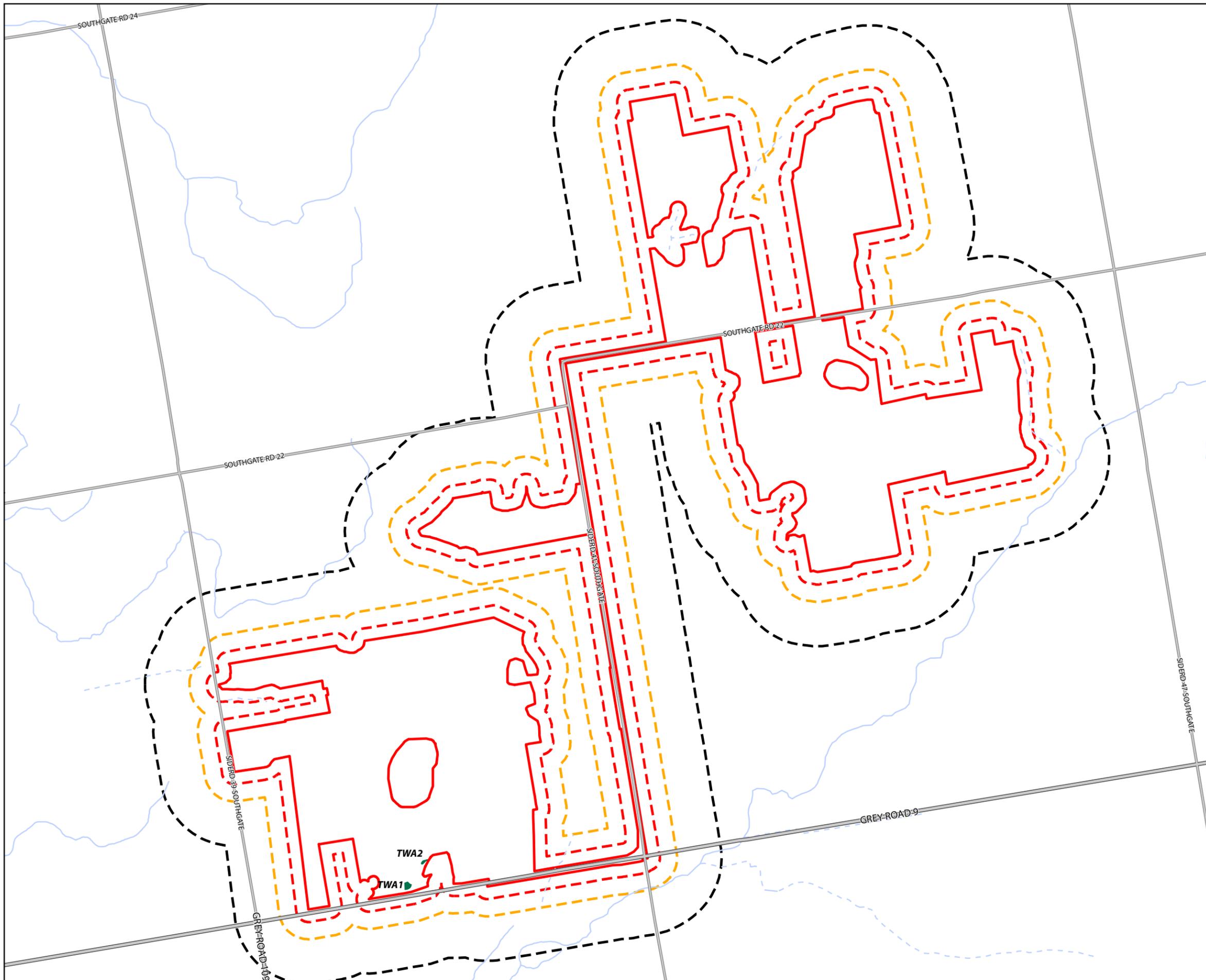
MAP DRAWING INFORMATION:  
DATA PROVIDED BY MNR

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

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



PROJECT: 149154  
STATUS: DRAFT  
DATE: 12/5/2014



**SOUTHGATE SOLAR PROJECT**

**FIGURE 5B  
SIGNIFICANT WILDLIFE HABITAT  
TURTLE WINTERING AREAS**

- Permanent Watercourse
- Intermittent Watercourse
- Project Location
- Project Location 50 m Setback
- Project Location 120 m Setback
- Project Location 300 m Setback
- Treated as Significant Turtle Wintering Area



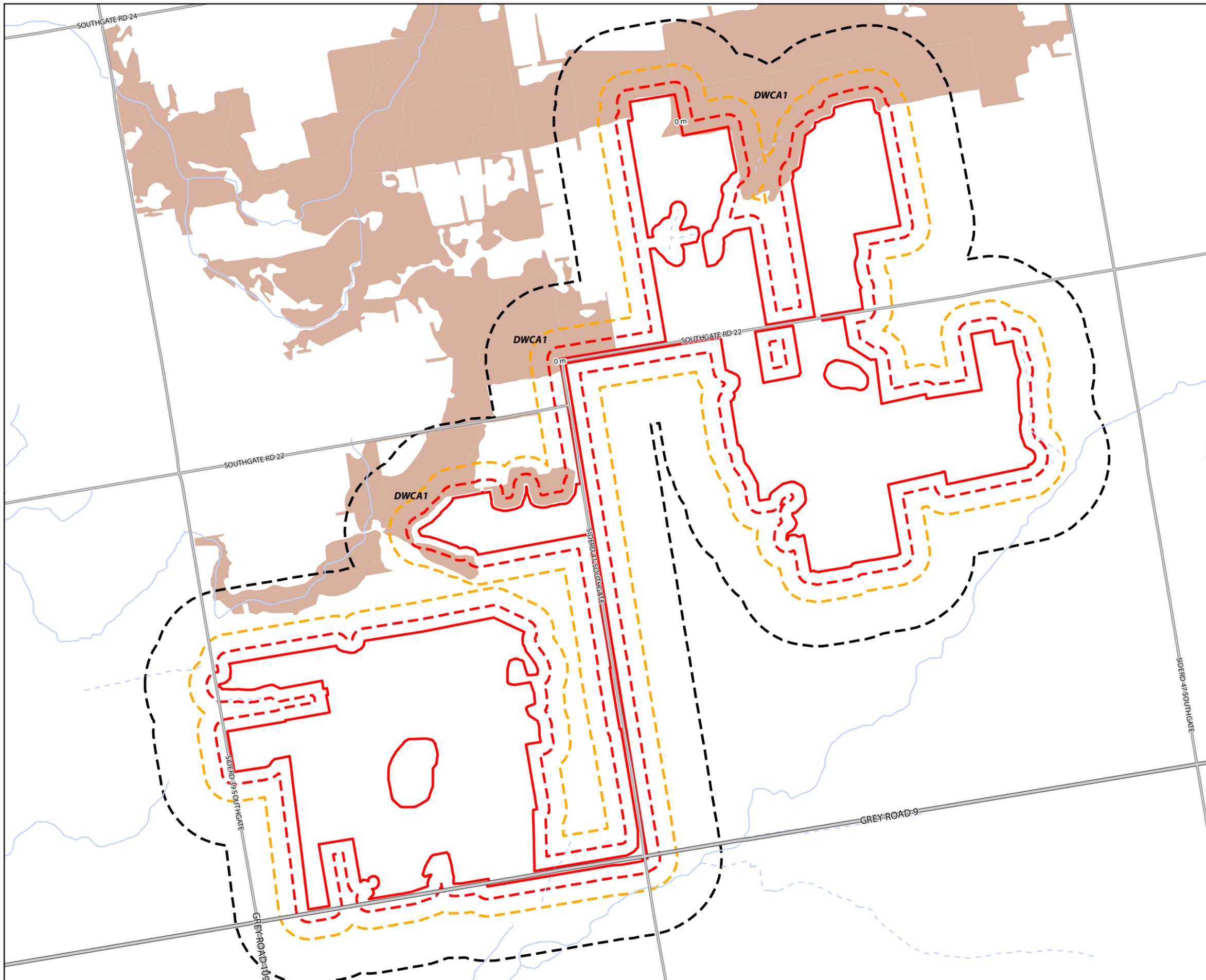
MAP DRAWING INFORMATION:  
DATA PROVIDED BY MNR

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

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



PROJECT: 149154  
STATUS: DRAFT  
DATE: 12/5/2014



## SOUTHGATE SOLAR PROJECT

**FIGURE 5C**  
SIGNIFICANT WILDLIFE HABITAT  
DEER WINTER CONGREGATION AREAS

- Permanent Watercourse
- Intermittent Watercourse
- Project Location
- Project Location 50 m Setback
- Project Location 120 m Setback
- Project Location 300 m Setback
- Significant Deer Winter Congregation Area



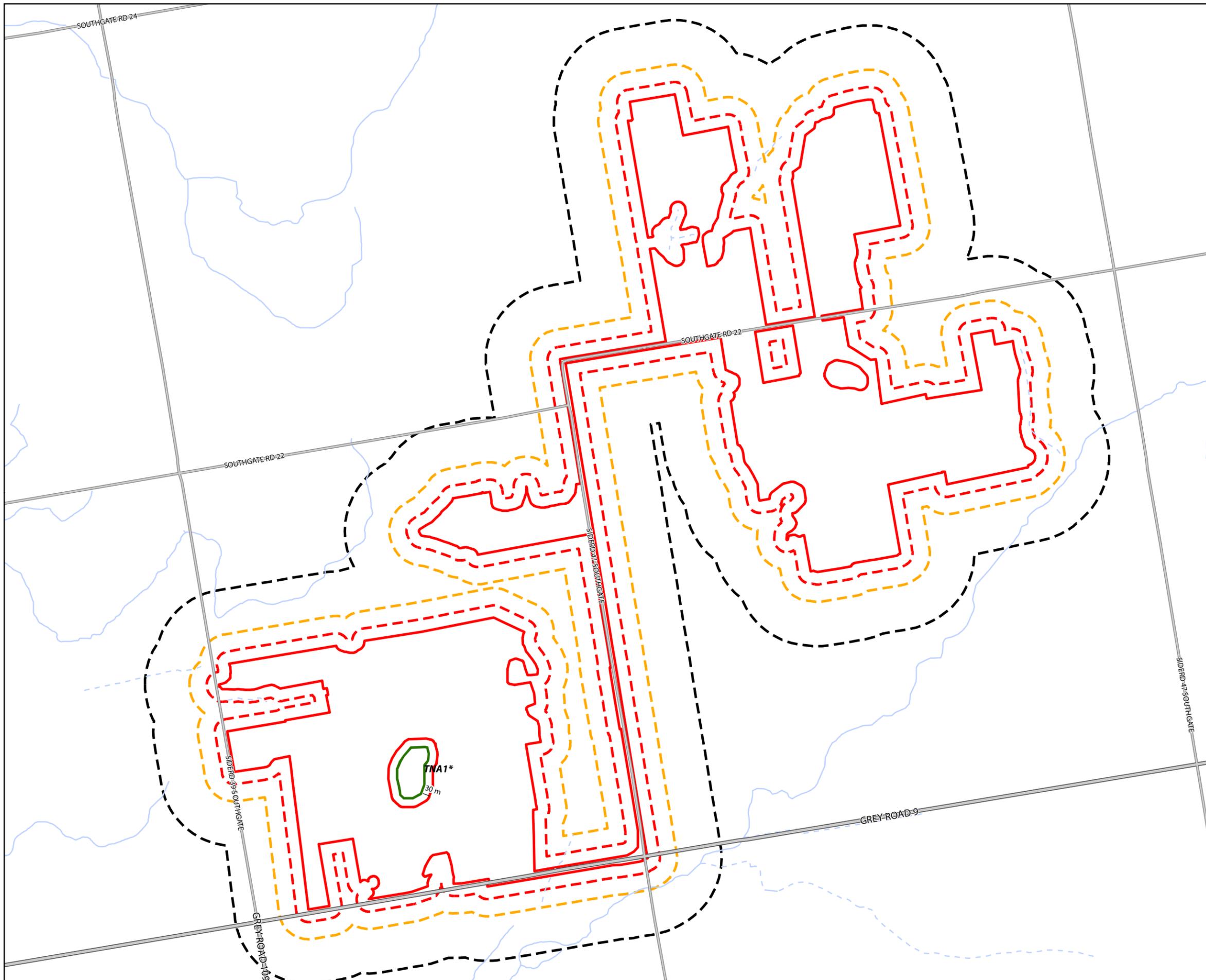
MAP DRAWING INFORMATION:  
DATA PROVIDED BY MNR

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

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



PROJECT: 149154  
STATUS: DRAFT  
DATE: 12/5/2014



**SOUTHGATE SOLAR PROJECT**

**FIGURE 5D  
SIGNIFICANT WILDLIFE HABITAT  
TURTLE NESTING AREAS**

- Permanent Watercourse
- Intermittent Watercourse
- Project Location
- Project Location 50 m Setback
- Project Location 120 m Setback
- Project Location 300 m Setback
- Treated as Significant Turtle Nesting Area



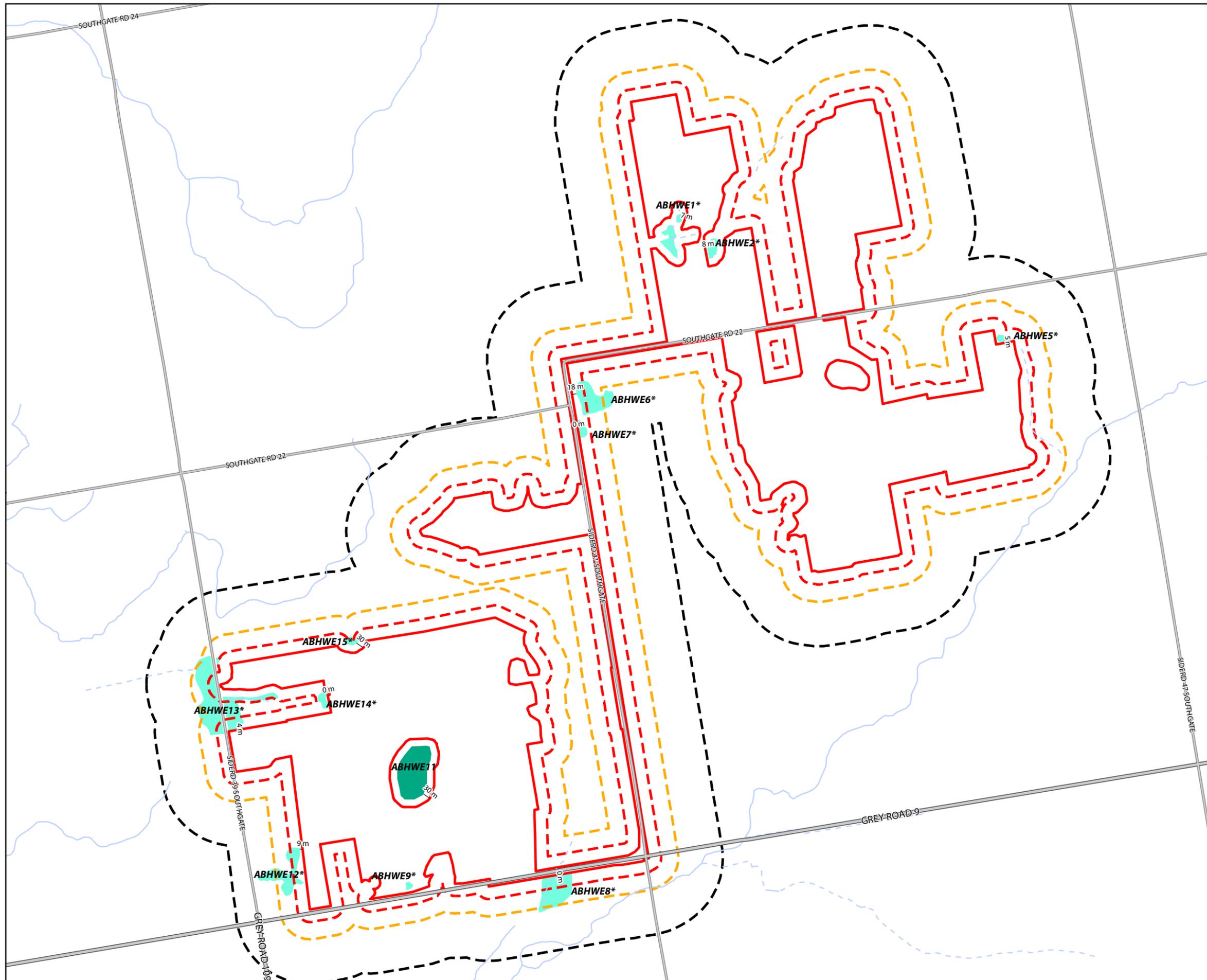
MAP DRAWING INFORMATION:  
DATA PROVIDED BY MNR

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

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



PROJECT: 149154  
STATUS: DRAFT  
DATE: 12/5/2014



**SOUTHGATE SOLAR PROJECT**

**FIGURE 5E  
SIGNIFICANT WILDLIFE HABITAT  
AMPHIBIAN BREEDING HABITAT  
(WETLAND)**

- Permanent Watercourse
- Intermittent Watercourse
- Project Location
- Project Location 50 m Setback
- Project Location 120 m Setback
- Project Location 300 m Setback
- Significant Amphibian Breeding Habitat (Wetland)
- Treated as Significant Amphibian Breeding Habitat (Wetland)



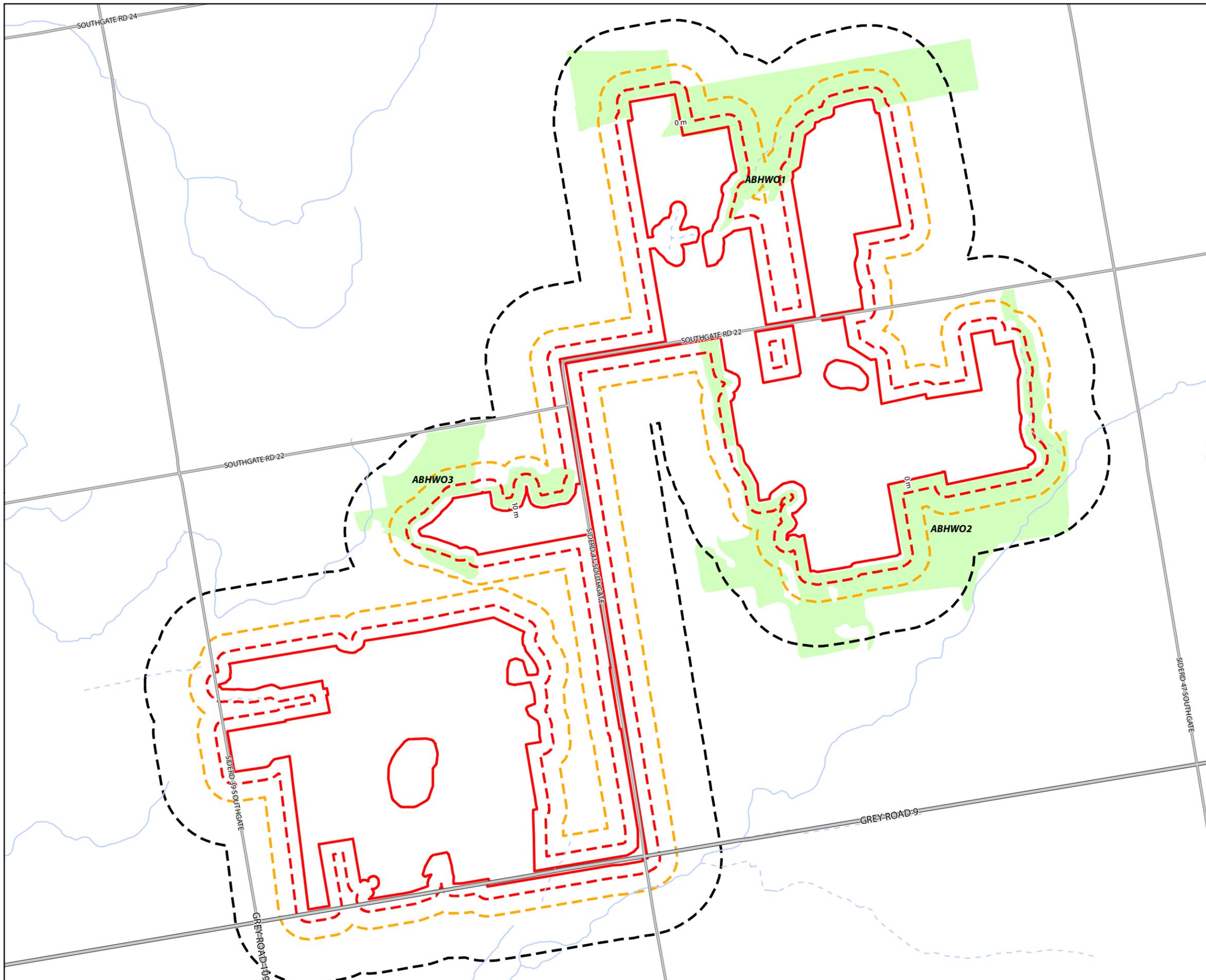
MAP DRAWING INFORMATION:  
DATA PROVIDED BY MNR

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

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



PROJECT: 149154  
STATUS: DRAFT  
DATE: 12/5/2014



**SOUTHGATE SOLAR PROJECT**

**FIGURE 5F  
SIGNIFICANT WILDLIFE HABITAT  
AMPHIBIAN BREEDING HABITAT  
(WOODLAND)**

- Permanent Watercourse
- - - Intermittent Watercourse
- Project Location
- Project Location 50 m Setback
- Project Location 120 m Setback
- Project Location 300 m Setback
- Significant Amphibian Breeding Habitat (Woodland)



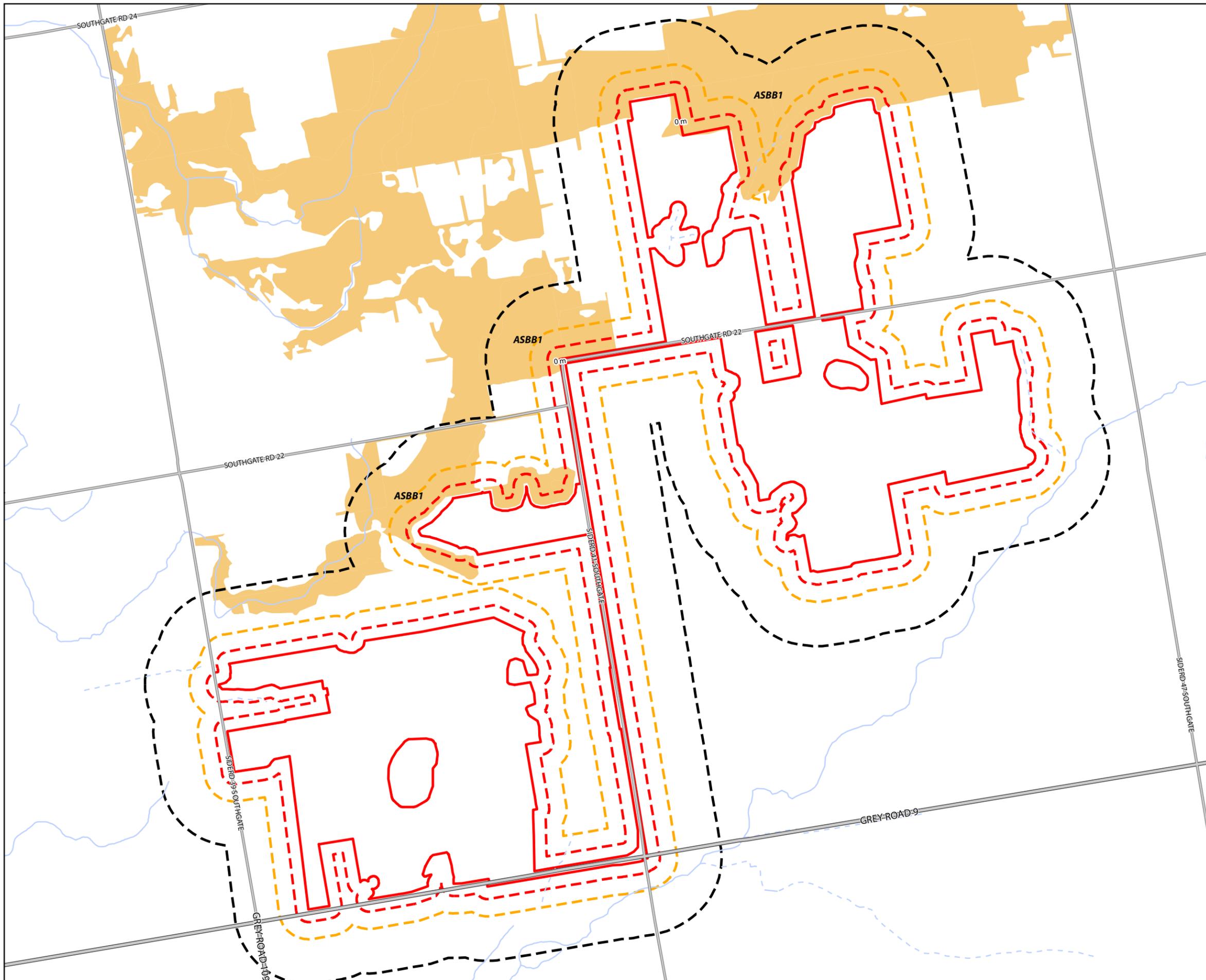
MAP DRAWING INFORMATION:  
DATA PROVIDED BY MNR

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

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



PROJECT: 149154  
STATUS: DRAFT  
DATE: 12/5/2014



**SOUTHGATE SOLAR PROJECT**

**FIGURE 5G  
SIGNIFICANT WILDLIFE HABITAT  
WOODLAND AREA-SENSITIVE  
BIRD BREEDING HABITAT**

- Permanent Watercourse
- Intermittent Watercourse
- Project Location
- Project Location 50 m Setback
- Project Location 120 m Setback
- Project Location 300 m Setback
- Significant Woodland Area-Sensitive Bird Breeding Habitat



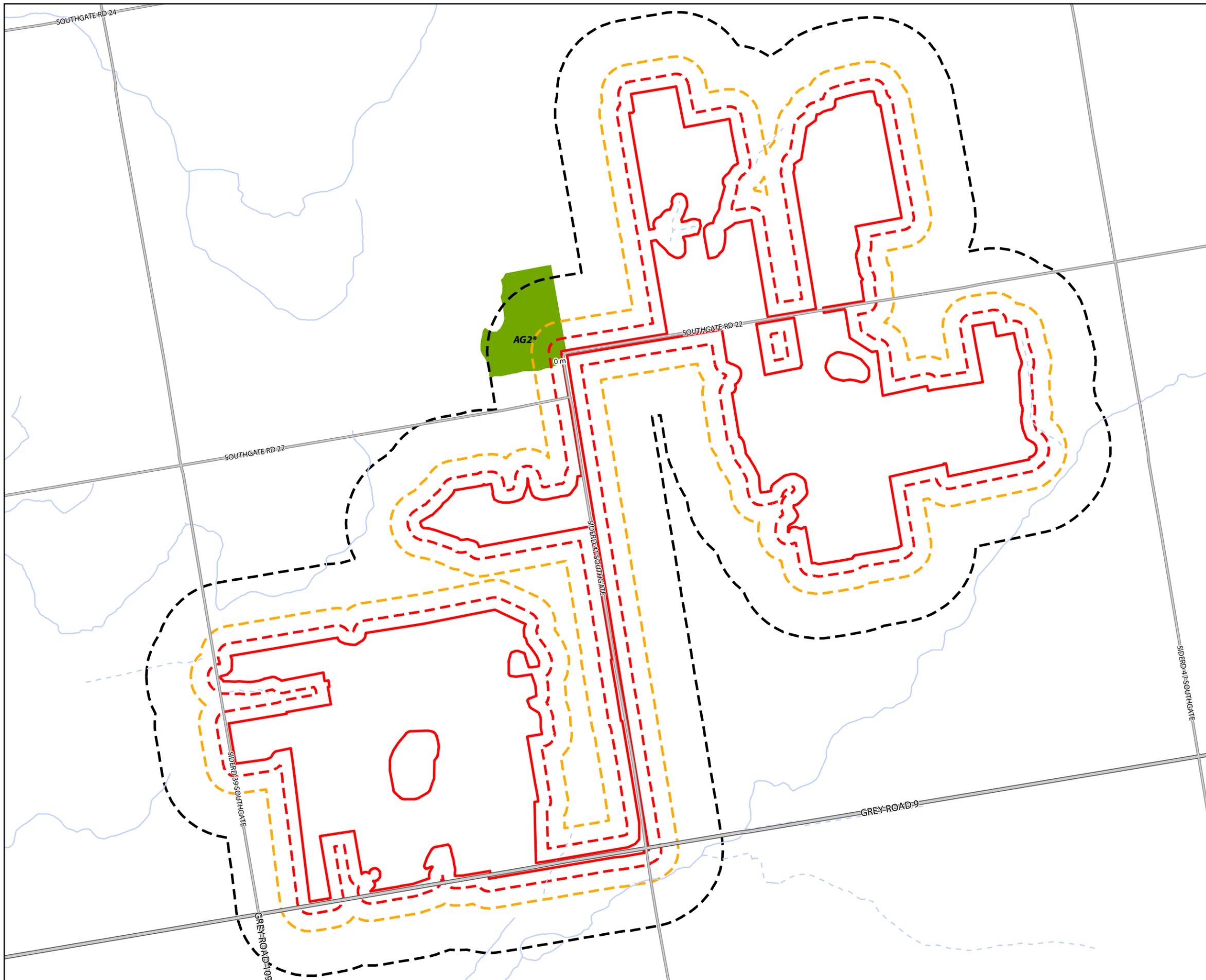
MAP DRAWING INFORMATION:  
DATA PROVIDED BY MNR

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

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



PROJECT: 149154  
STATUS: DRAFT  
DATE: 12/5/2014



**SOUTHGATE SOLAR PROJECT**

**FIGURE 5H  
SIGNIFICANT WILDLIFE HABITAT  
AMERICAN GROMWELL**

- Permanent Watercourse
- Intermittent Watercourse
- Project Location
- Project Location 50 m Setback
- Project Location 120 m Setback
- Project Location 300 m Setback
- Treated as Significant American Gromwell



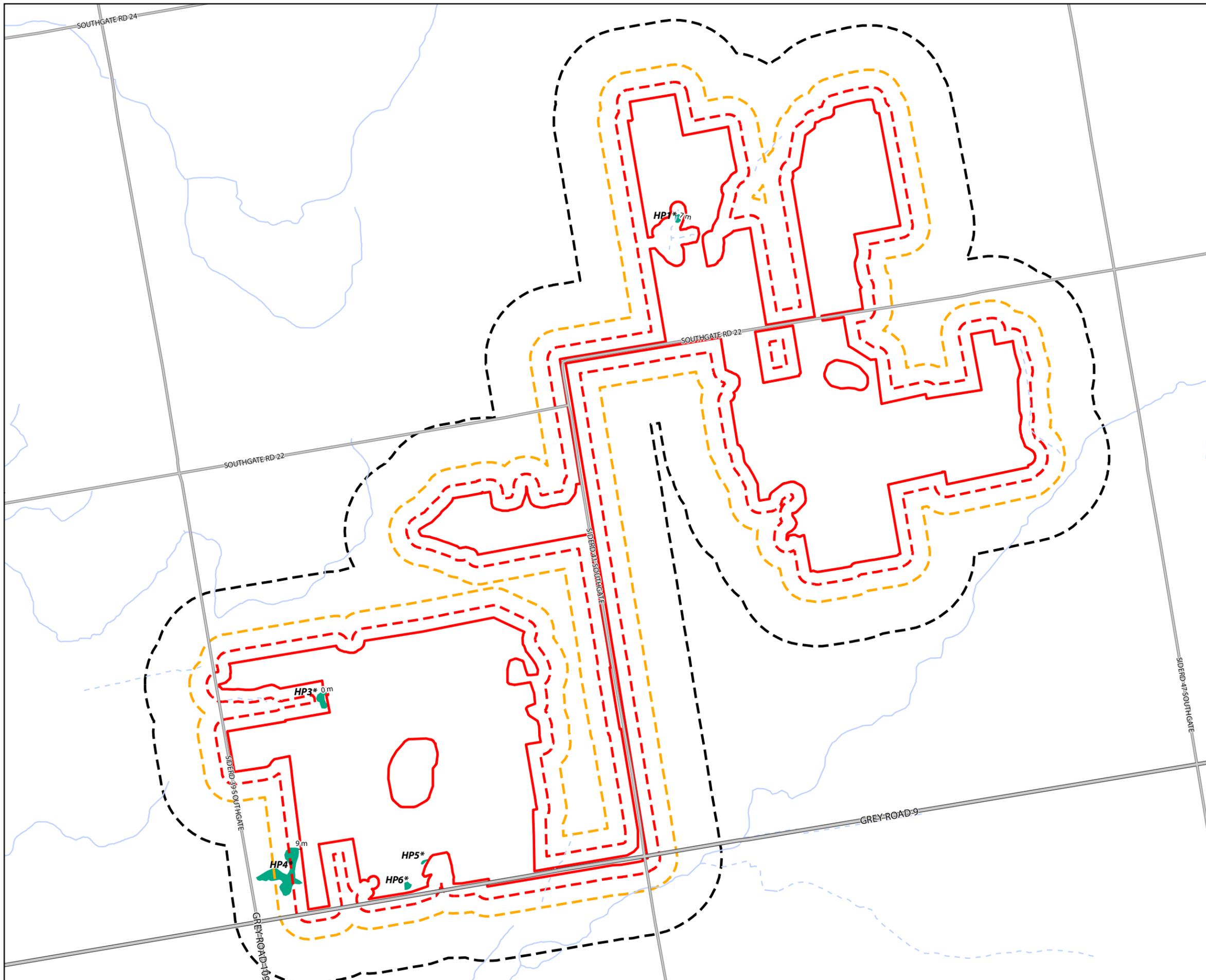
MAP DRAWING INFORMATION:  
DATA PROVIDED BY MNR

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

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



PROJECT: 149154  
STATUS: DRAFT  
DATE: 12/5/2014



## SOUTHGATE SOLAR PROJECT

**FIGURE 51  
SIGNIFICANT WILDLIFE HABITAT  
HILL'S PONDWEED**

- Permanent Watercourse
- - - Intermittent Watercourse
- Project Location
- - - Project Location 50 m Setback
- - - Project Location 120 m Setback
- - - Project Location 300 m Setback
- Treated as Significant Hill's Pondweed



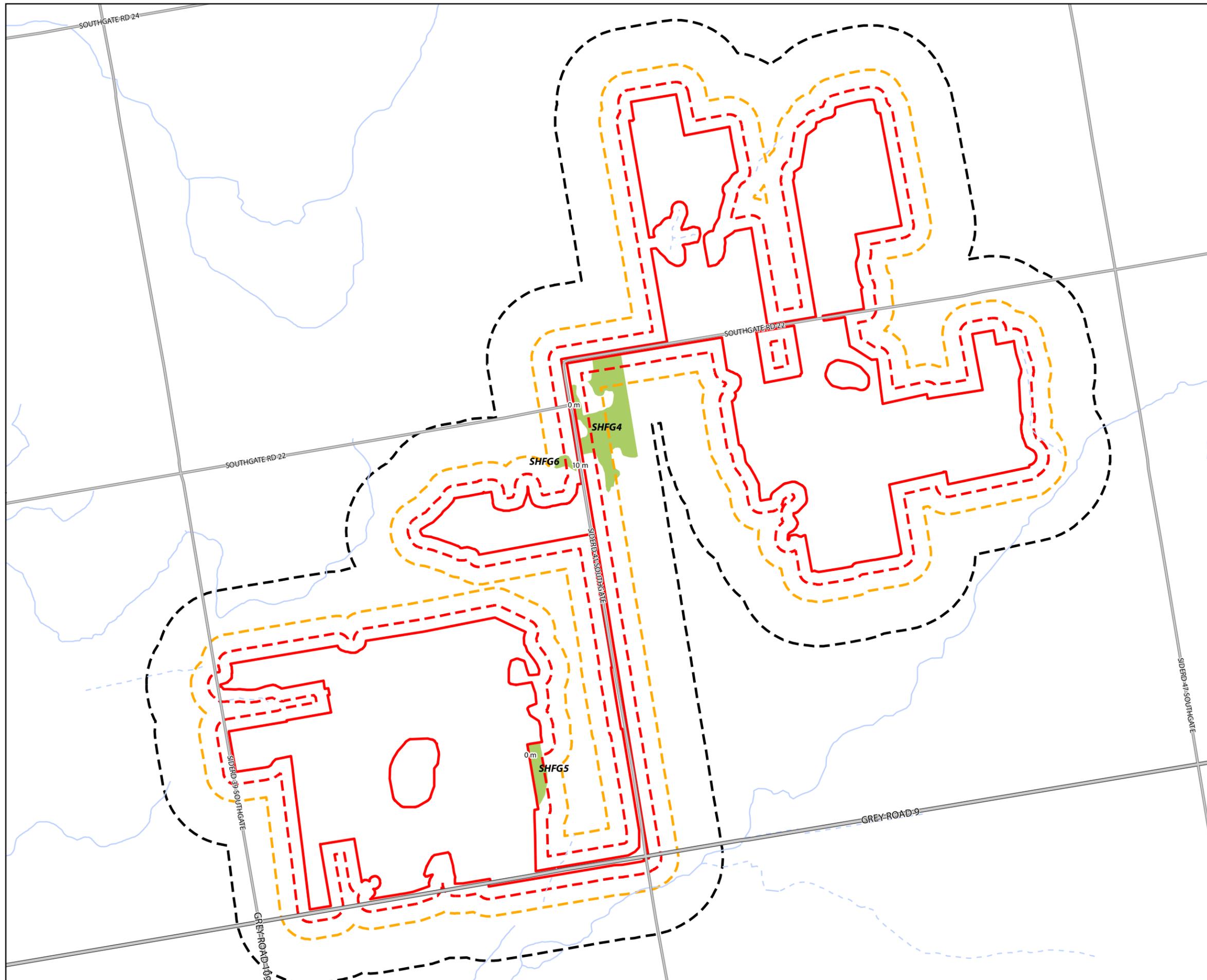
MAP DRAWING INFORMATION:  
DATA PROVIDED BY MNR

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

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



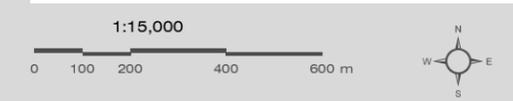
PROJECT: 149154  
STATUS: DRAFT  
DATE: 12/5/2014



**SOUTHGATE SOLAR PROJECT**

**FIGURE 5J  
SIGNIFICANT WILDLIFE HABITAT  
SOFT-HAIRY FALSE GROMWELL**

-  Permanent Watercourse
-  Intermittent Watercourse
-  Project Location
-  Project Location 50 m Setback
-  Project Location 120 m Setback
-  Project Location 300 m Setback
-  Treated as Significant Soft-Hairy False Gromwell



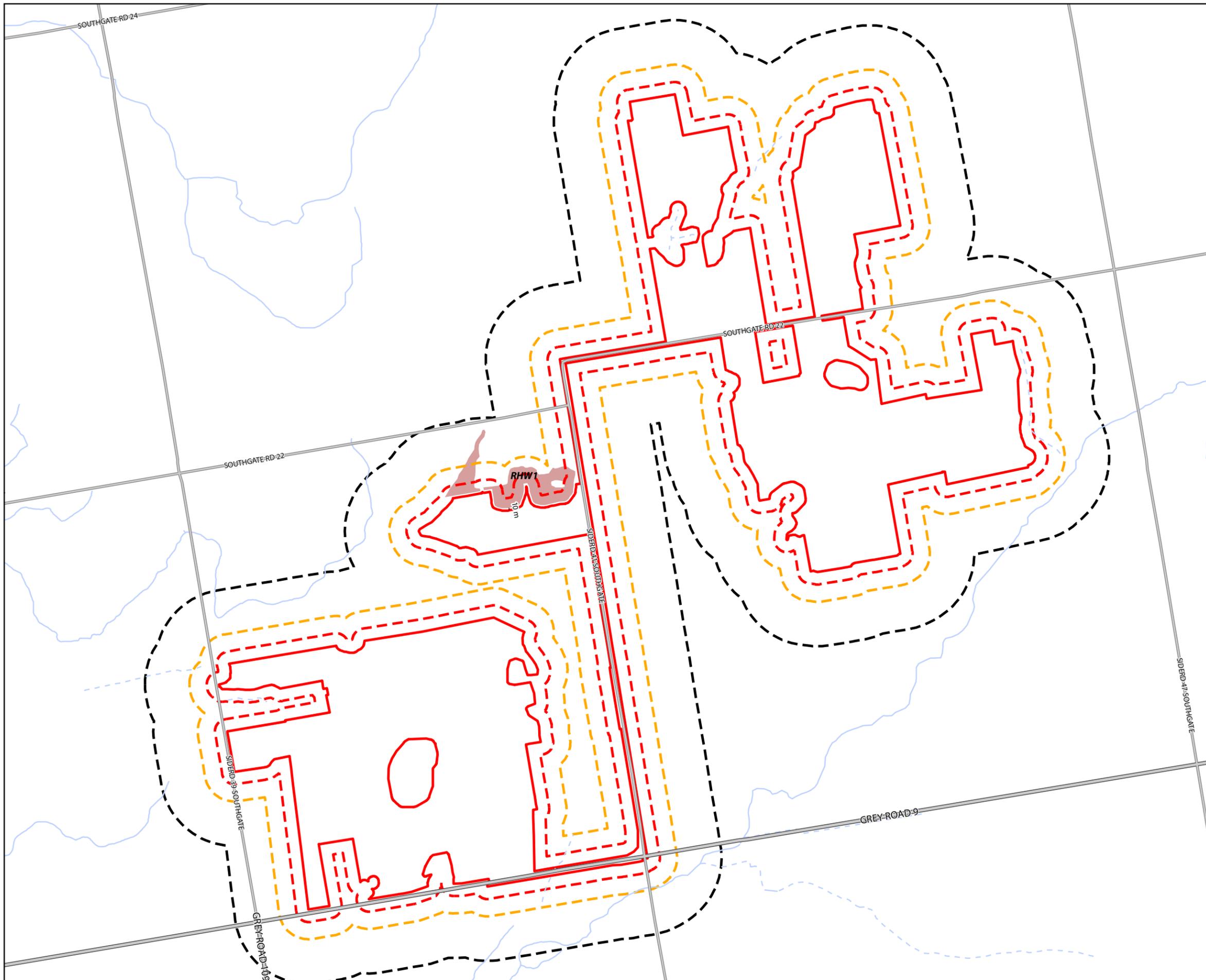
MAP DRAWING INFORMATION:  
DATA PROVIDED BY MNR

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

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



PROJECT: 149154  
STATUS: DRAFT  
DATE: 12/5/2014



**SOUTHGATE SOLAR PROJECT**

**FIGURE 5K  
SIGNIFICANT WILDLIFE HABITAT  
RED-HEADED WOODPECKER**

- Permanent Watercourse
- Intermittent Watercourse
- Project Location
- Project Location 50 m Setback
- Project Location 120 m Setback
- Project Location 300 m Setback
- Significant Red-Headed Woodpecker



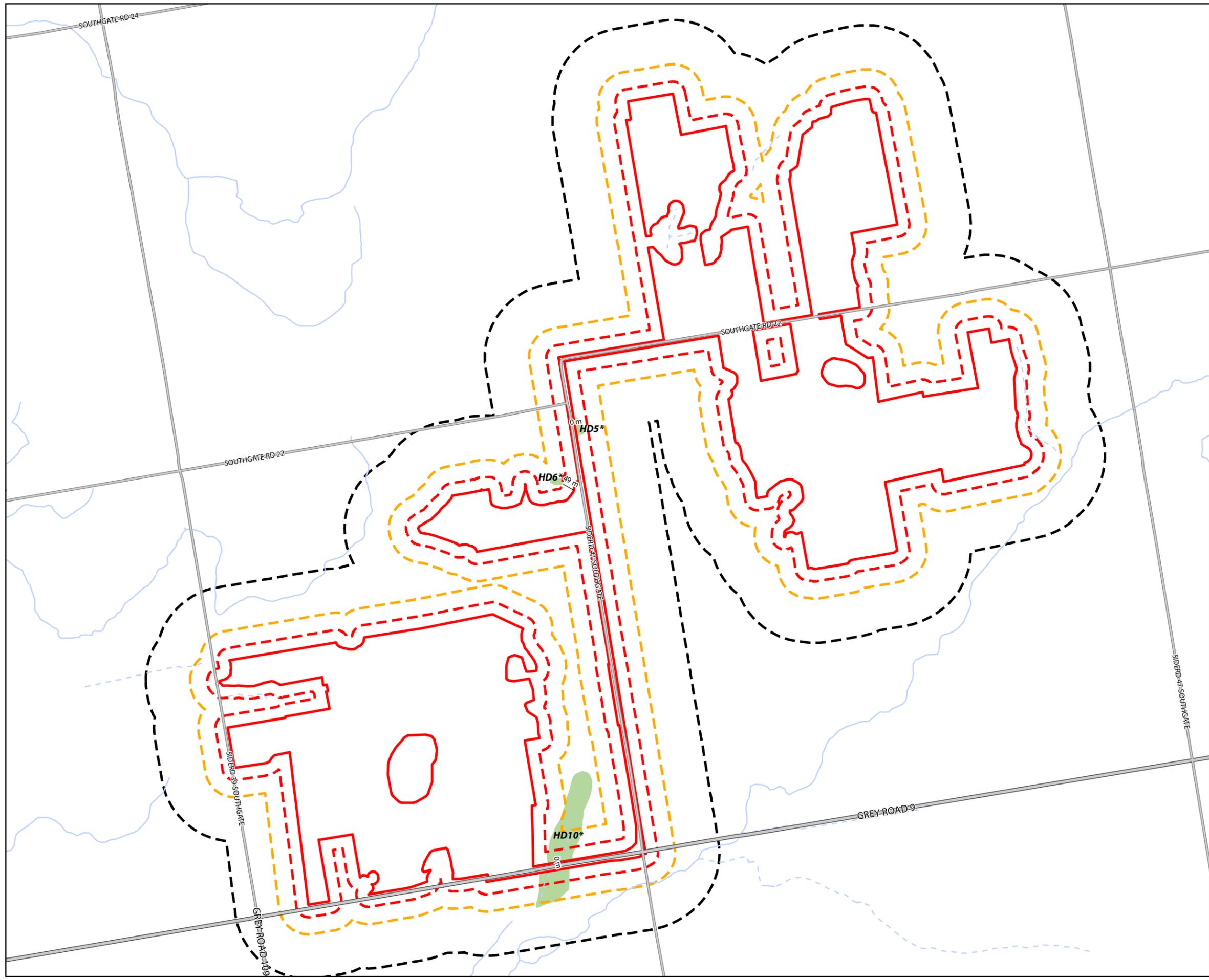
MAP DRAWING INFORMATION:  
DATA PROVIDED BY MNR

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

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



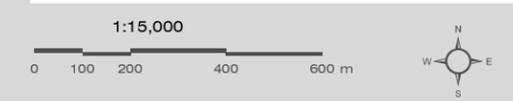
PROJECT: 149154  
STATUS: DRAFT  
DATE: 12/5/2014



**SOUTHGATE SOLAR PROJECT**

**FIGURE 5L  
SIGNIFICANT WILDLIFE HABITAT  
HARLEQUIN DARNER**

- Permanent Watercourse
- Intermittent Watercourse
- Project Location
- Project Location 50 m Setback
- Project Location 120 m Setback
- Project Location 300 m Setback
- Treated as Significant Harlequin Darner



MAP DRAWING INFORMATION:  
DATA PROVIDED BY MNR

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

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



PROJECT: 149154  
STATUS: DRAFT  
DATE: 12/5/2014

Table 9: Evaluation of Significant Wildlife Habitat in the Project Location and 50 m Setback

Wildlife Habitat	Defining Criteria for Significant Wildlife Habitat	Habitat Composition: Attributes, Condition and Function	Location		Status		Relevant Evaluation Criteria Determining Status	Project Components within 50 m	Distance to Project Location (m)
			Within Project Location	Within 50 m of Project Location	Significant	Treated as Significant			
<b>Seasonal Concentration Areas</b>									
Colonially- Nesting Bird Breeding Habitat (Tree/ Shrub) CNTS5	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 m 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).  Significant wildlife habitat defining criteria: Presence of 5 or more active nests of Great Blue Heron	These candidate habitats are made up of a SWTM3 Willow Mineral Deciduous Thicket Swamp and are found within 50 m of the Project Location.	---	✓	---	✓	Surveys that were completed in this area were conducted under the alternative site investigation methodology so these habitats were treated as significant for Colonially Nesting Bird Breeding Habitat (Tree/ Shrubs) and brought forward to the EIS. There will be no pre-construction surveys conducted for these habitats.  See <b>Figure 5A.</b>	- Overhead Cable	18 m
Colonially- Nesting Bird Breeding Habitat (Tree/ Shrub) CNTS6								- Overhead Cable	0 m
Turtle Wintering Areas TWA1, TWA2	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).  Significant wildlife habitat defining criteria: <ul style="list-style-type: none"><li>• Presence of 5 wintering Midland Painted Turtles</li><li>• One or more Northern Map Turtles or Snapping Turtles</li></ul>	These candidate habitats are an OAO communities within the southern portion of the Project Location.	✓	---	---	✓	Since turtle basking surveys were not conducted in this habitat during the 2014 season, these habitats were treated as significant and carried forward to the EIS. Pre-construction surveys will be conducted to determine significance of these habitats.  See <b>Figure 5B.</b>	- Perimeter fence - Access roads - Solar panels - Area of Operational Flexibility	0m

Wildlife Habitat	Defining Criteria for Significant Wildlife Habitat	Habitat Composition: Attributes, Condition and Function	Location		Status		Relevant Evaluation Criteria Determining Status	Project Components within 50 m	Distance to Project Location (m)
			Within Project Location	Within 50 m of Project Location	Significant	Treated as Significant			
Deer Winter Congregation Areas DWCA1	Deer winter congregation areas are areas deer move to in response to the onset of winter snow and cold. Deer Winter Congregation Areas are used for deer movement during the winter and will typically be >100 ha in size and comprised of FOC, FOM, FOD, SWC, SWM, and SWD.  Significant wildlife habitat defining criteria:  Woodlands ≥100 ha in size are automatically considered significant unless otherwise determined by the MNRF.	This candidate habitat is comprised of the following ELC communities: Dry-Fresh Sugar Maple Deciduous (FODM5-1); Dry-Fresh Sugar Maple Hardwood Deciduous (FODM5-9); Balsam Fir Hardwood Mixed Mineral (SWMM5-1); and Dry-Fresh Deciduous Woodland (WODM4) (Woodland A)	✓	✓	✓	---	Since Woodland A is >100 ha in size, this habitat is significant for Deer Winter Congregation Areas.  See <b>Figure 5C</b> .	- Perimeter fence - Solar panels - Access roads - Inverter station - Main HV substation - Overhead cable - Area of Operational Flexibility	0m
<b>Specialised Habitat for Wildlife</b>									
Turtle Nesting Areas TNA1	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 m 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).  Significant wildlife habitat defining criteria: <ul style="list-style-type: none"> <li>• Presence of 5 or more nesting Midland Painted Turtles</li> <li>• One or more Northern Map Turtle or Snapping Turtle nesting is a SWH.</li> <li>• The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100m around the nesting area dependent on slope, riparian vegetation and adjacent land use is the SWH.</li> <li>• Travel routes from wetland to nesting area are to be considered within the SWH.</li> </ul>	Meadow Marsh (MAM) with exposed mineral soil area is found within the 50 m setback of the Project Location.	---	✓	---	✓	Since turtle basking surveys were not conducted in this habitat during the 2014 season, this habitats was treated as significant and carried forward to the EIS. Pre-construction surveys will be conducted to determine significance of these habitats.  See <b>Figure 5D</b> .	- Perimeter fence - Solar panels - Access roads - Inverter station	30 m

Wildlife Habitat	Defining Criteria for Significant Wildlife Habitat	Habitat Composition: Attributes, Condition and Function	Location		Status		Relevant Evaluation Criteria Determining Status	Project Components within 50 m	Distance to Project Location (m)
			Within Project Location	Within 50 m of Project Location	Significant	Treated as Significant			
Amphibian Breeding Habitat (Wetland) ABHWE1	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 m <sup>2</sup> or 25 m in diameter, and located >120 m from woodlands.	This candidate habitat is made up of MAMM1-2 Cattail Graminoid Mineral Meadow Marsh and OAO Open Aquatic and is found within the surrounding 50 m of the Project Location.	---	✓	---	✓	Since amphibian survey stations were located more than 100 m from this candidate habitat, this habitat was treated as significant and carried forward to the EIS. Surveys will be conducted prior to construction, to determine significance.  See <b>Figure 5E</b> .	- Perimeter fence - Solar panels - Access roads - Area of Operational Flexibility	7 m
Amphibian Breeding Habitat (Wetland) ABHWE2	Significant wildlife habitat defining criteria: <ul style="list-style-type: none"> <li>• Presence of breeding population of 1 or more of the listed salamander species or 3 or more of the listed frog or toad species and with at least 20 breeding individuals (adults, juveniles, eggs/larval masses) <b>or</b>;</li> <li>• Wetland with confirmed breeding Bullfrogs are significant.</li> </ul> <p><u>Wildlife species to be considered:</u></p> <p>Eastern Newt</p>	This candidate habitat is made up of MAMM3-1 Mixed Mineral Meadow Marsh and is found within the surrounding 50 m of the Project Location.	---	✓	---	✓	Since amphibian survey stations were located more than 100 m from this candidate habitat, this habitat was treated as significant and carried forward to the EIS. Surveys will be conducted prior to construction, to determine significance.  See <b>Figure 5E</b> .	- Perimeter fence - Solar panels - Access roads - Inverter station  - Perimeter fence - Solar panels - Access roads - Area of Operational Flexibility	8 m
Amphibian Breeding Habitat (Wetland) ABHWE5	American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog	This candidate habitat is made up of MAMM3-1 Mixed Mineral Meadow Marsh and is found within the surrounding 50 m of the Project Location.	✓	✓	---	✓	Since amphibian survey stations were located more than 100 m from this candidate habitat, this habitat was treated as significant and carried forward to the EIS. Surveys will be conducted prior to construction, to determine significance.  See <b>Figure 5E</b> .	- Perimeter fence - Solar panels - Access roads  - Perimeter fence - Solar panels - Access roads - Area of Operational Flexibility	5 m

Wildlife Habitat	Defining Criteria for Significant Wildlife Habitat	Habitat Composition: Attributes, Condition and Function	Location		Status		Relevant Evaluation Criteria Determining Status	Project Components within 50 m	Distance to Project Location (m)
			Within Project Location	Within 50 m of Project Location	Significant	Treated as Significant			
Amphibian Breeding Habitat (Wetland) ABHWE6	Green Frog Mink Frog Bullfrog  Species of Conservation Concern: Western Chorus Frog	This candidate habitat is made up of SWTM3 Willow Mineral Deciduous Thicket Swamp and is found within the surrounding 50 m of the Project Location.	---	✓	---	✓	Since amphibian survey stations were located more than 100 m from this candidate habitat, this habitat was treated as significant and carried forward to the EIS. Surveys will be conducted prior to construction, to determine significance.  See <b>Figure 5E</b> .	- Overhead cable	18 m
Amphibian Breeding Habitat (Wetland) ABHWE7		This candidate habitat is made up of SWTM3 Willow Mineral Deciduous Thicket Swamp and is found within the surrounding 50 m of the Project Location.	---	✓	---	✓	Since amphibian survey stations were located more than 100 m from this candidate habitat, this habitat was treated as significant and carried forward to the EIS. Surveys will be conducted prior to construction, to determine significance.  See <b>Figure 5E</b> .	- Overhead cable	0 m
Amphibian Breeding Habitat (Wetland) ABHWE8		This candidate habitat is made up of SWMM1-1 White Cedar Hardwood Mineral Mixed Swamp and is found within the surrounding 50 m of the Project Location.	---	✓	---	✓	Since amphibian survey stations were located more than 100 m from this candidate habitat, this habitat was treated as significant and carried forward to the EIS. Surveys will be conducted prior to construction, to determine significance.  See <b>Figure 5E</b> .	- Overhead cable - Area of Operational Flexibility	0 m
Amphibian Breeding Habitat (Wetland) ABHWE9		This candidate habitat is made up of OAO Open Aquatic Area and is found within the surrounding 50 m of the Project Location.	✓	✓	---	✓	Since amphibian survey stations were located more than 100 m from this candidate habitat, this habitat was treated as significant and carried forward to the EIS. Surveys will be conducted prior to construction, to determine significance.  See <b>Figure 5E</b> .	- Access road - Area of Operational Flexibility	0 m

Wildlife Habitat	Defining Criteria for Significant Wildlife Habitat	Habitat Composition: Attributes, Condition and Function	Location		Status		Relevant Evaluation Criteria Determining Status	Project Components within 50 m	Distance to Project Location (m)
			Within Project Location	Within 50 m of Project Location	Significant	Treated as Significant			
Amphibian Breeding Habitat (Wetland) ABHWE11		This candidate habitat is made up of MAMM1-3 Reed Canary Grass Graminoid Mineral Meadow Marsh and SWDM4-5 Poplar Mineral Deciduous Swamp and is found within the surrounding 50 m of the Project Location.	---	✓	✓	---	During amphibian surveys on May 1, 2014, May 28 2014 and June 25, 2014 from amphibian survey station 13, there was determined to be presence of 3 of the species of the wildlife species to be considered (Gray Treefrog, Northern Leopard Frog and Green Frog) with at least 20 breeding individuals. Therefore, this habitat is significant.  See <b>Figure 5E</b> .	<ul style="list-style-type: none"> <li>- Perimeter fence</li> <li>- Solar panels</li> <li>- Access roads</li> </ul>	30 m
Amphibian Breeding Habitat (Wetland) ABHWE12		This candidate habitat is made up of OAO Open Aquatic Area and is found within the surrounding 50 m of the Project Location.	---	✓	---	✓	Since amphibian survey stations were located more than 100 m from this candidate habitat, this habitat was treated as significant and carried forward to the EIS. Surveys will be conducted prior to construction, to determine significance.  See <b>Figure 5E</b> .	<ul style="list-style-type: none"> <li>- Perimeter fence</li> <li>- Solar panels</li> <li>- Overhead cable</li> <li>- Area of Operational Flexibility</li> </ul>	9 m
Amphibian Breeding Habitat (Wetland) ABHWE13		This candidate habitat is made up of MAMM1-3 Reed Canary Grass Graminoid mineral Meadow Marsh and SWMO1-1 White Cedar Hardwood Organic mixed Swamp and is found within the surrounding 50 m of the Project Location.	---	✓	---	✓	Since amphibian survey stations were located more than 100 m from this candidate habitat, this habitat was treated as significant and carried forward to the EIS. Surveys will be conducted prior to construction, to determine significance.  See <b>Figure 5E</b> .	<ul style="list-style-type: none"> <li>- Access roads</li> <li>- Area of Operational Flexibility</li> </ul>	4 m

Wildlife Habitat	Defining Criteria for Significant Wildlife Habitat	Habitat Composition: Attributes, Condition and Function	Location		Status		Relevant Evaluation Criteria Determining Status	Project Components within 50 m	Distance to Project Location (m)
			Within Project Location	Within 50 m of Project Location	Significant	Treated as Significant			
Amphibian Breeding Habitat (Wetland) ABHWE14		This candidate habitat is made up of OAO Open Aquatic Area and is found within the surrounding 50 m of the Project Location.	---	✓	---	✓	Since amphibian survey stations were located more than 100 m from this candidate habitat, this habitat was treated as significant and carried forward to the EIS. Surveys will be conducted prior to construction, to determine significance.  See Figure 5E.	- Perimeter fence - Solar panels - Access roads - Area of Operational Flexibility	0 m
Amphibian Breeding Habitat (Wetland) ABHWE15		This candidate habitat is made up of MAMM1-3 Reed Canary Grass Graminoid Mineral Meadow Marsh and is found within the surrounding 50 m of the Project Location.	---	✓	---	✓	Since amphibian survey stations were located more than 100 m from this candidate habitat, this habitat was treated as significant and carried forward to the EIS. Surveys will be conducted prior to construction, to determine significance.  See Figure 5E.	- Perimeter fence - Solar panels - Area of Operational Flexibility	3 0m
Amphibian Breeding Habitat (Woodland) ABHWO1	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.  Significant wildlife habitat defining criteria:  • Presence of breeding population of 1 or more of the listed species with at least 20 individuals (adults, juveniles, eggs/larval masses).  <u>Wildlife species to be considered:</u>  Eastern Newt Blue-spotted Salamander Spotted Salamander	This candidate habitat is made up of MAMM3-1 Mixed mineral Meadow Marsh and SWDM2-1 Black Ash Mineral Deciduous Swamp/MAMM3-1 Mixed Mineral Meadow Marsh complex wetlands that are contained in a FODM5-7 Dry-Fresh Sugar Maple-Black Cherry Deciduous Forest/FODM6-5 Fresh-Moist Sugar Maple Hardwood Deciduous Forest woodland. This habitat exists on the Project Location and within the 50 m setback.	✓	✓	✓	---	During amphibian surveys on May 2, 2014 and May 29 2014 from amphibian survey station 16, there was determined to be presence of 3 of the species of the wildlife species to be considered (Gray Treefrog, Spring Peeper and Wood Frog) with at least 20 individuals. Therefore, this habitat is significant.  See Figure 5F.	- Perimeter fence - Solar panels - Access roads	0 m
Amphibian Breeding Habitat (Woodland)	Gray Treefrog Spring Peeper Wood Frog	This candidate habitat is made up of MAMM1-2 Cattail Graminoid Mineral Meadow	---	✓	✓	---	During amphibian surveys on May 2, 2014 and May 28 and June 25, 2014 from amphibian survey station 19 and May 2, and June 26, 2014 from amphibian	- Perimeter fence - Solar panels	0 m

Wildlife Habitat	Defining Criteria for Significant Wildlife Habitat	Habitat Composition: Attributes, Condition and Function	Location		Status		Relevant Evaluation Criteria Determining Status	Project Components within 50 m	Distance to Project Location (m)
			Within Project Location	Within 50 m of Project Location	Significant	Treated as Significant			
ABHWO2	Western Chorus Frog Species of Conservation Concern: Western Chorus Frog	Marsh, MASM1-14 Reed Canary Grass Mineral Shallow Marsh and SWMM5-1 Balsam Fir Hardwood Mixed Mineral Swamp wetlands that are contained in a woodland consisting of FODM5-1 Dry Fresh Sugar Maple-Black Cherry Deciduous Forest, FODM5-9 Dry-Fresh Sugar Maple Hardwood Deciduous Forest and WODM4 Dry-Fresh Deciduous Woodland. This habitat exists within the 50 m setback of the Project Location.					survey station 22, there was determined to be presence of 3 of the species of the wildlife species to be considered (Gray Treefrog, Spring Peeper and Wood Frog) with at least 20 individuals. Therefore, this habitat is significant.  See <b>Figure 5F</b> .	<ul style="list-style-type: none"> <li>- Access roads</li> <li>- Area of Operational Flexibility</li> </ul>	
Amphibian Breeding Habitat (Woodland)  ABHWO3		This candidate habitat is made up of SWDM2-2 Green Ash Mineral Deciduous Swamp, SWMM1-1 White Cedar Hardwood Mineral Mixed Swamp and SWMO1-1 White Cedar Hardwood Organic Mixed Swamp wetlands that are contained in a FOCM4-1 Fresh-Moist White Cedar Coniferous Forest and FODM6-5 Fresh-Moist Sugar Maple Hardwood Deciduous Forest woodland. This habitat exists on the Project Location and within the 50 m setback.	---	✓	✓	---	During amphibian surveys on May 1, 2014 and May 28 and June 25, 2014 from amphibian survey stations 11 and 12, there was determined to be presence of 3 of the species of the wildlife species to be considered (Gray Treefrog, Spring Peeper and Wood Frog) with at least 20 individuals. Therefore, this habitat is significant.  See <b>Figure 5F</b> .	<ul style="list-style-type: none"> <li>- Perimeter fence</li> <li>- Solar panels</li> <li>- Access roads</li> <li>- Main HV substation</li> <li>- Overhead cable</li> <li>- Area of Operational Flexibility</li> </ul>	10 m

Wildlife Habitat	Defining Criteria for Significant Wildlife Habitat	Habitat Composition: Attributes, Condition and Function	Location		Status		Relevant Evaluation Criteria Determining Status	Project Components within 50 m	Distance to Project Location (m)
			Within Project Location	Within 50 m of Project Location	Significant	Treated as Significant			
<b>Habitat of Species of Conservation Concern</b>									
Woodland Area-sensitive Bird Breeding Habitat ASBB1	<p>Habitats where interior forest breeding birds are breeding in forest stands or woodlots &gt;30 ha (forest interior is defined as at least 200 m from the forest edge). These include any of the following Community Types: Forest (FO), Treed Swamp (SW) that are mature (&gt;60 years old).</p> <p>Significant wildlife habitat defining criteria:</p> <ul style="list-style-type: none"> <li>• Presence of nesting or breeding pairs of 3 or more of the listed wildlife species.</li> <li>• any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH.</li> </ul> <p><u>Wildlife species to be considered:</u>            Yellow-bellied Sapsucker            Red-breasted Nuthatch            Veery            Blue-headed Vireo            Northern Parula            Black-throated Green Warbler            Blackburnian Warbler            Black-throated Blue Warbler            Ovenbird            Scarlet Tanager            Winter Wren</p> <p>Species of Conservation Concern:            Canada Warbler            Cerulean Warbler</p>	This candidate habitat is made up of FODM5-7 Dry-Fresh Sugar maple-Black cherry Deciduous Forest and FODM6-5 Fresh-Moist Sugar Maple Hardwood Deciduous Forest and exists both in the Project Location and within the 50 m setback.	✓	✓	✓	---	<p>Breeding bird point counts taken within this woodland area (23, 24, 25, 22, 68, 69, 70, 74) recorded observations of Veery, Ovenbird, Black-throated Blue Warbler, Yellow-bellied Sapsucker, Scarlet Tanager, Winter Wren, and Black-throated Green Warbler (See Appendix B of the <i>NHA Evaluation of Significance Report</i> for Breeding Bird Survey Point Counts and field notes). Therefore, this habitat is significant and was carried forward to the EIS report.</p> <p>See <b>Figure 5G</b>.</p>	<ul style="list-style-type: none"> <li>- Perimeter fence</li> <li>- Solar panels</li> <li>- Access roads</li> <li>- Inverter station</li> <li>- Main HV substation</li> <li>- Overhead cable</li> <li>- Area of Operational Flexibility</li> </ul>	0m

Wildlife Habitat	Defining Criteria for Significant Wildlife Habitat	Habitat Composition: Attributes, Condition and Function	Location		Status		Relevant Evaluation Criteria Determining Status	Project Components within 50 m	Distance to Project Location (m)
			Within Project Location	Within 50 m of Project Location	Significant	Treated as Significant			
<b>Special Concern and Rare Wildlife Species</b>									
American Gromwell AG2		This candidate habitat is made up of FODM6 Fresh-Moist Sugar Maple Deciduous Forest and exists within 50 m of the Project Location.	---	✓	---	✓	Surveys that were conducted in this FODM6 Fresh-Moist Sugar Maple Deciduous Forest community were conducted under the alternative site investigation methodology so this habitat was treated as significant and carried forward to the EIS. There will be no pre-construction surveys required for this habitat to determine significance.  See <b>Figure 5H</b> .	- Overhead cable	0 m
Hill's Pondweed HP1	Hill's Pondweed is found in slow-moving streams, ditches, ponds, lakes and wetlands. It grows in clear, cold alkaline waters.	This candidate habitat is made up of and OAO open aquatic area and exists within 50 m of the Project Location.	---	✓	---	✓	Since open water features were not searched for vegetation, these habitats were treated as significant and carried forward to the EIS. Surveys to be conducted prior to construction to determine significance.  See <b>Figure 5I</b> .	- Perimeter fence - Solar panels - Access roads - Area of Operational Flexibility	7 m
Hill's Pondweed HP3		This candidate habitat is made up of and OAO open aquatic area and exists within 50 m of the Project Location.	---	✓	---	✓		- Perimeter fence - Solar panels - Access roads - Area of Operational Flexibility	0 m
Hill's Pondweed HP4		This candidate habitat is made up of and OAO open aquatic area and exists within 50 m of the Project Location.	---	✓	---	✓		- Perimeter fence - Solar panels - Area of Operational Flexibility	9 m

Wildlife Habitat	Defining Criteria for Significant Wildlife Habitat	Habitat Composition: Attributes, Condition and Function	Location		Status		Relevant Evaluation Criteria Determining Status	Project Components within 50 m	Distance to Project Location (m)
			Within Project Location	Within 50 m of Project Location	Significant	Treated as Significant			
Hill's Pondweed HP5		This candidate habitat is made up of and OAO open aquatic area and exists on the Project Location.	✓	---	---	✓		- Perimeter fence - Solar panels - Access roads - Area of Operational Flexibility	0 m
Hill's Pondweed HP6		This candidate habitat is made up of and OAO open aquatic area and exists on the Project Location.	✓	---	---	✓		- Access roads - Area of Operational Flexibility	0 m
Soft-hairy False Gromwell SHFG4	This species prefers well drained soils in open woodlands or along roadsides. Blooming season is June- July.  The thicket (TH) communities and the WODM4 could provide habitat for this species.	This candidate habitat is made up of THMM2 Fresh Moist Mixed Thicket and THDM2-11 Hawthorn Deciduous Shrub Thicket and exists within the 50 m setback of the Project Location.	---	✓	---	✓	Surveys that were completed in this THMM2 Fresh Moist Mixed thicket community were conducted under the alternative site investigation methodology so this habitat was treated as significant for Soft-hairy False Gromwell and brought forward to the EIS. There will be no pre-construction surveys conducted for this habitat.  See <b>Figure 5J</b> .	- Overhead cable	0 m
Soft-hairy False Gromwell SHFG5		This candidate habitat is made up of THMM2 Fresh Moist Mixed Thicket and exists within the 50 m setback of the Project Location.	---	✓	---	✓		Vegetation surveys were conducted in September in the THMM2 Fresh Moist Mixed Thicket and no Soft-Hairy False Gromwell was found. This was not during the blooming period for this species so this habitat was treated as significant in the EIS and pre-construction surveys will be conducted to determine significance.  See <b>Figure 5J</b> .	- Perimeter fence - Solar panels - Access roads - Inverter station

Wildlife Habitat	Defining Criteria for Significant Wildlife Habitat	Habitat Composition: Attributes, Condition and Function	Location		Status		Relevant Evaluation Criteria Determining Status	Project Components within 50 m	Distance to Project Location (m)
			Within Project Location	Within 50 m of Project Location	Significant	Treated as Significant			
Soft-hairy False Gromwell SHFG6		This candidate habitat is made up of THDM2-11 Hawthorn Deciduous Shrub Thicket and exists within the 50 m setback of the Project Location.	---	✓	---	✓	Surveys that were completed in this THMM2 Fresh Moist Mixed thicket community were conducted under the alternative site investigation methodology so this habitat was treated as significant for Soft-hairy False Gromwell and brought forward to the EIS. There will be no pre-construction surveys conducted for this habitat.  See <b>Figure 5J</b> .	<ul style="list-style-type: none"> <li>- Overhead cable</li> <li>- Area of Operational Flexibility</li> </ul>	10 m
Redheaded Woodpecker RHW1	The Red-headed Woodpecker lives in open woodland and woodland edges, and is often found in parks, golf courses and cemeteries. These areas typically have many dead trees, which the bird uses for nesting and perching.	Candidate habitat exists within FODM6-5 Fresh Moist Sugar Maple Hardwood Deciduous Forest that is within the 50 m setback of the Project Location.	---	✓	✓	---	Breeding bird surveys were conducted at point count station 24 on June 5 <sup>th</sup> and June 19 <sup>th</sup> . A Redheaded Woodpecker was heard calling during the June 19 <sup>th</sup> survey. There were incidental sightings of two Redheaded Woodpeckers on May 13 <sup>th</sup> and then again on May 14 <sup>th</sup> 2014. Therefore, this habitat is considered Significant Wildlife Habitat for Redheaded Woodpecker and was carried forward to the EIS.  See <b>Figure 5K</b> .	<ul style="list-style-type: none"> <li>- Perimeter fence</li> <li>- Solar panels</li> <li>- Access roads</li> <li>- Main HV Main HV substation</li> </ul>	10 m
Harlequin Darner HD5	This species can be found in bogs, and swamps May through July.	This candidate habitat is made up of SWTM3 Willow Mineral Deciduous Thicket Swamp and exists in the 50 m setback of the Project Location.	---	✓	---	✓	Surveys that were completed in this SWTM3 Willow mineral Deciduous Thicket Swamp community were conducted under the alternative site investigation methodology so this habitat was treated as significant and brought forward to the EIS. There will be pre-construction surveys conducted for this habitat to determine significance.  See <b>Figure 5L</b> .	<ul style="list-style-type: none"> <li>- Overhead cable</li> </ul>	0 m

Wildlife Habitat	Defining Criteria for Significant Wildlife Habitat	Habitat Composition: Attributes, Condition and Function	Location		Status		Relevant Evaluation Criteria Determining Status	Project Components within 50 m	Distance to Project Location (m)
			Within Project Location	Within 50 m of Project Location	Significant	Treated as Significant			
Harlequin Darner HD6		This candidate habitat is made up of SWDM2-2 Green Ash Mineral Deciduous Swamp and exists in the 50 m setback of the Project Location.	---	✓	---	✓	Surveys that were completed in this SWDM2-2 Green Ash Mineral Deciduous Swamp community were conducted under the alternative site investigation methodology so this habitat was treated as significant and brought forward to the EIS. There will be pre-construction surveys conducted for this habitat to determine significance.  See <b>Figure 5L</b> .	<ul style="list-style-type: none"> <li>- Perimeter fence</li> <li>- Solar panels</li> <li>- Overhead cable</li> <li>- Area of Operational Flexibility</li> </ul>	49 m
Harlequin Darner HD10		This candidate habitat is made up of SWMM1-1 White Cedar Hardwood Mixed Mineral Swamp and exists in the 50 m setback of the Project Location.	---	✓	---	✓	Surveys that were completed in this SWMM1-1 White Cedar Hardwood Mixed Mineral Swamp community were conducted under the alternative site investigation methodology so this habitat was treated as significant and brought forward to the EIS. There will be pre-construction surveys conducted for this habitat to determine significance.  See <b>Figure 5L</b> .	<ul style="list-style-type: none"> <li>- Overhead cable</li> <li>- Area of Operational Flexibility</li> </ul>	0 m

## 9. ENVIRONMENTAL EFFECTS OF THE PROJECT

A summary of attributes, composition, and function that contribute to the persistence of significant natural features may be sensitive to development and serve as good indicators of negative environmental effects are described below in **Table 10**. This summary provides key components of natural feature attributes, composition and function which will be brought forward and evaluated as part of the impact analysis.

The evaluation of potential impacts, mitigation and residual effects are discussed in **Table 11**. In many cases, activities listed in **Table 11** overlap (e.g. clearing and equipment lay-down). Where activities overlap, the first activity in the Project construction sequence or which has the broadest impact is evaluated in **Table 11**.

In general, the mitigation measures have been designed to reduce the impacts of construction, operations, and decommissioning to the significant natural features.

Table 10: Summary of Key Features and Attributes that may serve as Indicators of Negative Environmental Effects

Natural Feature	Indicator Species	Features/Attributes Necessary for Persistence (Physical and Functional)	Features Potentially Sensitive to Development	Good Indicator Features/Species
<b>Wetlands</b>				
4, 6, 7, 9, 11, 13, 14, 17, 18, 20, 21, 22, 23, 26, 29, 30, and 32	Amphibians, wetland breeding birds, native wetland flora	Physical: adjacent wetlands, overland flow, localized water retention, water quality, vegetation, vegetation cover Functional: connection with other natural features, species richness, wildlife habitat diversity	Water quality (wetlands and riverine), vegetation along the edge of feature, species richness, wildlife habitat diversity	Vegetation along the edge of feature acting as a natural buffer between the wetland and the project location  Species richness (amphibians, colonial nesting birds, marsh breeding birds, waterfowl)
<b>Woodlands</b>				
A, C, D, E, and I	Native woodland flora	Physical: occurrence of large contiguous forest unit with low disturbance  Functional: provides interior habitat, is adjacent to other significant wildlife habitat, provides habitat for woodland species	Vegetation along the edge of the feature, interior habitat, woodland species richness	Vegetation along the edge of feature  Persistence/dominance of native tree species

Natural Feature	Indicator Species	Features/Attributes Necessary for Persistence (Physical and Functional)	Features Potentially Sensitive to Development	Good Indicator Features/Species
<b>Wildlife Habitat</b>				
<b>Seasonal Concentration Areas</b>				
Colonially- Nesting Bird Breeding Habitat CNTS5*, CNTS6*	Great Blue Heron Black-crowned Night Heron Great Egret	Physical: wetlands, lakes, islands and peninsulas with dead standing trees. Shrubs and occasionally emergent vegetation may also be used Functional: trees to support breeding birds	Swamps that serve as nesting habitat for these species	Dead standing trees  Use of trees for nesting/ evidence of nests
Turtle Wintering Area TWA1*, TWA2*	Midland Painted Turtle Northern Map Turtle Snapping Turtle	Physical: permanent water body with a depth of at least 1 m to prevent freezing. Must have adequate dissolved oxygen and soft mud substrates Functional: area that will provide winter refuge	Depth of water	Depth of water  Use of habitat by species
Deer Winter Concentration Areas DWCA1	White-tailed Deer	Physical: woodlots that are >100 ha in size and are not constrained by snow depth Functional: areas that will provide winter refuge and feeding for deer	The size of the habitat being used	Presence of white-tailed deer  Annual use of habitat
<b>Specialised Habitat for Wildlife</b>				
Turtle Nesting Areas TNA1*	Midland Painted Turtle Northern Map Turtle Snapping Turtle	Physical: exposed mineral soil areas adjacent to wetland communities Functional: areas that can function as turtle nesting area. These areas will provide substrate in which turtles can dig, and are located in open, sunny areas.	Nesting habitat for turtles	Species richness and abundance  Persistence of sandy/gravelly areas in which turtles can nest

Natural Feature	Indicator Species	Features/Attributes Necessary for Persistence (Physical and Functional)	Features Potentially Sensitive to Development	Good Indicator Features/Species
Amphibian Breeding Habitat (Wetland) ABHWE1*, ABHWE2*, ABHWE5*, ABHWE6*, ABHWE7*, ABHWE8*, ABHWE9*, ABHWE11, ABHWE12*, ABHWE13*, ABHWE14*, ABHWE15*	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	Physical: occurrence of wetland community with seasonally-inundated open water area(s)  Functional: Water quality to support breeding; presence of shrubs and logs to increase structure of calling, foraging, and protection from predators	Breeding habitat for amphibians (e.g., wetlands, fringes of open water areas), water quality of breeding ponds	Water quality of breeding ponds within 30 m of project components  Amphibian species richness and abundance  Occurrence of quality wetland vegetation cover  Western Chorus Frog (in habitat where species was previously observed in pre-construction surveys)
Amphibian Breeding Habitat (Woodland) ABHWO1, ABHWO2, ABHWO3	Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog	Physical: occurrence of wetland community with seasonally-inundated open water area(s)  Functional: water quality to support breeding; connection to upland habitat	Breeding habitat for amphibians (e.g., wetlands, fringes of open water areas), water quality of breeding ponds	Water quality of breeding ponds within 30 m of project components Amphibian species richness and Abundance Occurrence of quality wetland vegetation cover Western Chorus Frog (in habitat where species was previously observed in pre-construction surveys)
<b>Habitat of Species of Conservation Concern</b>				
Woodland Area-Sensitive Bird	Yellow-bellied Sapsucker	Physical: forest stands or woodlots 30ha with interior forest	Interior forest habitat for breeding birds	Species richness and abundance

Natural Feature	Indicator Species	Features/Attributes Necessary for Persistence (Physical and Functional)	Features Potentially Sensitive to Development	Good Indicator Features/Species
Breeding habitat ASBB1	Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler Ovenbird Scarlet Tanager Winter Wren	Functional: interior forest habitats for interior forest breeding birds to breed		Persistence of interior forest habitat
American Gromwell AG2*	American Gromwell	Physical: upland hardwood forests Functional: ability to provide habitat for flora and persistence of water quality and quantity	Upland hardwood forest	Presence of American Gromwell
Hill's Pondweed HP1*, HP3*, HP4*, HP5*, HP6*	Hill's Pondweed	Physical: slow-moving streams, ditches, ponds, lakes and wetlands that are clear, cold and alkaline Functional: ability to provide habitat for flora and persistence of water quality and quantity	Clear, cold alkaline waters	Presence of Hill's Pondweed

Natural Feature	Indicator Species	Features/Attributes Necessary for Persistence (Physical and Functional)	Features Potentially Sensitive to Development	Good Indicator Features/Species
Soft-hairy False Gromwell SHFG4*, SHFG5*, SHFG6*	Soft-hairy False Gromwell	Physical: well drained soils in open woodlands or along roadsides Functional: ability to provide habitat for flora and persistence of water quality and quantity	Well drained soils in woodland habitats and on roadsides	Presence of Soft-hairy False Gromwell
Redheaded Woodpecker RHW1	Redheaded Woodpecker	Physical: Open woodland and woodland edges Functional: provides breeding habitat Redheaded Woodpecker	Woodland habitat that serves as breeding habitat for Redheaded Woodpecker	Presence of Redheaded Woodpecker
Harlequin Darner HD5*, HD6*, HD10*	Harlequin Darner	Physical: Bogs and swamps Functional: ability to provide habitat for Harlequin Darner and persistence of water quality and quantity	Vegetation and water quality able to provide breeding habitat in bogs and swamps	Presence of Harlequin Darner

\*denotes habitats that will be “treated as” significant in the EIS and pre-construction surveys will be completed to evaluate wildlife habitat

Table 11: Summary of Potential Negative Effects and Mitigation Measures for Significant Natural Features

Significant or Provincially Significant Natural Feature Affected by Activity	Project Phase & Activity within 50 m of Natural Feature	Distance to Nearest Project Component and Other Components within 50 m	Potential Negative/Positive Effect(s)		Magnitude of Effect	Frequency of Effect	Duration of Effect	Mitigation Measures	Residual Effects
			Physical Impact (Direct)	Functional Effect (Indirect)					
<b>Assumed Provincially Significant Wetlands</b>									
4, 6, 7, 9, 11, 13, 14, 17, 18, 20, 21, 22, 23, 26, 29, 30, and 32	<u>Construction Site Preparation – Vegetation Clearing</u>	<p>Project components within 50 m of wetlands include:</p> <ul style="list-style-type: none"> <li>• Access roads</li> <li>• Perimeter fence</li> <li>• Solar panels</li> <li>• Overhead cable</li> <li>• Area of operational flexibility</li> </ul> <p>Wetlands are setback a minimum of 30 m from project components with the following exceptions:</p> <ul style="list-style-type: none"> <li>• Wetland 6 is within 20 m of the perimeter fence</li> <li>• Wetland 9 is 9 m from the overhead cable</li> <li>• Wetlands 17 and 20 are 0 m from the overhead cable</li> <li>• Wetland 22 is 21 m from an area of operational flexibility</li> <li>• Wetland 23 is within 4 m of an access road.</li> </ul>	None. No direct impacts as no vegetation clearing is to occur within wetland boundaries.	<p>Decreased wetland buffer.</p> <p>Wetland buffers will be at least 30 m or a width as currently available based on pre-development conditions. As most of the wetlands are bordered by agricultural fields, many of the wetlands will benefit from an increased buffer width consisting of more naturalized vegetation. The buffer lands will likely be subject to ploughing once Project is developed.</p>	Low. Wetlands only have the potential to be indirectly affected and buffers on the applicable wetlands will be at least 30 m.	Once during construction.	Until vegetative cover of the project area is restored during the operations phase.	<ul style="list-style-type: none"> <li>• Maintain a clearly demarcated boundary where no works occur within 30 m of a wetland boundary.</li> <li>• The construction workforce will be educated on local wildlife that may be encountered on the Project Location and will be instructed to take measures for avoiding wildlife. A protocol will be provided to contractors to follow in the event that wildlife is encountered.</li> <li>• Where exposed soils occur between wetland features and the Project (relict areas that were agricultural fields), these areas to be monitoring to ensure vegetation establishes to add to the wetland buffer where possible.</li> </ul>	Due to the minimum 30 m separation distances between significant vegetation clearing and most of the wetlands, and avoidance of direct effects, no net adverse effects are anticipated to wetlands. A positive net effect of increased vegetation buffers for wetlands post-construction.
4, 6, 7, 9, 11, 13, 14, 17, 18, 20, 21, 22, 23, 26, 29, 30, and 32	<u>Construction – Installation of Perimeter Fence</u>	Wetlands are setback a minimum of 30 m from the perimeter fence with the exception of Wetland 6. The setback is 20 m.	None. A 20 m setback will minimize impacts to the wetland edge vegetation from installation of fence posts.	<p>Potential for construction equipment to enter wetlands.</p> <p>Potential for wildlife to become trapped in Project Location.</p>	Limited to incidental	Once during construction	Throughout construction	<ul style="list-style-type: none"> <li>• Maximize the distance of all construction equipment used from wetlands; operate machinery in the areas disturbed for construction only, if applicable.</li> <li>• Construct perimeter fencing prior to installing core project components to prevent entry of larger wildlife within the construction area.</li> <li>• After perimeter fence is constructed, a visual search of the project location to be undertaken to identify wildlife that may be within fencing.</li> </ul>	No residual effects
4, 6, 7, 9, 11, 13, 14, 17, 18, 20, 21, 22, 23, 26, 29, 30,	<u>Construction and Decommissioning- Grubbing and</u>	<p>Project components within 50 m of wetlands include:</p> <ul style="list-style-type: none"> <li>• Access roads</li> <li>• Perimeter fence</li> </ul>	<ul style="list-style-type: none"> <li>• None. No direct impacts as no grading/grubbing is to occur within wetland</li> </ul>	<ul style="list-style-type: none"> <li>• Portions of the Project Location and stockpiled material being</li> </ul>	Moderate	During construction.	Until vegetative cover of the	<ul style="list-style-type: none"> <li>• Limits of construction work to be staked in the field in order to minimize disturbance to the wetland habitat and wildlife. Construction envelope to be clearly demarcated and kept as</li> </ul>	Erosion effects are not anticipated during the

Significant or Provincially Significant Natural Feature Affected by Activity	Project Phase & Activity within 50 m of Natural Feature	Distance to Nearest Project Component and Other Components within 50 m	Potential Negative/Positive Effect(s)		Magnitude of Effect	Frequency of Effect	Duration of Effect	Mitigation Measures	Residual Effects
			Physical Impact (Direct)	Functional Effect (Indirect)					
and 32	Grading	<ul style="list-style-type: none"> <li>Solar panels</li> <li>Overhead cable</li> <li>Area of operational flexibility</li> </ul> <p>Wetlands are setback a minimum of 30 m from grubbing/grading activities with the following exceptions:</p> <ul style="list-style-type: none"> <li>Wetland 6 is within 20 m of the perimeter fence</li> <li>Wetland 9 is 9 m from the overhead cable</li> <li>Wetlands 17 and 20 are 0 m from the overhead cable</li> <li>Wetland 22 is 21 m from an area of operational flexibility</li> <li>Wetland 23 is within 4 m of an access road.</li> </ul>	boundaries.	<p>exposed to erosion processes, including wind and surface runoff leading to sedimentation in wetlands</p> <ul style="list-style-type: none"> <li>Short-term hydrological changes: Potential short-term changes to surface water hydrology and drainage to/ from natural features. Potential increase in surface water runoff due to grading, soil compaction, or ditching associated with access roads.</li> </ul>		Once during decommissioning.	project area is restored during the operations phase.	<p>small as possible.</p> <ul style="list-style-type: none"> <li>Maximize the distance of all construction equipment used from the wetland edge; operate machinery in the areas disturbed for construction only</li> <li>Develop and implement a sediment and erosion control plan to be implemented prior to and during construction.</li> <li>Internal project access roads to be constructed at or near grade and the use of impermeable materials avoided to promote infiltration and surface roughness</li> <li>Flow retention features may be used in access road ditches to mitigate increases in surface water runoff (e.g., straw bales or rock check dams).</li> <li>A plan to address/mitigate soil compaction throughout the Project Location to be developed as part of the detailed design to promote infiltration.</li> <li>Soil stabilization to occur as soon as practical to stabilize soil upon completion of work activities to attenuate runoff.</li> </ul>	<p>operations phase as the Project Location will be have permanent vegetation groundcover on all disturbed areas.</p> <p>There is low potential for residual effects during the construction phase if mitigation measures are applied.</p>
4, 6, 7, 9, 11, 13, 14, 17, 18, 20, 21, 22, 23, 26, 29, 30, and 32	<u>Construction and Decommissioning</u> – Storage and movement of materials	<p>Project components within 50 m of wetlands include:</p> <ul style="list-style-type: none"> <li>Access roads</li> <li>Perimeter fence</li> <li>Solar panels</li> <li>Overhead cable</li> <li>Area of operational flexibility</li> </ul> <p>Wetlands are setback a minimum of 30 m from project components with the following exceptions:</p> <ul style="list-style-type: none"> <li>Wetland 6 is within 20 m of the perimeter fence</li> </ul>	None. No direct impacts as no work is to occur within wetland boundaries.	Potential for spills	Low.	Low frequency with mitigation measures. Potential during construction, operations and decommissioning.	Short-term.	<ul style="list-style-type: none"> <li>A spill contingency plan will be in place for the Project.</li> <li>Storage of materials for the Project should not occur within 30 m of a wetland boundary.</li> <li>Spills are to be reported to the Ontario Spills Action Centre (1-800-268-6060).</li> <li>Secondary containment is to be used for hazardous substances stored in the Project Location.</li> <li>Use controlled work procedures in order to minimize occurrences of spills. Spills cover release of materials from the Project into the air,</li> </ul>	<p>None. All spills will be expected to be remediated.</p> <p>No adverse effects of natural features are anticipated with implementation of mitigation measures.</p>

Significant or Provincially Significant Natural Feature Affected by Activity	Project Phase & Activity within 50 m of Natural Feature	Distance to Nearest Project Component and Other Components within 50 m	Potential Negative/Positive Effect(s)		Magnitude of Effect	Frequency of Effect	Duration of Effect	Mitigation Measures	Residual Effects
			Physical Impact (Direct)	Functional Effect (Indirect)					
		<ul style="list-style-type: none"> <li>Wetland 9 is 9 m from the overhead cable</li> <li>Wetlands 17 and 20 are 0 m from the overhead cable</li> <li>Wetland 22 is 21 m from an area of operational flexibility</li> <li>Wetland 23 is within 4 m of an access road.</li> </ul>						<ul style="list-style-type: none"> <li>water or onto land.</li> <li>Minimize activities with potential for dust releases, especially during windy and prolonged dry periods.</li> <li>Stabilize areas of stockpiled or exposed soils when construction activities are not active (i.e., no works within 30 days scheduled)</li> <li>Minimize vehicle traffic adjacent to wetlands, or exposed soils. All traffic to use designated areas.</li> <li>Restore undisturbed areas as soon as possible to minimize the duration of soil exposure</li> </ul>	
4, 6, 7, 9, 11, 13, 14, 17, 18, 20, 21, 22, 23, 26, 29, 30, and 32	<u>All phases-</u> Use of vehicles and machinery during construction, operations, and decommissioning.	<p>Project components within 50 m of wetlands include:</p> <ul style="list-style-type: none"> <li>Access roads</li> <li>Perimeter fence</li> <li>Solar panels</li> <li>Overhead cable</li> <li>Area of operational flexibility</li> </ul> <p>Wetlands are setback a minimum of 30 m from project components with the following exceptions:</p> <ul style="list-style-type: none"> <li>Wetland 6 is within 20 m of the perimeter fence</li> <li>Wetland 9 is 9 m from the overhead cable</li> <li>Wetlands 17 and 20 are 0 m from the overhead cable</li> <li>Wetland 22 is 21 m from an area of operational flexibility</li> <li>Wetland 23 is within 4 m of an access road.</li> </ul>		<p>Emissions: Potential for air pollution from dust and emissions from construction vehicles and machinery and equipment. Overall impact to air quality during construction, operations, and decommissioning.</p> <p>Leaks and Spills: Potential for leak or spill of fuel and other deleterious substances from vehicles and machinery that affect wetland wildlife, vegetation, or contaminate water and the soil.</p>	<p>Low.</p> <p>Emissions: Slight change to air quality temporarily</p> <p>Leaks and Spills: Minimal localized effect.</p>	<p>Once during construction.</p> <p>Minimal during operations.</p> <p>Once during decommissioning.</p>	Short- term	<ul style="list-style-type: none"> <li>All vehicles, machinery, and equipment must be maintained and equipped with emission controls, as applicable by provincial standards.</li> <li>Construction work shall be carried out as according to Canadian Environmental Protection Act (CEPA), and applicable air emission regulations and by-laws.</li> <li>Implement best management practices (BMP's) and establish an emergency spill plan.</li> <li>Ensure that emergency spill kit is available at the Project Location at all times in the event that a spill occurs. All spills and leaks of deleterious substances must be immediately contained and cleaned up in accordance with Provincial regulatory requirements and reported immediately to the Ontario Spills Action Centre (1-800-268-6060). Maintain a log book of any spills and mitigation measures.</li> <li>Excess material will be removed from the site.</li> <li>No refuelling within 30 m of natural features.</li> <li>Maximize the distance of all construction equipment used from the wetland edge; operate machinery in the areas disturbed for construction only.</li> </ul>	<p>Some emissions will be generated during project activities with no net adverse effect to significant natural features.</p> <p>Low potential for residual effects of leaks and spills if mitigation measures are applied.</p>

Significant or Provincially Significant Natural Feature Affected by Activity	Project Phase & Activity within 50 m of Natural Feature	Distance to Nearest Project Component and Other Components within 50 m	Potential Negative/Positive Effect(s)		Magnitude of Effect	Frequency of Effect	Duration of Effect	Mitigation Measures	Residual Effects
			Physical Impact (Direct)	Functional Effect (Indirect)					
<b>Significant Woodlands</b>									
A, C, D, E, I	<u>Construction Site Preparation – Vegetation Clearing</u>	<p>Significant woodlands are within 50 m of the following Project components:</p> <ul style="list-style-type: none"> <li>• Access roads</li> <li>• Perimeter fence</li> <li>• Solar panels</li> <li>• Inverters</li> <li>• Main HV substation</li> <li>• Area of operational flexibility</li> <li>• Overhead cables</li> </ul> <p>A portion of Woodland A is within the Project Location</p>	<ul style="list-style-type: none"> <li>• Loss of 0.88 ha of woodland area from Woodland A</li> <li>• Loss of habitat for wildlife in Woodland A.</li> </ul>	<ul style="list-style-type: none"> <li>• Loss of ecological function in cleared areas.</li> </ul>	Low. 0.88 ha total woodland areas to be removed, but no interior habitat will be removed and woodlands will still retain criteria for significance.	Once during construction.	Permanent.	<ul style="list-style-type: none"> <li>• Limits of construction work to be staked in the field in order to minimize disturbance to the woodland habitat and wildlife. Construction envelope to be clearly demarcated and kept as small as possible. When woodland clearing is taking place the area will be staked and monitored to ensure that no additional woodland is cleared during the clearing. No woodland removal is proposed for Woodland C, D, E or I. According to the ISA Arborists' Certification Study Guide (2010), a general tree protection zone should be 0.3 m diameter for each 2.5 cm of trunk diameter. Given to dominant size class of trees in the Woodlands is approximately 24 cm DBH, the minimum tree protection distance will be the greater of the drip line or 2.9 m from the trunk. If possible, avoid clearing vegetation during the breeding bird season to minimize impacts on breeding birds. Should clearing be required during the breeding bird season, nest searches conducted by a qualified person must be completed 48 hours in advance of clearing. If nests are found and the species protected by the <i>Migratory Bird Convention Act</i>, work within 10 m of the nest will cease until the nest has fledged. If there are no nests, then clearing can occur. Construction may occur on cleared lands during the breeding season once vegetation has been removed (if applicable). The majority of the Project Location consists of agricultural fields that were in production in 2014.</li> </ul>	Removal of significant woodland area represents 0.20% decrease in total significant woodland area. All woodlands will remain significant post- clearing as all criteria met to establish significance (i.e., total size, interior habitat, significant wildlife habitat, etc.) will remain unchanged.

Significant or Provincially Significant Natural Feature Affected by Activity	Project Phase & Activity within 50 m of Natural Feature	Distance to Nearest Project Component and Other Components within 50 m	Potential Negative/Positive Effect(s)		Magnitude of Effect	Frequency of Effect	Duration of Effect	Mitigation Measures	Residual Effects
			Physical Impact (Direct)	Functional Effect (Indirect)					
A, C, D, E, I	<u>Construction – Installation of Perimeter Fence</u>	All project components are within 50 m of a significant woodland  A minimum distance between significant woodlands and the perimeter fence will be the greater of the dripline or according to ISA Arborist Guidelines (2.9 m from trunk based on a trunk DBH of 24 cm)	Disruption of underground roots within woodlands and along edges of woodlands during installation of perimeter fence	Potential for construction equipment to enter woodlands	Limited to incidental	Once during construction	Throughout construction	<ul style="list-style-type: none"> <li>Maintain effective sediment and erosion control measures as installed during the site preparation phase.</li> <li>Maximize the distance of all construction equipment used from woodlands; operate machinery in the areas disturbed for construction only, if applicable.</li> <li>Construct perimeter fencing prior to installing core project components to prevent entry of larger wildlife within the construction area.</li> <li>After perimeter fence is constructed, a visual search of the project location to be undertaken to identify wildlife that may be within fencing.</li> </ul>	No residual effects
A, C, D, E, I	<u>Construction and Decommissioning- Grubbing and Grading</u>	All project components are within 50 m of a significant woodland  A minimum distance between significant woodlands and the perimeter fence will be the greater of the dripline or according to ISA Arborist Guidelines (2.9 m from trunk based on a trunk DBH of 24 cm)	No direct effects of the woodland area adjacent to the project location following vegetation clearing within the Project Location of Woodland A	<ul style="list-style-type: none"> <li>Soil erosion as a result of grading and grubbing (trenching, digging, etc.). Portions of the Project Location and stockpiled material being exposed to erosion processes, including wind and surface runoff.</li> <li>Short-term hydrological changes: Potential short-term changes to surface water hydrology and drainage to/ from natural features. Potential increase in surface water runoff due to</li> </ul>	Low.	Once during construction.  Once during decommissioning.	Short- term.	<ul style="list-style-type: none"> <li>Limits of construction work to be staked in the field in order to minimize disturbance to the woodland habitat and wildlife. Construction envelope to be clearly demarcated and kept as small as possible.</li> <li>Maximize the distance of all construction equipment used from the woodland edge; operate machinery in the areas disturbed for construction only</li> <li>Develop and implement a sediment and erosion control plan to be implemented prior to and during construction.</li> <li>Internal project access roads to be constructed at or near grade and the use of impermeable materials avoided to promote infiltration and surface roughness</li> <li>Flow retention features may be used in access road ditches to mitigate increases in surface water runoff (e.g., straw bales or rock check dams).</li> <li>A plan to address/mitigate soil compaction throughout the Project Location to be developed as part of the detailed design to promote</li> </ul>	<p>Erosion effects are not anticipated during operations phase as Project Location will be stabilized with permanent vegetation groundcover on all disturbed areas.</p> <p>There is low potential for residual effects during the construction phase if mitigation measures are applied.</p>

Significant or Provincially Significant Natural Feature Affected by Activity	Project Phase & Activity within 50 m of Natural Feature	Distance to Nearest Project Component and Other Components within 50 m	Potential Negative/Positive Effect(s)		Magnitude of Effect	Frequency of Effect	Duration of Effect	Mitigation Measures	Residual Effects
			Physical Impact (Direct)	Functional Effect (Indirect)					
				grading or ditching associated with access roads, soil compaction, and/or the removal of vegetation.				<ul style="list-style-type: none"> <li>infiltration.</li> <li>Soil stabilization to occur as soon as practical to stabilize soil upon completion of work activities to attenuate runoff.</li> </ul>	
A, C, D, E, I	<p><u>Construction and Decommissioning-</u></p> <p>Storage and movement of materials</p>	<p>All project components are within 50 m of a significant woodland</p> <p>A minimum distance between significant woodlands and the perimeter fence will be the greater of the dripline or according to ISA Arborist Guidelines (2.9 m from trunk based on a trunk DBH of 24 cm)</p>	<p>No direct effect on woodland areas adjacent to the Project Location following vegetation clearing of any woodland within the Project Location.</p>	<ul style="list-style-type: none"> <li>Sedimentation</li> <li>Release of dust and soil particles into woodlands</li> </ul>	Low.	<p>Once during construction.</p> <p>Once during decommissioning.</p>	<p>Short- term increase of sedimentation until vegetative buffers have been restored.</p>	<ul style="list-style-type: none"> <li>A spill contingency plan will be in place for the Project.</li> <li>Storage of materials for the Project should not occur within 15 m of a woodland boundary.</li> <li>Spills are to be reported to the Ontario Spills Action Centre (1-800-268-6060).</li> <li>Secondary containment is to be used for hazardous substances stored in the Project Location.</li> <li>Use controlled work procedures in order to minimize occurrences of spills. Spills cover release of materials from the Project into the air, water or onto land.</li> <li>Minimize activities with potential for dust releases, especially during windy and prolonged dry periods.</li> <li>Stabilize areas of stockpiled or exposed soils when construction activities are not active (i.e., no works within 30 days scheduled)</li> <li>Minimize vehicle traffic adjacent to woodlands, or exposed soils. All traffic to use designated areas.</li> <li>Restore disturbed areas as soon as possible to minimize the duration of soil exposure</li> </ul>	No residual effects
A, C, D, E, I	<p><u>All phases-</u></p> <p>Use of vehicles and machinery during construction, operations, and</p>	<p>All project components are within 50 m of a significant woodland</p> <p>A minimum distance between significant woodlands and the perimeter fence will be the</p>	<p>No direct effect on woodland area adjacent to the Project Location following clearing of woodlands within Project Location.</p>	<ul style="list-style-type: none"> <li>Emissions: Potential for air pollution from dust and emissions from constructions vehicles and</li> </ul>	<p>Low.</p> <p>Emissions: Slight/ temporary change to air quality.</p> <p>Leaks and Spills: Minimal localized</p>	<p>Once during construction.</p> <p>Minimal during operations.</p> <p>Once during decommissioning.</p>	<p>Short- term</p>	<ul style="list-style-type: none"> <li>All vehicles, machinery, and equipment must be maintained and equipped with emission controls, as applicable by provincial standards.</li> <li>Construction work shall be carried out as according to Canadian Environmental Protection Act (CEPA), and applicable air emission</li> </ul>	No residual effects

Significant or Provincially Significant Natural Feature Affected by Activity	Project Phase & Activity within 50 m of Natural Feature	Distance to Nearest Project Component and Other Components within 50 m	Potential Negative/Positive Effect(s)		Magnitude of Effect	Frequency of Effect	Duration of Effect	Mitigation Measures	Residual Effects
			Physical Impact (Direct)	Functional Effect (Indirect)					
	decommissioning.	greater of the dripline or according to ISA Arborist Guidelines (2.9 m from trunk based on a trunk DBH of 24 cm)		machinery and equipment. Overall impact to air quality during construction, operations, and decommissioning. <ul style="list-style-type: none"> <li>Leaks and Spills: Potential for leak or spill of fuel and other deleterious substances from vehicles and machinery that affect woodland wildlife.</li> </ul>	effect if any.			regulations and by-laws. <ul style="list-style-type: none"> <li>Implement best management practices (BMP's) and establish an emergency spill plan.</li> <li>Ensure that emergency spill kit is available at the Project Location at all times in the even that a spill occurs. All spills and leaks of deleterious substances must be immediately contained and cleaned up in accordance with Provincial regulatory requirements and reported immediately to the Ontario Spills Action Centre (1-800-268-6060). Maintain a log book of any spills and mitigation measures.</li> <li>Excess material will be removed from the site.</li> <li>No refuelling within 30 m of natural features.</li> <li>Maximize the distance of all construction equipment used from the wetland edge; operate machinery in the areas disturbed for construction only</li> </ul>	
<b>Significant Wildlife Habitat</b>									
Colonially- Nesting Bird Breeding Habitat (CNTS5*, CNTS6*)  *Pre-construction surveys will not be conducted within these habitats due to accessibility.	<u>Construction Site Preparation-</u> Installation of Project Components	CNTS5* is located 18 m from overhead cable  CNTS6* is located 0 m from overhead cable	<ul style="list-style-type: none"> <li>None. No development is proposed within the habitat</li> </ul>	<ul style="list-style-type: none"> <li>Obstacle to movement</li> </ul>	Low. Only have the potential to be indirectly affected.	Throughout life of the Project.	Throughout life of the Project.	<ul style="list-style-type: none"> <li>Works will occur within the road right-of-way.</li> <li>At detailed design, efforts will be made to keep the elevation of overhead cable below the height of the trees or on the road side opposite the habitats.</li> </ul>	No residual effects.

Significant or Provincially Significant Natural Feature Affected by Activity	Project Phase & Activity within 50 m of Natural Feature	Distance to Nearest Project Component and Other Components within 50 m	Potential Negative/Positive Effect(s)		Magnitude of Effect	Frequency of Effect	Duration of Effect	Mitigation Measures	Residual Effects
			Physical Impact (Direct)	Functional Effect (Indirect)					
<p>Turtle Wintering Areas (TWA1*, TWA2*)</p> <p>*Pre-construction surveys will be conducted at TNA1, according to methodology presented <b>Appendix A</b>. These surveys will take place in 2015.</p> <p>This habitat has been treated as significant until the evaluation can occur. Please note that the mitigation measures outlined will only be undertaken if the habitat is evaluated to be significant after pre-construction surveys are completed.</p>	<p><u>Construction - Vegetation Clearing, Grubbing and Grading</u></p> <p>Installation of Project Components</p>	<p>Both TWA1* and TWA2* occur within the Project Location in an area of operational flexibility.</p> <p>Project components within 50 m of these habitats include:</p> <ul style="list-style-type: none"> <li>• Perimeter fence</li> <li>• Solar panels</li> <li>• Access Roads</li> <li>• Area of Operational Flexibility</li> </ul>	<ul style="list-style-type: none"> <li>• None. No development is proposed within the habitat</li> </ul>	<ul style="list-style-type: none"> <li>• Decreased water quantity and quality.</li> </ul>	Low. Only have the potential to be indirectly affected.	Once during construction.	Until vegetative cover of the project area is restored during the operations phase.	<ul style="list-style-type: none"> <li>• Provide a setback of at least 5 m from the edge of significant habitat during the construction phase</li> <li>• Develop and implement a sediment and erosion control (ESC) plan prior to site preparation activities.</li> <li>• ESC measures (i.e. silt fence) installed for construction purposes will delineate the extent of the habitat from the active construction area. ESC structure should be monitored regularly to ensure that is fully functional and any issues identified are resolved in a timely fashion.</li> <li>• Maximize the distance of all construction equipment used from significant features; operate machinery in the Project Location areas only.</li> <li>• Develop and implement a stormwater management plan which maintains pre-construction surface water flows to adjacent lands (quantity, quality, infiltrations, conveyance patterns and seasonality of water flow).</li> <li>• A plan to address/mitigate soil compaction throughout the Project Location to be developed as part of the detailed design to promote infiltration.</li> </ul>	No residual effects.
<p>Deer Winter Congregation Areas (DWCA1)</p> <p>Woodland Area-Sensitive Bird Breeding Habitat</p>	<p><u>Construction Site Preparation- Vegetation Clearing, Grubbing and Grading</u></p>	<p>All project components are within 50 m of DWCA1 and ASBB1.</p> <p>A minimum distance between the woodland habitat and the Project (following the initial removal of 0.88 ha of woodland</p>	<ul style="list-style-type: none"> <li>• Loss of 0.88 ha of woodland area from DWCA1/ ASBB1</li> </ul>	<ul style="list-style-type: none"> <li>• Loss of habitat for woodland species including deer.</li> <li>• Loss of ecological function in cleared areas.</li> <li>• Disturbance to</li> </ul>	Low. No interior habitat (either woodland interior or wildlife interior) will be removed from either woodland and habitat will still	Once during construction.	Permanent.	<ul style="list-style-type: none"> <li>• Limits of construction work to be staked in the field in order to minimize disturbance to the woodland habitat and wildlife. Construction envelope to be clearly demarcated and kept as small as possible. When woodland clearing is taking place the area will be staked and monitored to ensure that no additional</li> </ul>	Removal of woodland area represents 0.22% decrease in total Deer Winter Congregation Habitat. Both habitats will remain

Significant or Provincially Significant Natural Feature Affected by Activity	Project Phase & Activity within 50 m of Natural Feature	Distance to Nearest Project Component and Other Components within 50 m	Potential Negative/Positive Effect(s)		Magnitude of Effect	Frequency of Effect	Duration of Effect	Mitigation Measures	Residual Effects
			Physical Impact (Direct)	Functional Effect (Indirect)					
(ASBB1)		area) will be the greater of the dripline or according to ISA Arborist Guidelines (2.9 m from trunk based on a trunk DBH of 24 cm).		wildlife habitat/ incidental mortality of species.	retain criteria for significance.			<p>woodland is cleared during the clearing. No woodland removal is proposed for Woodland C, D, E or I. According to the ISA Arborists' Certification Study Guide (2010), a general tree protection zone should be 0.3 m diameter for each 2.5 cm of trunk diameter. Given to dominant size class of trees in the Woodlands is approximately 24 cm DBH, the minimum tree protection distance will be the greater of the drip line or 2.9 m from the trunk.</p> <ul style="list-style-type: none"> <li>If possible, avoid clearing vegetation during the breeding bird season to minimize impacts on breeding birds. Should clearing be required during the breeding bird season, nest searches conducted by a qualified person must be completed 48 hours in advance of clearing. If nests are found and the species protected by the <i>Migratory Bird Convention Act</i>, work within 10 m of the nest will cease until the nest has fledged. If there are no nests, then clearing can occur. Construction may occur on cleared lands during the breeding season once vegetation has been removed (if applicable). The majority of the Project Location consists of agricultural fields that were in production in 2014.</li> </ul>	significant post-clearing as size criteria will still be met.
	<u>Construction</u> – Installation of perimeter fence	<p>All project components are within 50 m of DWCA1 and ASBB1.</p> <p>A minimum distance between the woodland habitat and the Project (following the initial removal of 0.88 ha of woodland area) will be the greater of the dripline or according to ISA Arborist Guidelines (2.9 m from</p>	<ul style="list-style-type: none"> <li>The perimeter fence will be installed along the newly revised edge of the habitat following removal of 0.88 ha of woodland area</li> </ul>	<ul style="list-style-type: none"> <li>Potential for construction equipment to enter woodlands</li> </ul>	Limited to incidental	Once during construction	Throughout construction	<ul style="list-style-type: none"> <li>Maintain effective sediment and erosion control measures as installed during the site preparation phase.</li> <li>Maximize the distance of all construction equipment used from woodlands; operate machinery in the areas disturbed for construction only, if applicable.</li> <li>Construct perimeter fencing prior to installing core project components to prevent entry of larger wildlife within the construction area.</li> </ul>	No residual effects

Significant or Provincially Significant Natural Feature Affected by Activity	Project Phase & Activity within 50 m of Natural Feature	Distance to Nearest Project Component and Other Components within 50 m	Potential Negative/Positive Effect(s)		Magnitude of Effect	Frequency of Effect	Duration of Effect	Mitigation Measures	Residual Effects
			Physical Impact (Direct)	Functional Effect (Indirect)					
		trunk based on a trunk DBH of 24 cm).						<ul style="list-style-type: none"> <li>After perimeter fence is constructed, a visual search of the project location to be undertaken to identify wildlife that may be within fencing.</li> </ul>	
	<u>All phases</u> - Use of vehicles and machinery during construction, operations, and decommissioning.	<p>All project components are within 50 m of DWCA1 and ASBB1.</p> <p>A minimum distance between the woodland habitat and the Project (following the initial removal of 0.88 ha of woodland area) will be the greater of the dripline or according to ISA Arborist Guidelines (2.9 m from trunk based on a trunk DBH of 24 cm).</p>	<ul style="list-style-type: none"> <li>No direct effect on woodland area adjacent to the Project Location following clearing of woodlands within Project Location.</li> </ul>	<ul style="list-style-type: none"> <li>Disturbance to wildlife species using the habitat/incidental mortality.</li> <li>Settling of dust created during road construction.</li> <li>Granular road material may mobilize into surrounding areas during storm events.</li> <li>Reduction in permeability of the Project Location and increased volume of surface flow to adjacent areas.</li> </ul>	Low.	Throughout the life of the Project.	Throughout the life of the Project.	<ul style="list-style-type: none"> <li>Develop and implement a sediment and erosion control (ESC) plan prior to site preparation activities and through construction.</li> <li>Maximize the distance of all construction equipment used from significant features; operate machinery in the Project Location areas only.</li> <li>Develop and implement a stormwater management plan which maintains pre-construction surface water flows to adjacent lands (quantity, quality, infiltrations, conveyance patterns and seasonality of water flow).</li> <li>Maintain effective erosion and sediment control measures as installed during site preparation phase.</li> <li>Design roads to promote infiltration (e.g. use of gravel materials).</li> <li>If dewatering of cable trenches is necessary, direct all discharged water away from significant wildlife habitat.</li> <li>Spill containment structures will be constructed at the Main HV substation transformer.</li> <li>Contingency measures, including a spill response plan will be developed and implemented as required.</li> <li>Maximize the distance of all construction equipment used from the woodland edge; operate machinery in the areas disturbed for construction only</li> <li>Vehicle speeds to be restricted to 15 km/h or less on the Project site and speed limit signage posted</li> <li>Visual monitoring and avoidance of wildlife</li> </ul>	No residual impact.

Significant or Provincially Significant Natural Feature Affected by Activity	Project Phase & Activity within 50 m of Natural Feature	Distance to Nearest Project Component and Other Components within 50 m	Potential Negative/Positive Effect(s)		Magnitude of Effect	Frequency of Effect	Duration of Effect	Mitigation Measures	Residual Effects
			Physical Impact (Direct)	Functional Effect (Indirect)					
								species encountered during activity	
<p>Turtle Nesting Area (TNA1*)</p> <p>*Pre-construction surveys will be conducted at TNA1, according to methodology presented <b>Appendix A</b>. These surveys will take place in 2015.</p> <p>This habitat has been treated as significant until the evaluation can occur. Please note that the mitigation measures outlined will only be undertaken if the habitat is evaluated to be significant after pre-construction surveys are completed.</p>	<p><u>Construction Site Preparation</u>- Vegetation Clearing, Grubbing and Grading</p>	<p>This habitat is located 30 m from the Project Location. Project components within 50 m include:</p> <ul style="list-style-type: none"> <li>Perimeter fence</li> <li>Solar panels</li> <li>Access roads</li> </ul>	<ul style="list-style-type: none"> <li>No direct physical impacts to the species or the habitat anticipated as no activities are proposed within habitat area.</li> </ul>	<ul style="list-style-type: none"> <li>Increased surface runoff from exposed soils.</li> <li>Potential positive effect may occur from the removal of active agricultural land from immediately adjacent to this habitat. Following approval of the project, the 30 m setback from the habitat to the perimeter fence would be allowed to vegetate and provide a buffer to the nesting habitat</li> </ul>	Low as the habitat is located 30 m from the Project Location boundary.	Once during the site preparation phase.	Until vegetative cover is restored during the operations phase.	<ul style="list-style-type: none"> <li>Develop and implement a sediment and erosion control (ESC) plan prior to site preparation activities.</li> <li>ESC measures (i.e. silt fence) installed for construction purposes will be monitored regularly to ensure that they are fully functional and any issues identified are resolved in a timely fashion.</li> <li>Maximize the distance of all construction equipment used from significant features; operate machinery in the Project Location areas only.</li> <li>Develop and implement a stormwater management plan which maintains pre-construction surface water flows to adjacent lands (quantity, quality, infiltrations, conveyance patterns and seasonality of water flow).</li> <li>A plan to address/mitigate soil compaction throughout the Project Location to be developed as part of the detailed design to promote infiltration.</li> <li>Vehicle speeds to be restricted to 15 km/h or less on the Project site and speed limit signage posted</li> <li>Visual monitoring and avoidance of wildlife species encountered during activity</li> </ul>	No residual impacts are anticipated so long as mitigation measures are in place.
	<p><u>Construction</u>- Installation of perimeter fence</p>		<ul style="list-style-type: none"> <li>No direct physical impacts to the species or the habitat anticipated as no activities are proposed within habitat area.</li> </ul>	<ul style="list-style-type: none"> <li>Disturbance/incidental mortality to wildlife species.</li> <li>Potential for isolation of turtle species due to perimeter fence around feature</li> </ul>	Moderate effect if perimeter fence prevents movement of turtle species between habitat features in the landscape	Throughout the life of the project	Throughout the life of the project	<ul style="list-style-type: none"> <li>Isolate the feature prior to construction activities to prevent entry of large-bodied wildlife species from accessing the feature.</li> <li>Relocate turtles observed within the feature to suitable habitat within the general area (i.e., within 1 km).</li> <li>Use of galvanized fencing with chain links large enough for turtle hatchlings to move through</li> </ul>	No residual effects.

Significant or Provincially Significant Natural Feature Affected by Activity	Project Phase & Activity within 50 m of Natural Feature	Distance to Nearest Project Component and Other Components within 50 m	Potential Negative/Positive Effect(s)		Magnitude of Effect	Frequency of Effect	Duration of Effect	Mitigation Measures	Residual Effects
			Physical Impact (Direct)	Functional Effect (Indirect)					
				(required as landowner wants to access feature on property)				<p>following the construction phase. Prevent movement of turtle hatchlings through the perimeter fence during the construction phase to reduce potential for mortality.</p> <ul style="list-style-type: none"> <li>• Develop and implement an erosion and sediment control (ESC) plan prior to site preparation activities. Erosion and sediment control measures (i.e. silt fence) installed for construction purposes will be monitored regularly to ensure that they are fully functional and any issues identified are resolved in a timely fashion.</li> <li>• Maximize the distance of all construction equipment used from significant features; operate machinery in the Project Location areas only.</li> <li>• Develop and implement a stormwater management plan which maintains pre-construction surface water flows to adjacent lands (quantity, quality, infiltrations, conveyance patterns and seasonality of water flow).</li> <li>• Maintain effective erosion and sediment control measures as installed during site preparation phase.</li> <li>• Vehicle speeds to be restricted to 15 km/h or less on the Project site and speed limit signage posted</li> <li>• Visual monitoring and avoidance of wildlife species encountered during activity</li> </ul>	
	Decommissioning – Removal Project Components		<ul style="list-style-type: none"> <li>• No direct impacts</li> </ul>	<ul style="list-style-type: none"> <li>• Change in the quantity/quality of surface water run-off entering the habitat if vegetation is impacted.</li> </ul>	<p>Potential to be indirectly effected.</p> <p>The significant wildlife habitat occurs ≥50 m from all Project</p>	Once during decommissioning phase.	Short-term during the removal of Project components.	<ul style="list-style-type: none"> <li>• Develop and implement an erosion and sediment control plan prior to decommissioning.</li> <li>• ESC measures should be monitored regularly and removed once vegetation has stabilized.</li> <li>• Erosion and sediment control measures (i.e. silt fence) installed for decommissioning purposes</li> </ul>	No residual effect.

Significant or Provincially Significant Natural Feature Affected by Activity	Project Phase & Activity within 50 m of Natural Feature	Distance to Nearest Project Component and Other Components within 50 m	Potential Negative/Positive Effect(s)		Magnitude of Effect	Frequency of Effect	Duration of Effect	Mitigation Measures	Residual Effects
			Physical Impact (Direct)	Functional Effect (Indirect)					
					components.			<p>will prevent encroachment from construction activities into habitat area.</p> <ul style="list-style-type: none"> <li>• Vehicle speeds to be restricted to 15 km/h or less on the Project site and speed limit signage posted</li> <li>• Visual monitoring and avoidance of wildlife species encountered during activity</li> </ul>	
<p>Amphibian Breeding Habitat (Wetland) (ABHWE1*, ABHWE2*, ABHWE5*, ABHWE6*, ABHWE7*, ABHWE8*, ABHWE9*, ABHWE11, ABHWE12*, ABHWE13*, ABHWE14*, ABHWE15*)</p> <p>Amphibian Breeding Habitat (Woodland) (ABHWO1, ABHWO2, ABHWO3)</p> <p>*Pre-construction surveys will be conducted according to methodology presented <b>Appendix A</b>. These surveys will take</p>	<p><u>Construction Site Preparation</u>-Vegetation Clearing, Grubbing and Grading</p>	<p>Project components within 50 m these habitats include:</p> <ul style="list-style-type: none"> <li>• Access roads</li> <li>• Perimeter fence</li> <li>• Solar panels</li> <li>• Overhead Cable</li> <li>• Area of Operational Flexibility</li> </ul> <p>The majority of the amphibian breeding habitat is located at least 5 m from the Project Location boundary. Exceptions include:</p> <ul style="list-style-type: none"> <li>• ABHWE7* and ABHWE8* are located adjacent to the Overhead cable</li> <li>• ABHWE13* is within 4 m of an access road</li> <li>• ABHWE14*, ABHWO1, and ABHWO2 are located adjacent to the Project perimeter fence. A portion of the woodland for ABHWO1 is within the Project Location. No vernal</li> </ul>	<ul style="list-style-type: none"> <li>• Loss of woodland habitat (0.88 ha)</li> <li>• Where significant ABHWE habitat occurs within an area of operational flexibility, a 5 m setback will be applied.</li> </ul>	<ul style="list-style-type: none"> <li>• Habitat and sensory disturbance to species utilizing the habitat.</li> <li>• Mortality of species inhabiting the natural feature during seasonal utilization of the feature</li> <li>• Avoidance of habitat by amphibian breeding populations.</li> </ul>	<p>Low.</p> <p>Overall percentage of woodland habitat removed is 0.24% from ABHWO1.</p>	<p>Once during construction.</p>	<p>Throughout the construction phase.</p>	<ul style="list-style-type: none"> <li>• For significant habitat within the Project Location, the habitat is to be removed outside of the amphibian breeding season (i.e., April 1- June 30) if seasonal vernal pools are observed prior to clearing activities. A visual inspection of the breeding habitat (i.e., wetland pockets/ pools) will be undertaken prior to removal to verify if 1) habitat occurs and 2) if breeding amphibians are observed. If observed, construction within 30 m of the breeding pool will be delayed until a subsequent site visit confirms no visual evidence of amphibian breeding.</li> <li>• The construction workforce will be educated on local wildlife that may be encountered on the Project Location and will be instructed to take measures for avoiding wildlife. A protocol will be provided to contractors to follow in the event wildlife is encountered.</li> <li>• Develop and implement an erosion and sediment control plan prior to decommissioning.</li> <li>• ESC measures should be monitored regularly and removed once vegetation has stabilized.</li> <li>• Vehicle speeds to be restricted to 15 km/ hr or less on the Project site and speed limit signage posted.</li> <li>• A plan to address/mitigate soil compaction throughout the Project Location to be developed</li> </ul>	<p>Loss of 0.24% of woodland amphibian breeding habitat.</p> <p>Losses are attributed to habitat and now amphibian population. It is anticipated the loss of woodland area will have no effect on the breeding populations based on the availability of suitable habitat in the area.</p> <p>There should be no residual impacts to wetland breeding populations with the use of mitigation measures.</p>

Significant or Provincially Significant Natural Feature Affected by Activity	Project Phase & Activity within 50 m of Natural Feature	Distance to Nearest Project Component and Other Components within 50 m	Potential Negative/Positive Effect(s)		Magnitude of Effect	Frequency of Effect	Duration of Effect	Mitigation Measures	Residual Effects
			Physical Impact (Direct)	Functional Effect (Indirect)					
place in 2015.  These habitats have been treated as significant until the evaluation can occur. Please note that the mitigation measures outlined will only be undertaken if the habitat is evaluated to be significant after pre-construction surveys are completed.		pools, ponds or wetlands were found within this portion of woodland.						as part of the detailed design to promote infiltration.	
	Construction- Installation of Project components		Following the removal of 0.88 ha of ABHWO1, no direct impacts. Where significant ABHWE habitat occurs within an area of operational flexibility, a 5 m setback will be applied.	<ul style="list-style-type: none"> <li>• Potential for imported gravel material to enter into habitat during storm events.</li> <li>• Stockpiled material being exposed to erosion processes, including wind and surface runoff.</li> <li>• Increased runoff during storm events as a result of reduced infiltration in localized areas.</li> <li>• Reduction in permeability of the Project Location and increased volume of surface flow to adjacent areas.</li> <li>• Disturbance/incidental mortality to wildlife species.</li> <li>• Altered water levels in wetlands.</li> </ul>	Medium. Some habitats are 0 m from the Project location boundary.	Once during construction.	Throughout construction. Project components will remain in place for the lifespan of the Project.	<ul style="list-style-type: none"> <li>• Develop and implement a sediment and erosion control (ESC) plan prior to site preparation activities. Erosion and sediment control measures (i.e. silt fence) installed for construction purposes will be monitored regularly to ensure that they are fully functional and any issues identified are resolved in a timely fashion.</li> <li>• Avoid stockpiling or storing materials and/or equipment within 30 m of significant amphibian breeding habitat.</li> <li>• Maximize the distance of all construction equipment used from significant features; operate machinery in the Project Location areas only.</li> <li>• Develop and implement a stormwater management plan which maintains pre-construction surface water flows to adjacent lands (quantity, quality, infiltrations, conveyance patterns and seasonality of water flow).</li> <li>• A plan to address/mitigate soil compaction throughout the Project Location to be developed as part of the detailed design to promote infiltration.</li> <li>• Design roads to promote infiltration (e.g. use of gravel materials).</li> <li>• If dewatering of cable trenches is necessary, direct all discharged water away from significant wildlife habitat.</li> <li>• Spill containment structures will be constructed at the Main HV substation transformer.</li> <li>• Contingency measures, including a spill response plan will be developed and implemented as required.</li> </ul>	<p>Site preparation activities will be temporary and short (months) duration. No effects are anticipated in operations phase.</p> <p>No adverse effects on natural features are anticipated with implementation of mitigation measures.</p>

Significant or Provincially Significant Natural Feature Affected by Activity	Project Phase & Activity within 50 m of Natural Feature	Distance to Nearest Project Component and Other Components within 50 m	Potential Negative/Positive Effect(s)		Magnitude of Effect	Frequency of Effect	Duration of Effect	Mitigation Measures	Residual Effects
			Physical Impact (Direct)	Functional Effect (Indirect)					
								<ul style="list-style-type: none"> <li>• Vehicle speeds to be restricted to 15 km/h or less on the Project site and speed limit signage posted</li> <li>• Visual monitoring and avoidance of wildlife species encountered during activity</li> </ul>	
	<u>Operations</u> – Maintenance of the Perimeter Fence and Access Roads; Periodic Use of Access Roads		<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• Habitat and sensory disturbance to species utilizing the habitats adjacent to the Project Location.</li> <li>• Incidental mortality to wildlife species.</li> <li>• Potential for imported gravel material to enter into habitat during storm events.</li> </ul>	Low.	Fence may require periodic repair depending on circumstance. Roads may require grading/ maintenance periodically to maintain condition.	The perimeter fence and access roads will remain in place for the lifespan of the Project.	<ul style="list-style-type: none"> <li>• Usage of de-icing salts is anticipated to be minimized on access roads.</li> <li>• Vehicle speeds to be restricted to 15 km/h or less on the Project site and speed limit signage posted</li> <li>• Visual monitoring and avoidance of wildlife species encountered during activity</li> </ul>	No residual effect.
	<u>Decommissioning</u> – Removal Project Components		<ul style="list-style-type: none"> <li>• No direct impacts</li> </ul>	<ul style="list-style-type: none"> <li>• Change in the quantity/quality of surface water run-off entering the habitat if vegetation is impacted.</li> </ul>	Potential to be indirectly effected.	Once during decommissioning phase.	Short-term during the removal of Project components.	<ul style="list-style-type: none"> <li>• Develop and implement a sediment and erosion control plan prior to decommissioning.</li> <li>• ESC measures should be monitored regularly and removed once vegetation has stabilized.</li> <li>• Erosion and sediment control measures (i.e. silt fence) installed for decommissioning purposes will prevent encroachment from construction activities into habitat area.</li> <li>• Vehicle speeds to be restricted to 15 km/h or less on the Project site and speed limit signage posted</li> <li>• Visual monitoring and avoidance of wildlife species encountered during activity</li> </ul>	No residual effect.

Significant or Provincially Significant Natural Feature Affected by Activity	Project Phase & Activity within 50 m of Natural Feature	Distance to Nearest Project Component and Other Components within 50 m	Potential Negative/Positive Effect(s)		Magnitude of Effect	Frequency of Effect	Duration of Effect	Mitigation Measures	Residual Effects
			Physical Impact (Direct)	Functional Effect (Indirect)					
<p>American Gromwell (AG2*)</p> <p>Soft-hairy False Gromwell (SHFG4*, SHFG5*, SHFG6*)</p> <p>*Pre-construction surveys will not be conducted within these habitats due to accessibility.</p>	<p><u>Construction Site Preparation-</u> Vegetation Clearing, Grubbing and Grading</p>	<p>AG2, SHFG4* and SHFG6* are adjacent to the overhead cable.</p> <p>SHFG5* is within 50 m of the perimeter fence and solar panels.</p>	<ul style="list-style-type: none"> <li>No direct physical impacts to the species or the habitat anticipated as no activities are proposed within habitat area.</li> </ul>	<ul style="list-style-type: none"> <li>Increased surface runoff from exposed soils (SHFG5* only)</li> <li>Loss of species.</li> </ul>	<p>Low. The significant wildlife habitat occurs adjacent to roadside outside of the Project Location boundary.</p>	<p>Once during the site preparation phase.</p>	<p>Until vegetative cover is restored during the operations phase.</p>	<ul style="list-style-type: none"> <li>Develop and implement a sediment and erosion control (ESC) plan prior to site preparation activities.</li> <li>ESC measures (i.e. silt fence) installed for construction purposes will delineate the extent of the flora habitat from the active construction area. ESC structure should be monitored regularly to ensure that is fully functional and any issues identified are resolved in a timely fashion.</li> <li>If construction occurs within 5 m of significant habitat during the growing season, the habitat will be searched for the target plant species and each located target plant flagged to increase awareness of its location to avoid incidental trampling.</li> <li>Maximize the distance of all construction equipment used from significant features; operate machinery in the Project Location areas only.</li> <li>Develop and implement a stormwater management plan which maintains pre-construction surface water flows to adjacent lands (quantity, quality, infiltrations, conveyance patterns and seasonality of water flow).</li> <li>A plan to address/mitigate soil compaction throughout the Project Location to be developed as part of the detailed design to promote infiltration.</li> <li>All construction equipment used for the Project should enter the site clean and free of debris. Construction equipment will be visually inspected prior to first entry into the active construction area for evidence of plant material. If the construction equipment leaves the property during the construction phase, it is to</li> </ul>	<p>No residual effect.</p>

Significant or Provincially Significant Natural Feature Affected by Activity	Project Phase & Activity within 50 m of Natural Feature	Distance to Nearest Project Component and Other Components within 50 m	Potential Negative/Positive Effect(s)		Magnitude of Effect	Frequency of Effect	Duration of Effect	Mitigation Measures	Residual Effects
			Physical Impact (Direct)	Functional Effect (Indirect)					
								be reinspected prior to resuming work within the active construction area.	
	<u>Construction – Installation of Perimeter Fence</u>  (SHFG5* only)		Disruption of underground roots within significant habitat and along edges of significant habitat during installation of perimeter fence	Potential for construction equipment to enter woodlands	Limited to incidental	Once during construction	Throughout construction	<ul style="list-style-type: none"> <li>If installation of the perimeter fence occurs within 5 m of significant habitat during the growing season, the habitat will be searched for the target plant species and each located target plant flagged to increase awareness of its location to avoid incidental trampling.</li> </ul>	No residual effects
	<u>All phases-</u> Use of vehicles and machinery during construction, operations, and decommissioning.		<ul style="list-style-type: none"> <li>No direct effect on habitat as it is located outside of the Project Location.</li> </ul>	<ul style="list-style-type: none"> <li>Emissions: Potential for air pollution from dust and emissions from constructions vehicles and machinery and equipment. Overall impact to air quality during construction, operations, and decommissioning.</li> <li>Leaks and Spills: Potential for leak or spill of fuel and other deleterious substances from vehicles and machinery that affect woodland wildlife.</li> </ul>	<p>Low.</p> <p>Emissions: Slight/ temporary change to air quality.</p> <p>Leaks and Spills: Minimal localized effect if any.</p>	<p>Once during construction.</p> <p>Minimal during operations.</p> <p>Once during decommissioning.</p>	Short- term.	<ul style="list-style-type: none"> <li>All vehicles, machinery and equipment must be maintained and equipped with emission controls, as applicable by provincial standards.</li> <li>Construction work shall be carried out as according to CEPA, and applicable air emission regulations and by-laws.</li> <li>Implement BMP's and establish an emergency spill plan.</li> <li>Ensure that emergency spill kit is available at the Project Location at all times in the even that a spill occurs. All spills and leaks of deleterious substances must be immediately contained and cleaned up in accordance with provincial regulatory requirements and reported immediately to the Ontario Spills Action Centre (1-800-268-6060). Maintain log book of any spills and mitigation measures.</li> <li>Excess material will be removed from the site.</li> <li>No refuelling or maintenance of vehicles within 30 m of natural features.</li> </ul>	No residual effects.
Hill's Pondweed (HP1*, HP3*, HP4*, HP5*, HP6*)  *Pre-construction	<u>Construction-</u> Vegetation Clearing, Grubbing and Grading	Project components within 50 m of these habitats include: <ul style="list-style-type: none"> <li>Perimeter fence</li> </ul>	<ul style="list-style-type: none"> <li>None. No development is proposed within the habitat</li> </ul>	<ul style="list-style-type: none"> <li>Decreased water quality.</li> </ul>	Low. Only have the potential to be indirectly affected.	Once during construction.	Until vegetative cover of the project area is restored	<ul style="list-style-type: none"> <li>Provide a setback of at least 5 m from the edge of significant habitat for Hill's Pondweed and a Project component</li> <li>Develop and implement a sediment and erosion</li> </ul>	No residual effects.

Significant or Provincially Significant Natural Feature Affected by Activity	Project Phase & Activity within 50 m of Natural Feature	Distance to Nearest Project Component and Other Components within 50 m	Potential Negative/Positive Effect(s)		Magnitude of Effect	Frequency of Effect	Duration of Effect	Mitigation Measures	Residual Effects
			Physical Impact (Direct)	Functional Effect (Indirect)					
<p>surveys will be conducted according to methodology presented <b>Appendix A.</b> These surveys will take place in 2015. These habitats have been treated as significant until the evaluation can occur. Please note that the mitigation measures outlined will only be undertaken if the habitat is evaluated to be significant after pre-construction surveys are completed.</p>	Installation of Project Components	<ul style="list-style-type: none"> <li>Solar panels</li> <li>Access Roads</li> <li>Area of Operational Flexibility</li> </ul> <p>HP1* is within 7 m of an area of operational flexibility HP3* is immediately adjacent to the perimeter fence HP4* is 9 m from the perimeter fence HP5* and HP6* are within an area of operational flexibility</p>					during the operations phase.	<p>control (ESC) plan prior to site preparation activities.</p> <ul style="list-style-type: none"> <li>ESC measures (i.e. silt fence) installed for construction purposes will delineate the extent of the habitat from the active construction area. ESC structure should be monitored regularly to ensure that is fully functional and any issues identified are resolved in a timely fashion.</li> <li>Maximize the distance of all construction equipment used from significant features; operate machinery in the Project Location areas only.</li> <li>Develop and implement a stormwater management plan which maintains pre-construction surface water flows to adjacent lands (quantity, quality, infiltrations, conveyance patterns and seasonality of water flow).</li> <li>A plan to address/mitigate soil compaction throughout the Project Location to be developed as part of the detailed design to promote infiltration.</li> </ul>	
<p>Redheaded Woodpecker (RHW1) Harlequin Darner (HD5*, HD6*, HD10*)</p> <p>*Pre-construction surveys will be conducted according to methodology presented <b>Appendix A.</b> These</p>	<p><u>Construction Site Preparation-</u> Vegetation Clearing, Grubbing and Grading</p>	<p>Redheaded Woodpecker habitat is 10 m from the Project Location. Project components within 50 m of this habitat include:</p> <ul style="list-style-type: none"> <li>Perimeter fence</li> <li>Access roads</li> <li>Solar panels</li> </ul> <p>Harlequin Darner habitat is 0 m from the Project Location. HP5* and HP10* are directly adjacent to existing roads. No other</p>	<ul style="list-style-type: none"> <li>No direct effects.</li> </ul>	<ul style="list-style-type: none"> <li>Disturbance to wildlife habitat and breeding birds.</li> </ul>	Low.	Once during construction.	Throughout construction phase.	<ul style="list-style-type: none"> <li>Limits of construction work to be staked in the field in order to minimize disturbance to the adjacent wildlife habitat. Construction envelope to be clearly demarcated and kept as small as possible.</li> <li>No treed vegetation associated with RHW1</li> </ul>	No residual effects.

Significant or Provincially Significant Natural Feature Affected by Activity	Project Phase & Activity within 50 m of Natural Feature	Distance to Nearest Project Component and Other Components within 50 m	Potential Negative/Positive Effect(s)		Magnitude of Effect	Frequency of Effect	Duration of Effect	Mitigation Measures	Residual Effects
			Physical Impact (Direct)	Functional Effect (Indirect)					
<p>surveys will take place in 2015.</p> <p>These habitats have been treated as significant until the evaluation can occur. Please note that the mitigation measures outlined will only be undertaken if the habitat is evaluated to be significant after pre-construction surveys are completed.</p>		Project components are within 50 m.							
<b>Other- Best Management Practices (includes consideration for Generalized Candidate Significant Wildlife Habitat)</b>									
<b>Incidental Wildlife Occurrences</b>	All phases- Use of vehicles and machinery during construction, operations, and decommissioning.	N/A	<ul style="list-style-type: none"> <li>▪ Accidental injury or mortality of wildlife entering the Project Location.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Disturbance/harassment of wildlife within the Project Location.</li> </ul>	Potential for occurrences of wildlife within the Project Location.	Incidental occurrences.	Life of the project.	<ul style="list-style-type: none"> <li>• Use Best Management Practices to prevent impacts to wildlife within the area.</li> <li>• Sediment and erosion control measures (i.e., silt fence) will be installed to deter wildlife from entering the construction site during construction and decommissioning.</li> <li>• Minimize impacts to breeding birds (April 1 to August 31) by clearing naturalized vegetation outside of the breeding bird season. Should any clearing be required during the breeding bird season, nest searches conducted by a qualified person must be completed 48 hours prior to clearing activities. If nests are found, works within 10 m will cease until nest has fledged. If no nests are present, clearing can occur. This is in accordance with the federal Migratory Bird Convention Act.</li> </ul>	No residual effect.

Significant or Provincially Significant Natural Feature Affected by Activity	Project Phase & Activity within 50 m of Natural Feature	Distance to Nearest Project Component and Other Components within 50 m	Potential Negative/Positive Effect(s)		Magnitude of Effect	Frequency of Effect	Duration of Effect	Mitigation Measures	Residual Effects
			Physical Impact (Direct)	Functional Effect (Indirect)					
								<ul style="list-style-type: none"> <li>• The construction workforce will be educated on local wildlife that may be encountered on the Project Location and will be instructed to take measures for avoiding wildlife. A protocol will be provided to contractors to follow in the event wildlife is encountered. This protocol will include specific measures for dealing with turtles, breeding birds and other wildlife.</li> <li>• Any wildlife located within the Project Location will be re-located to an area outside the Project Location (and into an area of appropriate habitat) as necessary.</li> </ul>	

## 10. ENVIRONMENTAL EFFECTS MITIGATION AND MONITORING PLAN

The Environmental Effects Mitigation and Monitoring Plan (EEMMP) prepared for the Project outlines the mitigation measures to minimize the environmental effects of engaging the Project (**Table 12**). The mitigation measures outlined in **Table 12** below are in response to the physical impacts and function effects that have potential to occur during the construction, design and operation, and decommissioning of the facility and are specific to significant natural heritage features outlined in **Table 11**. These will form part of the overall EEMMP for the Project in the *Design and Operations Report* and the *Construction Plan Report*, as applicable. **Table 12** also summarizes the monitoring plan and monitoring frequency during operation of the facility, as well as contingency measures that will be undertaken if performance objectives are not achieved. **Table 12** should be read in conjunction with **Tables 10** and **11** which outline the features and attributes necessary for persistence, features potentially sensitive to development and features that serve as good indicator features or species.

Table 12: Environmental Effects Mitigation and Monitoring Plan

Significant/ Provincially Significant Natural Feature(s) Affected by Activity	Potential Positive/Negative Environmental Effects		Performance Objective	Environmental Effects Mitigation and Monitoring Plan						Contingency Measures
	Physical	Functional		Mitigation Measure	Monitoring Strategy & Methods	Monitoring Locations	Frequency & Duration	Technical and Statistical Value of Data	Reporting Requirements	
<b>SITE PREPARATION &amp; CONSTRUCTION PHASE OF PROJECT</b>										
(Assumed) Provincially Significant Wetlands 4, 6, 7, 9, 11, 13, 14, 17, 18, 20, 21, 22, 23, 26, 29, 30, and 32  Significant Woodlands A,C,D,E,I  Colonially- Nesting Bird Breeding Habitat CNTS5*, CNTS6*  Deer Winter Congregation Areas DWCA 1  Turtle Nesting Areas TNA1*  Turtle Wintering Areas TWA1*, TWA2*  Significant and Treated as* Significant Amphibian Breeding (wetland) Habitat ABHWE1*, ABHWE2*, ABHWE5*, ABHWE6*, ABHWE7*, ABHWE8*, ABHWE9*, ABHWE11, ABHWE12*, ABHWE13*, ABHWE14*, ABHWE15*  Significant Amphibian Breeding (woodland) Habitat ABHWO1,	Permanent removal of 0.88 ha of Woodland A (which includes DWCA1, ABHWO1, and ASBB1 Habitat)	Change in surface water run-off volumes/ patterns.  Potential changes to water quality.	Persistence of significant natural features  Significant wildlife habitat will continue to meet the criteria for significance post-construction.	Cleared lands to be vegetated as soon as practical following construction activities.  Internal project access roads to be constructed at or near grade and the use of impermeable materials  <u>Setbacks</u> <ul style="list-style-type: none"> <li>Setbacks between significant woodlands and the project perimeter fence to follow ISA Arborist standards.</li> <li>A minimum 5 m setback to be applied to significant wildlife habitat within the Project Location within areas of operational flexibility.</li> </ul> <u>Erosion and Sediment Control</u> Minimize soil exposure.  Install erosion and sediment control measures prior to vegetation clearing, grubbing and grading to prevent mobilization of sediment and other contaminants from the Project Location into the surrounding landscape.  Restrict vegetation clearing to lands within Project Location identified for development.  <u>Stormwater Management</u> Develop and implement a stormwater management plan to ensure drainage patterns are not significantly altered from existing conditions due to road drainage, reduction in surface permeability, etc.  A plan to address/mitigate soil compaction throughout the Project Location to be developed as part of the detailed design to	Monitor erosion and sediment control (ESC) measures regularly during site preparation and construction.  Follow recommendations in the SWM Plan and/or REA issued by the MOECC to monitor effectiveness of water flow management measures; ensure flow is free of sedimentation.  Pre-construction surveys to evaluate the significance of ABHWE2*, ABHWE5*, ABHWE6*, ABHWE7*, ABHWE8*, ABHWE9*, ABHWE11*, ABHWE12*, ABHWE13*, ABHWE14*, ABHWE15*, HP1*, HP3*, HP4*, HP5*, HP6*, HD5*, HD6*, HD10*, TNA1*, TWA1*, TWA2*, AG2*, SHFG4*, SHFG5*, SHFG6*. (Methodology as outlined in the NHA Environmental impact	ESC measures to be monitored where implemented according to the ESC plan.  Monitor for surface water quality at locations identified in the SWM Plan and/or REA issued by the MOECC  Monitoring location for significant natural features in the same location as pre-construction surveys (see Appendix B of the NHA Evaluation of Significance Report and Appendix A).	Monitor ESC measures regularly during construction.  ESC monitoring to occur monthly or after rain events 10 mm or greater (within 24 hrs) until vegetation is re-established.  Monitor for surface water quality at a frequency and duration identified in the SWM Plan and/or REA issued by the MOECC  One-year of post-construction monitoring for significant wildlife habitat, with the exception of TNA1*.	Comparison of significant habitat persistence post-construction.	ESC inspection checklist log compiled for each monitoring event.  Surface water quality reporting requirements as per SWM plan and/or the REA issued by the MOECC	Repair deficiencies in ESC structures as soon as possible upon notification of breach in ESC structure and buffer fencing.  Consultation to occur with the MNRF if performance objectives not achieved following post-construction monitoring.

Significant/ Provincially Significant Natural Feature(s) Affected by Activity	Potential Positive/Negative Environmental Effects		Performance Objective	Environmental Effects Mitigation and Monitoring Plan					Contingency Measures	
	Physical	Functional		Mitigation Measure	Monitoring Strategy & Methods	Monitoring Locations	Frequency & Duration	Technical and Statistical Value of Data		Reporting Requirements
<p>ABHWO2, ABHWO3</p> <p>Woodland Area-sensitive Bird Breeding Habitat ASBB 1</p> <p>Treated as Significant Hill's Pondweed Habitat HP1*, HP3*, HP4*, HP5*, HP6*</p> <p>Treated as Significant Habitat for American Gromwell AG2*</p> <p>Treated as Significant Habitat for Soft-Hairy False Gromwell SHFG4*, SHFG5*, SHFG6*</p> <p>Significant Redheaded Woodpecker Habitat RHW1</p> <p>Treated as Significant Harlequin Darner Habitat HD5*, HD6*, HD10*</p> <p>Generalized Candidate Significant Wildlife Habitat</p>				<p>promote infiltration.</p> <p><u>Vegetation Considerations</u> If construction occurs within 5 m of significant habitat during the growing season, the habitat will be searched for the target plant species and each located target plant flagged to increase awareness of its location to avoid incidental trampling.</p> <p><u>Wildlife Considerations</u> Utilize fencing (e.g., Perimeter fencing and/or silt fencing) to deter wildlife from entering the construction site during construction and decommissioning.</p> <p>The construction workforce will be educated on local wildlife that may be encountered on the Project Location and will be instructed to take measures for avoiding wildlife. A protocol will be provided to contractors to follow in the event wildlife is encountered. This protocol will include specific measures for dealing with turtles, breeding birds and other wildlife.</p> <p>Wildlife located within the Project Location will be re-located to an area outside the Project Location (and into an area of appropriate habitat) as necessary.</p> <p>Relocate turtles observed within Wetland 21 to suitable habitat within the general area (i.e., within 1 km).</p> <p>Use of galvanized fencing with chain links large enough for turtle hatchlings to move through following the construction phase. Prevent movement of turtle hatchlings through the perimeter fence during the construction phase to reduce potential for mortality.</p> <p>Minimize impacts to breeding birds (April 1 to August 31) by clearing naturalized vegetation outside of the breeding bird season. Should any</p>	Study Appendix A)		Post-construction monitoring at TNA1* should occur during the first two nesting seasons following the completion of construction to determine if turtles are isolated within feature.			

Significant/ Provincially Significant Natural Feature(s) Affected by Activity	Potential Positive/Negative Environmental Effects		Performance Objective	Environmental Effects Mitigation and Monitoring Plan					Contingency Measures	
	Physical	Functional		Mitigation Measure	Monitoring Strategy & Methods	Monitoring Locations	Frequency & Duration	Technical and Statistical Value of Data		Reporting Requirements
			<p>clearing be required during the breeding bird season, nest searches conducted by a qualified person must be completed 48 hours prior to clearing activities. If nests are found, works within 10 m will cease until nest has fledged. If no nests are present, clearing can occur. This is in accordance with the federal <i>Migratory Bird Convention Act</i>.</p> <p>The area of ABHWO1 habitat associated with Woodland A is to be removed outside of the amphibian breeding season (i.e., April 1- June 30) if seasonal vernal pools are observed prior to clearing activities. A visual inspection of the breeding habitat (i.e., wetland pockets/ pools) will be undertaken prior to removal to verify if 1) habitat occurs and 2) if breeding amphibians are observed. If observed, construction within 30 m of the breeding pool will be delayed until a subsequent site visit confirms no visual evidence of amphibian breeding.</p> <p>Vehicle speeds to be restricted to 15 km/hr or less on the Project site and speed limit signage posted.</p> <p><u>Generalized Candidate Significant Wildlife Habitat</u></p> <p>No access roads are to be constructed or operated within 50 m of the boundaries of generalized habitat for plant species of special concern or amphibian breeding habitat in accordance with Appendix D of the <i>Natural Heritage Assessment Guide for Renewable Energy Projects</i> (MNRF 2012).</p>							

## 11. NEGATIVE ENVIRONMENTAL EFFECTS, DESIGN AND OPERATIONS

The REA regulation requires an environmental effects monitoring plan as a part of the *Design and Operations Report* to demonstrate how negative environmental effects of the Project will be mitigated, and set out a program for ongoing monitoring of the effectiveness of the mitigation measures. However, through the NHA, the Project Location has been defined to avoid directly impacting significant features. After the construction phase of the Project, there are no expected impacts or effects that would require ongoing mitigation measures or monitoring. As such, information relating to significant natural features is not required to be included in the environmental effects monitoring plan for the Project *Design and Operations Report*. Additional mitigation measures proposed to minimize impacts of the facility and not related to significant natural features are summarized in the *Design and Operations Report*.

## 12. NEGATIVE ENVIRONMENTAL EFFECTS, CONSTRUCTION

The REA regulation requires that a *Construction Plan Report* be prepared to demonstrate how negative environmental effects of construction activities will be mitigated including modifications to construction activities, use of treatment technologies (e.g. Erosion and Sediment Control structures), and scheduling of activities. **Table 12** above provides a description of performance objectives in respect of each negative environmental effect; mitigation measures planned to achieve performance objectives; how the Project is to be monitored; and a contingency plan to be implemented should monitoring reveal that mitigation measures have failed. **Table 12** has been prepared for inclusion in the Project *Construction Plan Report*. Additional mitigation measures proposed to minimize impacts of the facility and not related to natural features are summarized in the *Construction Plan Report*.

### 13. CONCLUSIONS

Through a records review, site investigation and natural features evaluation of significance, it was determined that significant natural features exist within the Project Location and 50 m setback (**Figure 3, 4, 5A-5L**). As such, an *NHA EIS* report was required under Section 38 of *O. Reg. 359/09*. This fourth and final report therefore satisfies the requirements under *O. Reg. 359/09* with respect to an NHA.

This *NHA EIS* report demonstrates how negative environmental effects of the Project will be mitigated, and sets out a program for ongoing monitoring of the effectiveness of the mitigation measures. **Table 12** above provides a description of performance objectives in respect of each negative environmental effect; mitigation measures planned to achieve performance objectives; how the Project is to be monitored; and a contingency plan to be implemented should monitoring reveal that mitigation measures have failed. The *NHA EIS* report was completed to mitigate potential negative environmental effects to the following significant natural features within the Project Location and surrounding 50 m (Please note that \* denotes 'treated as' significant and pre-construction surveys will be completed to evaluate wildlife habitat):

- Wetlands 4, 6, 7, 9, 11, 13, 14, 17, 18, 20, 21, 22, 23, 26, 29, 30, and 32
- Woodland A, C, D, E and I
- Wildlife Habitat

#### Seasonal Concentration Areas

- Colonially- Nesting Bird Breeding Habitat (Tree/Shrub) CNTS5\*, CNTS6\*
- Turtle Wintering Areas TWA1\*, TWA2\*
- Deer Winter Congregation Areas DWCA1

#### Specialised Habitat for Wildlife

- Turtle Nesting Areas TNA1\*
- Amphibian Breeding Habitat (Wetland) ABHWE1\*, ABHWE2\*, ABHWE5\*, ABHWE6\*, ABHWE7\*, ABHWE8\*, ABHWE9\*, ABHWE11, ABHWE12\*, ABHWE13\*, ABHWE14\*, ABHWE15\*
- Amphibian Breeding Habitat (Woodland) ABHWE1, ABHWE2, ABHWO3

#### Habitat of Species of Conservation Concern

- Woodland Area-Sensitive Bird Breeding Habitat ASBB1
  - American Gromwell AG2\*
  - Hill's Pondweed HP1\*, HP3\*, HP4\*, HP5\*, HP6\*
  - Soft-hairy False Gromwell SHFG4\*, SHFG5\*, SHFG6\*
  - Redheaded Woodpecker RHW1
  - Harlequin Darner HD5\*, HD6\*, HD10\*
- Generalized Candidate Significant Wildlife Habitat

**Table 12** outlines how the activities related to the construction, operation and decommissioning of the facility affect these natural features and the appropriate mitigation and monitoring work to be implemented to mitigate or avoid the potential negative environmental effects of the Project.

## **14. REFERENCES**

Ontario Ministry of Natural Resources and Forestry. 2000. Significant Wildlife Habitat Technical Guide. 151pp.

Ontario Ministry of Natural Resources and Forestry. 2002. Ontario Wetland Evaluation System Southern Manual (3<sup>rd</sup> Edition). Revised December 2002.

Ontario Ministry of Natural Resources and Forestry. September 2009. Approval and Permitting Requirements Document for Renewable Energy Projects. September 24, 2009.

Ontario Ministry of Natural Resources and Forestry. March 2012. Significant Wildlife Habitat 7E Ecoregion Criteria Schedule. 37pp.

Ontario Ministry of Natural Resources and Forestry. November 2012. Natural Heritage Assessment Guide for Renewable Energy Projects. Queen's Printer for Ont.

---

---

**APPENDIX A**

Pre-Construction Survey Methodology

---

---

## **PRE-CONSTRUCTION SURVEY METHODOLOGY**

Please find below details of the pre-construction surveys for wildlife habitat 'treated as' significant. The surveys will be conducted by qualified biologists during appropriate timing windows and using MNR approved methodologies.

### **1. Wildlife Habitat**

The Significant Wildlife Habitat Technical Guide (MNR 2000), supported by the Significant Wildlife Habitat Ecoregion 6E Criterion Schedule (MNR 2012b), is the authoritative source for the identification and evaluation of significant wildlife habitat. Information collected to evaluate wildlife habitat as significant often requires specific studies targeted to the species, the habitat, or both. In some instances, when evaluating candidate wildlife habitat, consideration was given to the size of the individual habitat relative to the amount of habitat in the region (i.e., percentage of regional composition for a given habitat community within 10 km of the project location) and occurrence of unique characteristics. Methodologies used to investigate the candidate wildlife habitat identified during the site investigation are further outlined in below.

Where appropriate studies to determine the significance of a wildlife habitat have not been conducted, wildlife habitat will be treated as significant and studies will be completed prior to construction. The methods to be implemented in order to confirm the status of wildlife habitat treated as significant will be outlined in the EIS.

#### **1.1 Seasonal Concentration Areas**

##### **Turtle Wintering Areas**

Turtle wintering habitat that was treated as significant will be evaluated by performing visual encounter surveys to identify congregations of turtles on warm, sunny days during the spring (March to May) or fall (September –October) of 2015 (one season) when turtles may be emerging from wintering habitat. Two (2) basking surveys will be conducted during the appropriate time of year (weather/temperature dependent). Visual searches will include observations of basking features present within the candidate habitat, including large rocks, man-made structures, logs, branches, and shoreline and of turtles seen. Notes will be taken to indicate where in the delineated habitat turtles are observed (if applicable). If turtles in the appropriate abundances according to the Ecoregion 6E criterion schedule are observed (MNRF 2012), the habitat will be evaluated as significant.

#### **1.2 Specialised Habitat for Wildlife**

##### **Turtle Nesting Areas**

Turtle nesting habitat that was treated as significant will be evaluated by performing visual encounter surveys to identify congregations of turtles on warm, sunny days during the prime nesting season. Two (2) nesting surveys will be conducted between late spring to early summer (May to July). Visual searches will include observations of appropriate nesting substrate and basking features present within the candidate habitat, including large rocks, man-made structures, logs, branches, and shoreline. Notes will be taken to indicate where in the delineated habitat turtles are observed (if applicable). If turtles in the appropriate abundances according to the Ecoregion 6E criterion schedule are observed (MNRF 2012), the habitat will be evaluated as significant.

##### **Amphibian Breeding Habitat (Wetland)**

Amphibian monitoring will follow the Marsh Monitoring Program protocol (Bird Studies Canada, 2009). Three different surveys will be conducted between April 1 and June 30, with at least two weeks between each survey. Surveys will begin at least one half hour after sunset during evenings with a minimum night temperature of 5°C, 10°C

and 17°C for each of the three respective surveys. Survey points will align with wetland features observed within the habitat. See **Figure A1**.

Each amphibian survey will generally involve standing at a predetermined station for 3 minutes and listening for frog calls. The calling activity of individuals estimated to be within 100 m of the observation point will be documented. All individuals beyond 100 m will be recorded as outside of the count circle and calling activity not recorded. Calling activity will then be ranked using one of the following three abundance code categories:

Code 1: Calls not simultaneous, number of individuals can be accurately counted;  
Code 2: Some calls simultaneous, number of individuals can reliably be estimated;  
Code 3: Calls continuous and overlapping, number of individuals cannot be estimated.

In areas where appropriate habitat exists, vernal pools will also be visually examined for egg masses and amphibian larvae.

### **1.3 Habitats of Species of Conservation Concern**

#### **American Gromwell**

The evaluation methodology that will be used to determine the significance of the habitat for American Gromwell is as follows: The blooming period for this species is June-July so area searches that will involve traversing the habitat (AG2\*) on foot and looking for this species presence. If this plant is present this habitat will be considered Significant for American Gromwell.

#### **Hill's Pondweed**

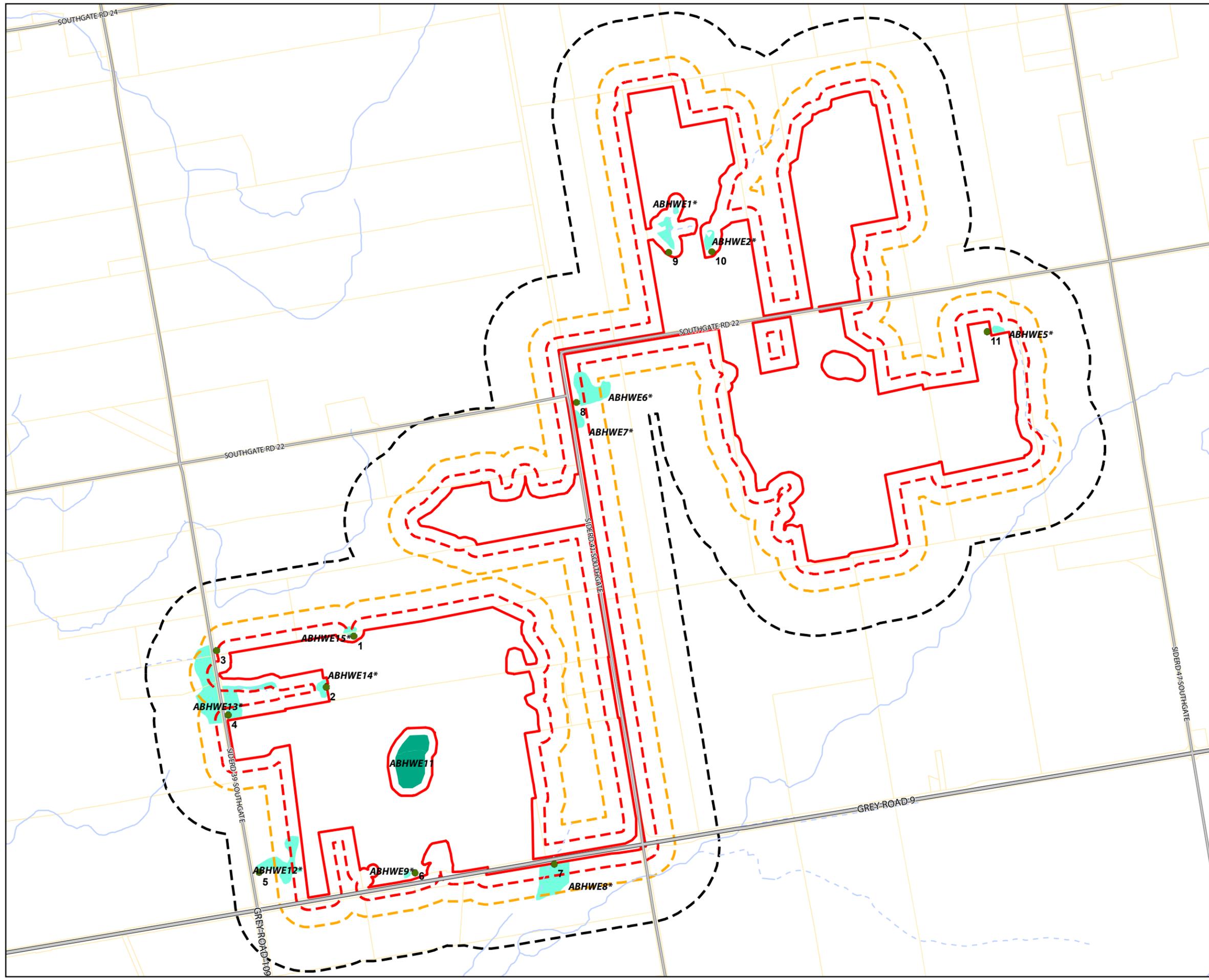
The evaluation methodology that will be used to determine the significance of the habitat for Hill's Pondweed is as follows: the open water areas that have been treated as significant wildlife habitat for Hill's Pondweed (HP1\*, HP2\*, HP3\*, HP4\*, HP5\*, HP6\*) will be visually examined for presence of this species during a time of year when the vegetation would be apparent (May- September), and if it is present this habitat will be considered Significant for Hill's Pondweed.

#### **Soft-hairy False Gromwell**

The evaluation methodology that will be used to determine the significance of the habitat for Soft-hairy False Gromwell is as follows: The blooming period for this species is June-July so area searches that will involve traversing the habitat (SHFG4\*, SHFG5\*, SHFG6\*) on foot and looking for this species presence. If this plant is present this habitat will be considered Significant for Soft-hairy False Gromwell.

#### **Harlequin Darner**

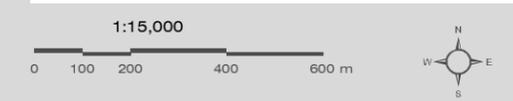
Since no formal surveys for Harlequin Darner exist in Ontario area searches for this species will consist of traversing the area on foot during the time when this species would be present in these habitats i.e.: May – July and could include netting to identify to species level if necessary. If Harlequin Darner is present, this habitat will be considered significant for this species.



**SOUTHGATE SOLAR PROJECT**

**FIGURE A1  
PRE-CONSTRUCTION SURVEY STATIONS**

- Preconstruction Amphibian Breeding Habitat Survey Station
- Permanent Watercourse
- - - Intermittent Watercourse
- Project Location
- Project Location 50 m Setback
- Project Location 120 m Setback
- Project Location 300 m Setback
- Significant Amphibian Breeding Habitat (Wetland)
- Treated as Significant Amphibian Breeding Habitat (Wetland)



MAP DRAWING INFORMATION:  
DATA PROVIDED BY MNR

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

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



PROJECT: 149154  
STATUS: DRAFT  
DATE: 12/9/2014