RECEIVED
JULY 25, 2025
TOWNSHIP OF ARMOUR

Environmental Impact Study (EIS)

219 Peggs Mountain Road, Armour

SolarBank Corporation

505 Consumers Road, Suite 803, Toronto, ON M2J 4V8

Prepared by:

SLR Consulting (Canada) Ltd.

100 Stone Road West, Suite 201, Guelph, ON N1G 5L3

SLR Project No.: 209.065266.00001

July 15, 2025

Revision: B

Revision Record

Revision	Date	Prepared By	Checked By	Authorized By
A	June 20, 2025	Carlene Perkin, Lucas McLennan	Dirk Janas	Matt Scoular
B	July 15, 2025	Lucas McLennan	Kim Logan	Matt Scoular

Statement of Limitations

This report has been prepared by SLR Consulting (Canada) Ltd. (SLR) for SolarBank Corporation (Client) in accordance with the scope of work and all other terms and conditions of the agreement between such parties. SLR acknowledges and agrees that the Client may provide this report to government agencies, interest holders, and/or Indigenous communities as part of project planning or regulatory approval processes. Copying or distribution of this report, in whole or in part, for any other purpose other than as aforementioned is not permitted without the prior written consent of SLR.

Any findings, conclusions, recommendations, or designs provided in this report are based on conditions and criteria that existed at the time work was completed and the assumptions and qualifications set forth herein.

This report may contain data or information provided by third party sources on which SLR is entitled to rely without verification and SLR does not warranty the accuracy of any such data or information.

Nothing in this report constitutes a legal opinion nor does SLR make any representation as to compliance with any laws, rules, regulations, or policies established by federal, provincial territorial, or local government bodies, other than as specifically set forth in this report. Revisions to legislative or regulatory standards referred to in this report may be expected over time and, as a result, modifications to the findings, conclusions, or recommendations may be necessary.

Executive Summary

SLR Consulting (Canada) Ltd. (SLR) has been retained by SolarBank Corporation (SolarBank) to prepare this Environmental Impact Study (EIS) for 219 Peggs Mountain Road, Armour, Ontario (the Subject Property; **Figure 1**). The Subject Property is approximately 40 hectares (ha) and currently supports woodland (mix of coniferous and deciduous tree cover), cultural meadow, and cultural thicket. For the purpose of the EIS and based on the relatively small extent of proposed development the Subject Property is further subdivided into a Study Area which contains the area of proposed development and the adjacent lands within 120 m of the proposed development. It is SLR's understanding that the EIS has been requested as part of an Independent Electricity System Operator (IESO) contracted Battery Energy Storage System (BESS) development project.

A Species at Risk (SAR) Desktop Screening memorandum was prepared by SLR on April 24, 2025, which described SLR's methods, the results of the SAR desktop screening, and SLR's proposed recommendations for next steps regarding targeted SAR surveys, potential permitting or registration requirements under the *Endangered Species Act, 2007* (ESA), and consultation with regulatory agencies (SLR 2025).

Based on the findings and recommendations of this EIS report, it is our opinion that with the implementation of the mitigation measures, the proposed development is environmentally feasible.

Table of Contents

Statement of Limitations ..... **ii**
Executive Summary ..... **iii**
Table of Contents ..... **iv**
Acronyms and Abbreviations ..... **vii**
1.0 Introduction **1**
2.0 Policy Framework **3**
2.1 Provincial Planning Statement (2024) 3
2.2 Armour Township Official Plan 4
2.3 Township Woodlands Conservation By-law 12-2006 7
2.4 Township Tree Canopy and Natural Vegetation Policy By-law 17-2019 8
2.5 Endangered Species Act 9
2.6 Migratory Birds Convention Act 9
3.0 Study Approach **9**
3.1 Background Review 9
3.2 Agency Correspondence 11
3.3 Ecological Surveys 11
3.3.1 Ecological Land Classification and Flora 12
3.3.2 Breeding Bird Surveys 12
3.3.3 Potential Maternity Roost Habitat 12
3.3.4 Snag Tree Survey 12
3.3.5 Acoustic Monitoring Study 13
3.3.6 Species at Risk Habitat Assessment 13
3.3.7 Significant Wildlife Habitat Screening 13
4.0 Existing Conditions **13**
4.1 Vegetation and Flora 14
4.1.1 Vegetation Communities 14
4.1.2 Flora 19
4.2 Wildlife 21
4.2.1 Breeding Birds 21
4.2.2 Potential Maternity Roost Habitat and Snag Survey 21
4.2.3 Acoustic Monitoring Locations and Field Data Collection 22
4.2.4 Incidental Wildlife 23
5.0 Assessment of Significance **23**

5.1 Species at Risk Habitat Screening 23
5.2 Significant Wildlife Habitat 24
6.0 Proposed Development 24
7.0 Impact Assessment....27
7.1 Direct Impacts 27
7.1.1 Terrestrial Habitat....27
7.1.2 Invasive Species 27
7.1.3 Species at Risk and Species of Conservation Concern 27
7.2 Indirect Impacts....27
8.0 Mitigation Measures and Enhancement Opportunities 28
8.1 General Mitigation Measures....28
8.1.1 Construction Access, Site Controls and Operational Constraints....28
8.1.2 Considerations for Construction 28
9.0 Policy Conformity....28
10.0 Conclusions and Recommendations....30
11.0 Closure....31
12.0 References....32

Tables in Text

Table 1: Summary of Ecological Surveys 11
Table 2: ELC Communities 14
Table 3: Bat Acoustic Monitor Summary 22
Table 4: Policy Conformity 29

Figures in Text

Figure 1: Site Location 2
Figure 2: Existing Environmental Conditions 20
Figure 3: Proposed Development Plan....26

Photos in Text

Photo 1: G058oTt community (May 2, 2025)....16
Photo 2: G052cTt community (May 2, 2025) 17

Photo 3: G058cTt community (May 2, 2025) 18
Photo 4: G051cTt community (May 2, 2025) 19
Photo 5: Sugar Maple snag (May 2, 2025) 22

Appendices

Appendix A TULLOCH Peer-review
Appendix B Vascular Plant List
Appendix C SAR Screening Table
Appendix D SWH Screening Table

Acronyms and Abbreviations

ANSI	Areas of Natural and Scientific Interest
BESS	Battery Energy Storage System
CC	Coefficient of Conservatism
COSSARO	Committee on the Status of Species at Risk in Ontario
DBH	Diameter-at-Breast Height
DFO	Department of Fisheries and Oceans
EIS	Environmental Impact Study
ELC	Ecological Land Classification
ESA	Endangered Species Act
ESA	Environmental Site Assessment
ESC	Erosion and Sediment Control
IESO	Independent Electricity System Operator
LID	Low Impact Developments
MBCA	Migratory Birds Convention Act
MBR	Migratory Birds Regulations
MECP	Ministry of Environment, Conservation and Parks
MNR	Ministry of Natural Resources
NHF	Natural Heritage Feature
NHIC	Natural Heritage Information Centre
OBA	Ontario Butterfly Atlas
OBBA	Ontario Breeding Bird Atlas
OMMAH	Ontario Ministry of Municipal Affairs and Housing
OP	Official Plan
ORAA	Ontario Reptile and Amphibian Atlas
PPS	Provincial Planning Statement
PSW	Provincially Significant Wetland
SAR	Species at Risk
SWH	Significant Wildlife Habitat

1.0 Introduction

SLR Consulting (Canada) Ltd. (SLR) has been retained by SolarBank Corporation (SolarBank) to prepare this Environmental Impact Study (EIS) for 219 Peggs Mountain Road, Armour, Ontario. The Subject Property is located southeast of Peggs Mountain Road and River Drive in the Township of Armour, Town of Parry Sound, Ontario. The location of the Subject Property is depicted on **Figure 1**. For the purpose of this EIS, the Subject Property is further subdivided into a Study Area which contains the area of proposed development and the adjacent lands within 120 m of the proposed development.

The EIS is required for the Subject Property due to the proposed development's proximity to natural features. When there is potential for development to impact these features or their functions the need for an EIS is triggered under the relevant Township of Armour (Township), and Town of Parry Sound (Town) policies.

Previously, TULLOCH Engineering ('TULLOCH') was retained to undertake a peer-review (TULLOCH 2025) of the project as provided in the following reports: *219 Peggs Mountain Road, Burk's Falls, Ontario: Phase One Environmental Site Assessment*, prepared by EXP Services Inc. (EXP) and dated January 16, 2024 (EXP 2024); and, the *Vegetation Plan: 903 BESS: 219 Pegg's Mountain Road, Burk's Falls, ON* prepared by SolarBank (SolarBank n.d.). The Environmental Site Assessment (ESA) and Vegetation Management Plan were prepared following municipal pre-consultation instructions dated January 11, 2024. In their peer-review comments, TULLOCH recommended that an EIS be prepared in alignment with Section 5.1.2(f) of the Official Plan (Site Assessment and/or Environmental Impact Study) (Township of Armour 2024). TULLOCH's peer review has been included in **Appendix A**.

LEGEND:

- WATERCOURSE
- WETLAND - UNEVALUATED AS PER OWES
- SITE LOCATION

NOTES:
NOTE 1 - BASEMAP DATA PROVIDED BY ONTARIO'S MINISTRY OF NATURAL RESOURCES AND FORESTRY (ONTARIO HYDRO NETWORK AND ROAD SEGMENTS)

SERVICE LAYER CREDITS: MAXAR (2024)

0 100 200 300 400 500 m

SCALE: 1:9,000
PAGE SIZE: 11 x 17
NAD 1983 UTM Zone 17N
THIS MAP IS FOR CONCEPTUAL PURPOSES ONLY AND SHOULD NOT BE USED FOR NAVIGATION

SOLARBANK CORPORATION
219 PEGGS MOUNTAIN ROAD IN ARMOUR
ONTARIO, CANADA

ELT1 BESS SAR SCREENING

SITE LOCATION

SLR

FIGURE NO:
1

DATE: July 4, 2025
PROJECT NO: 209.065266.00001

2.0 Policy Framework

Relevant planning policies, legislation, and regulatory requirements pertinent to the assessment area are summarized in the following sections. The general relevance of these policies to the Subject Property is also noted. More detailed analysis of policy implications is provided in subsequent sections of this report, where relevant.

2.1 Provincial Planning Statement (2024)

The *Provincial Planning Statement, 2024* (PPS) provides direction to regional and local municipalities regarding planning policies for the protection and management of natural heritage features and resources (Ontario Ministry of Municipal Affairs and Housing 2024). Section 4.1 of the PPS defines ten Natural Heritage Features (NHF) and *adjacent lands* and provides planning policies for each. Of these NHF, development is not permitted in:

- Significant Coastal Wetlands;
- Significant Wetlands in Ecoregions 5E, 6E and 7E;
- Fish Habitat, except in accordance with provincial and federal requirements; or
- Habitat of species designated as Endangered and Threatened, except in accordance with provincial and federal requirements.

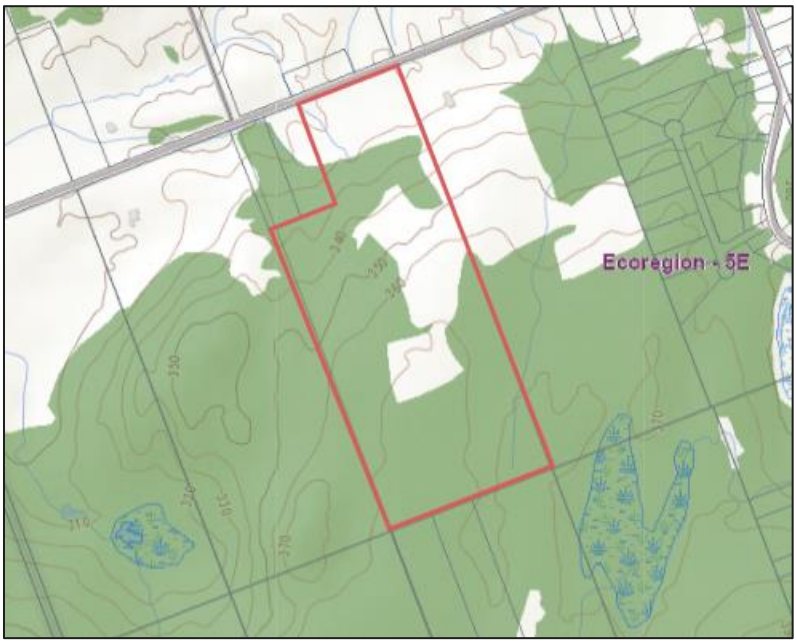
Additionally, unless it can be demonstrated through an Environmental Impact Study (EIS or NHE) that there will be no negative impacts on the natural features or their ecological functions, development and site alteration are also not permitted in:

- Significant Wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E;
- Significant Woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Mary's River);
- Significant Valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Mary's River);
- Significant Wildlife Habitat;
- Significant Areas of Natural and Scientific Interest (ANSI);
- Other Coastal Wetlands in Ecoregions 5E, 6E and 7E; and
- Lands defined as *Adjacent Lands* to all the above natural heritage features.

Each of these natural heritage features is afforded varying levels of protection subject to guidelines, and in some cases, regulations.

The Subject Property is located in Ecoregion 5E (Crins, Gray, et al. 2009). As depicted on the Ministry of Natural Resources (MNR) Natural Heritage Information Centre (NHIC) mapping there are no Provincially designated significant features (e.g., Provincially Significant Wetlands [PSWs], ANSIs) found within or adjacent to the Subject Property. There is an unevaluated wetland adjacent to the southeast limit of the Subject Property (**Map A**). Watercourses have been identified extending into the northern and southeastern limits of the Subject Property. Aquatic, wetland, and fish habitat are not found within the Subject Property.

Map A. Ministry of Natural Resources (MNR) NHIC – Mapping showing watercourses (blue lines), woodlands (dark green layer), and unevaluated wetland (blue pattern layer) on and adjacent to the Subject Property (approximate boundaries in red) (Ministry of Natural Resources 2025).



2.2 Armour Township Official Plan

The *Armour Township Official Plan* (OP) was adopted by council 1991 and approved by the Province in 1994 (Township of Armour 2024).

Section 2.4 of the Township's OP discusses Environmental Constraint Areas, which should be considered in new or extended development applications (Township of Armour 2024). Environmental Constraint Areas include:

- Mineral aggregate resource deposits,
- Significant wildlife habitats,
- Deer wintering areas,
- Significant habitat of endangered and threatened species,
- Abandoned mine hazards,
- Significant fish habitat, and
- Wetlands.

These features, where they are known (except for significant habitat of Endangered and Threatened species), are depicted on Schedule B: Environmental Constraint Areas of the OP (**Map B**). The objective of Environmental Constraint Areas is to guide development and to protect environmentally sensitive areas (Township of Armour 2024).

Significant habitat of Endangered and Threatened species is not shown in Schedule B of the OP. According to the Township's OP in Section 2.4.3 c), *Significant Habitat of Endangered and Threatened Species and Significant Wildlife Habitat:*

Council recognizes the importance and value of both the significant habitat of endangered and threatened species and significant wildlife habitat in Armour Township and supports their protection.

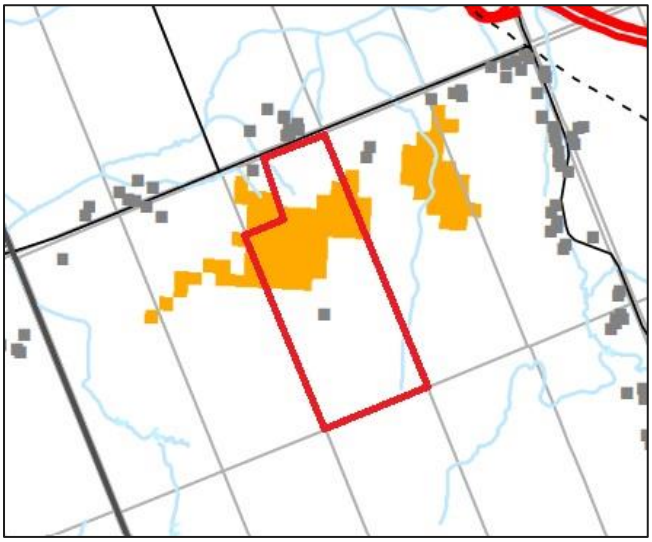
i. *Development and site alteration shall not be permitted in habitat of endangered and threatened species, except in accordance with provincial and federal requirements.*
ii. *A range of significant wildlife habitats (in addition to deer wintering habitat) may occur in Armour Township, as described in the MNRF Significant Wildlife Habitat Technical Guide. New development and site alteration shall only be permitted within the significant wildlife habitat or adjacent lands (generally within 120 metres) to the significant wildlife habitat if it has been demonstrated through a site-specific assessment (i.e. Environmental Impact Study) that there will be no negative impacts on the natural features or their ecological functions.*
iii. *While a small number of locations of significant habitat of endangered and threatened species and significant wildlife habitat are known, the majority can only be identified through site assessment. Accordingly, before new site-specific planning approvals are granted for larger scale development (e.g. subdivisions/condominiums, major industrial or commercial developments), Council will generally require that an appropriate level of site assessment be carried out by a qualified professional before new planning approvals are granted. This will ensure that such significant habitats, if present, are identified. In the case of habitat of endangered species and threatened species, development and site alteration shall not be permitted, except in accordance with provincial and federal requirements*.

Section 2.4.3 f), *Wetlands*, it is stated that there are no known PSW areas in the municipality; however, if one is identified, development and/or site alteration shall not be permitted within or within 120 m of the PSW, unless another distance is more appropriate as determined through further studies (Township of Armour 2024). Through the MNR's NHIC mapping, unevaluated wetland is identified southeast of the Subject Property boundary (**Map B**).

Wetland areas are a significant environmental resource, which contribute to the ecological, social and economic well being of the Township of Armour. It is the intent of this Plan to protect wetland areas within the Township from incompatible land uses. There are no known provincially significant wetland areas in the municipality. If one is identified, no development or site alteration will be permitted in it or adjacent to it. Lands adjacent to a provincially significant wetland are defined as within 120 metres until further evaluation proves another distance more appropriate.

Map B. The Township's OP Schedule B: Environmental Constraint Areas – Mapping showing watercourses (blue lines) and unevaluated wetland (green hatched layer) on and adjacent to the Subject Property (approximate boundaries in red) (Township of Armour 2024).

Wildland Fire Hazard Areas are discussed in Section 2.4.3 g) of the Township's OP. These areas were provided by the MNR and are shown in Appendix A of the OP (**Map C**). This is a generalized map, "*but may be used as a starting point for the completion of an Armour Township wildland fire assessment plan*" (Township of Armour 2024). The Subject Property contains areas with Potential Wildland Fire Hazard Classification of 'High'. Where the wildland fire risk potential is high to extreme, "*the MNRF recommends undertaking the two-step process (levels 1 and 2) for assessing the required mitigation efforts, as described in the Wildland Fire Risk Assessment and Mitigation Reference Manual, 2017*" (Ontario Ministry of Natural Resources and Forestry 2017).



Map C. Ministry of Natural Resources (MNR): Township of Armour Wildland Fire Hazard Map – Mapping showing High Potential Wildland Fire Hazard Classification (orange layer) on and adjacent to the Subject Property (approximate boundaries in red) (Ontario Ministry of Natural Resources and Forestry 2017).

As part of the Township's objectives under Section 4.4: *Energy Conservation and Climate Change*, the OP addresses the need for mitigation and adaptation in response to climate change (Township of Armour 2024). In Section 4.4.2, *Policies*, Council will, "*encourage the use of wind energy, solar panels and the production of crops for biodiesel and ethanol fuels*" (Township of Armour 2024). Climate change mitigation shall be considered in the development application review process though, "*designing for energy conservation including renewable energy systems*" (Township of Armour 2024).

2.3 Township Woodlands Conservation By-law 12-2006

The Township's *Woodlands Conservation By-law 12-2006* regulates the conservation of woodlands, "*for the purposes of promoting conservation, good forestry practices and sustain healthy woodlands within the Township*" (Township of Armour 2006).

Within the By-law, 'Woodlands,' *means land at least one hectare and more in area with at least:*

i. 400 trees per acre (988 trees per hectare) of any size,

ii. 300 trees per acre (750 trees per hectare) measuring over two (2) inches, (5.0 centimetres), in diameter at DBH,

iii. 200 trees per acre, (494 trees per hectare) measuring over five (5) inches (12.7 centimetres) in diameter at DBH, or

iv. 100 trees per acre, (247 trees per hectare) measuring over eight (8) inches (20.3 centimetres) in diameter at DBH,

but does not include a cultivated fruit or nut orchard or a plantation established for the purpose of producing Christmas Trees.

The By-law applies to living trees of a specific species (*Species A and Species B*) and diameter measurement, as listed in Section 2: *Applications – Specific* (Township of Armour 2006). Under Section 3: *Application – General*,

3.1 Every person who is destroying or injuring trees shall,

i. do so in accordance with good forestry practices;

ii. only destroy or injure those trees which have attained, at the specific point of measurement, the circumference measurement which equals or is greater than the minimum circumference prescribed for the species in Section 2.1; and

iii. not reduce the number of trees per hectare below the minimum number of trees per hectare required to be considered woodlands; (as defined)

3.2 No person shall destroy or injure a tree,

i. located in sensitive natural area;

ii. that is to remain standing after the destruction or injuring of trees is completed.

Note that this By-law does not apply to:

a) the injuring or destruction of trees by the registered owner of land, who has owned the *land for at least two years, to cut trees thereon for the person's own use, as defined;*

…

e) the injuring or destruction of trees imposed after December, 31, 2002 as a condition to the approval of a site plan, a plan of subdivision or a consent under section 41, 51, or 53, respectively, of the Planning Act or as a requirement of site plan agreement or subdivision agreement entered into under those sections;

f) the injuring or destruction of trees imposed after December, 31, 2002 as a condition to a development permit authorized by regulation made under section 70.2 of the Planning Act or as a requirement of an agreement entered into under the regulation;

…

k) *apply to trees growing in a woodlot that is less than 2 acres (0.81 hectares) in area*.

Based on SLR's interpretation of the wording, it appears that this Bylaw does not apply to the project, as stated in 4.1 e) of this Bylaw, the removal of trees is required for the completion of the site plan and would be exempt. It is also noted that the activities associated with this project would not result in the woodland ceasing to fit the above mentioned definition of a woodland under this Bylaw.

2.4 Township Tree Canopy and Natural Vegetation Policy By-law 17-2019

The Township's *Tree Canopy and Natural Vegetation Policy By-law 17-2019* provides a summary of local vegetation, planting considerations, and to promote good forestry practices (Township of Armour 2019). The By-law and corresponding *Schedule A* applies to all properties and development on public and private lands within the Township of Armour (Township of Armour 2019). It is a guideline to be utilized for residential, commercial, and public purposes (Township of Armour 2019). *Schedule A* includes a list of local and native species that should be referred to when implementing vegetation plantings.

2.5 Endangered Species Act

Species designated as Endangered or Threatened by the Committee on the Status of Species at Risk in Ontario (COSSARO) are listed as Species at Risk (SAR) in Ontario (Government of Ontario 2007). These SAR and their habitats (e.g., areas essential for breeding, rearing, feeding, hibernation, and migration) are afforded legal protection under the Endangered Species Act, 2007 (ESA). This Act is administered by the Ministry of Environment, Conservation and Parks (MECP).

The protection provisions for species and their habitat within the ESA apply only to those species listed as Endangered or Threatened on the SARO list, being Ontario Regulation 230/08 of the ESA. Species listed as Special Concern may be afforded protection through policy instruments respecting significant wildlife habitat (e.g., the PPS) as defined by the Province, other relevant authority, or other protections contained in Official Plans. The Province is currently in the process of replacing the ESA with the Species Conservation Act (SCA). Until the new Act comes into effect, the current ESA legislation and regulations apply.

2.6 Migratory Birds Convention Act

The Migratory Birds Convention Act, 1994 (MBCA) and Migratory Birds regulations, 2022 (MBR), together with the provincial Fish and Wildlife Conservation Act (Government of Ontario 1997), protect most species of migratory birds and their nests and eggs anywhere they are found in Canada (Government of Canada 1994). General prohibitions under the MBCA and MBR protect migratory birds, their nests, and their eggs and prohibit the deposit of harmful substances in waters / areas frequented by them. The MBR includes an additional prohibition against incidental take, which is the inadvertent harming or destruction of birds, nests, or eggs.

Compliance with the MBCA and MBR is best achieved through a due diligence approach, which identifies potential risk, based on a site-specific analysis in consideration of the Avoidance Guidelines and Best Management Practices information on the Environment Canada website (Government of Canada 2018).

3.0 Study Approach

3.1 Background Review

SLR has reviewed relevant background material to provide a focus to field investigations and ensure compliance with applicable regulations and policy. Background information collection is guided by the Natural Heritage Information Request Guide (Ministry of Natural Resources and Forestry 2018). Current direction from the Ministry of Natural Resources (MNR) and Ministry of Environment, Conservation and Parks (MECP) is to gather natural heritage information and species occurrence records from available sources; the NHIC Make-a-Map application being the main source of information and records from the Ministry itself (Ministry of Natural Resources 2025). Information gathered is recommended to be balanced and supplemented by professional ecological review of potential habitats and characteristics of a project site.

Background review for the Subject Property included the collection of relevant mapping and reports, including regulations and policies, Official Plans, and zoning by-laws; and the NHIC Make-a-Map application for species occurrences and designated area mapping. In addition to these sources, the following data sources were reviewed for the project:

- Natural Heritage Information Centre (NHIC) database (Ministry of Natural Resources 2025);

- Ontario Breeding Bird (Bird Studies Canada 2025) and Reptile and Amphibian Atlases (Ontario Nature 2025);
- Ontario Butterfly Atlas (OBA) (Toronto Entomologists Association 2025);
- Department of Fisheries and Oceans (DFO) Aquatic Habitat and SAR Mapping (Fisheries and Oceans Canada 2025);
- Atlas of the Mammals of Ontario (Dobbyn 1996);
- iNaturalist (California Academy of Sciences 2025); and
- eBird (Cornell Lab of Orinthology 2025).

Other sources of information, such as aerial photography and topographic maps, were also consulted prior to commencing field assessments. Following the Information Request Guide, MECP advice and direction should be solicited if SAR interactions or potential interactions are identified via field investigation and analysis.

3.2 Agency Correspondence

Pre-consultation with Armour Township staff was conducted on January 11, 2024. Township staff advised the Client of next steps to proceed with the proposed development, including an Environmental Impact Study.

3.3 Ecological Surveys

Ecological field investigations were conducted by SLR ecologists at the Subject Property in 2025. These investigations are summarized in **Table 1**, below.

Table 1: Summary of Ecological Surveys

Field Investigation	Dates	Weather
Ecological Land Classification (ELC)	May 2, 2025	9°C, 100% cloud cover, 15 km/h winds
Snag Tree Survey	May 2, 2025	9°C, 100% cloud cover, 15 km/h winds
Breeding Bird Survey	June 3, 2025	10°C, 30% cloud cover, 10 km/h winds
Deployment of Acoustic Monitors	June 3, 2025	10°C, 30% cloud cover, 10 km/h winds
Breeding Bird Survey	June 13, 2025	9°C, 100% cloud cover, <10 km/h winds
Retrieval of Acoustic Monitors	June 13, 2025	9°C, 100% cloud cover, <10 km/h winds

3.3.1 Ecological Land Classification and Flora

Vegetation communities were mapped and described based on their best fit to community classifications within the standard systems provided in the *Ecosites of Ontario - Great Lakes to St. Lawrence* (Banton, et al., 2009) and Ecological Land Classification (ELC) System for Southern Ontario (Lee, et al., 2008). Vegetation community boundaries were delineated on field maps through the interpretation of recent aerial photographs and refined in the field. Information collected during the ELC surveys includes dominant species cover, community structure, as well as level of disturbance, presence of indicator species, and other notable observations.

Botanical surveys were completed by traversing the Study Area and recording species observed in each vegetation community. Provincial plant status was based on the *Provincially Rare Flora of Ontario* (Oldham & Brinker, 2009) and the NHIC species lists (Ministry of Natural Resources and Forestry, 2023). Regional plant status was based on *Provincially and Regionally Rare Plant Species – Ecoregion 5E* (Crins, Provincially and Regionally Rare Vascular Plant Species - Ecoregion 5E 2004). Local plant status was based on Locally Rare Vascular Plants – 5E (Crins, Locally Rare Vascular Plants - Site District 5E 2004)

Searches for Butternut (*Juglans cinerea*) and other rare species were completed during the ELC and botanical surveys.

3.3.2 Breeding Bird Surveys

Breeding bird surveys were conducted following the principles of the *Ontario Breeding Bird Atlas Guide for Participants* (Bird Studies Canada, 2001). A survey of the study area was conducted on June 3 and June 13, 2025, between 05:00 and 10:00. Weather conditions during the surveys were 30-100% overcast, with light air to light breezes, no precipitation, and temperatures of 9-10°C at the beginning of surveys. The survey was carried out by traversing the study area to within 50 m of all points of the area and mapping the presence of all birds detected by sight and sound, except for those birds flying over the study area (birds soaring overhead, however, were recorded).

3.3.3 Potential Maternity Roost Habitat

Based on MNRF guideline, *Maternity Roost Surveys (Forests/Woodlands)*, Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*), Eastern Red Bat (*Lasiurus borealis*), Hoary Bay (*Lasiurus cinereus*), Silver-haired Bat (*Lasionycterus noctivagans*) and Tri-colored Bat (*Perimyotis subflavus*) may establish maternity roosts in any coniferous, deciduous or mixed wooded ecosite that includes trees at least 25 cm diameter-at-breast height (DBH) and should be considered suitable maternity roost habitat (Ministry of Environment Conservation and Parks, 2022). Based on aerial imagery and ELC field investigations, forest communities were identified within and directly adjacent to the Subject Property.

Due to the lack of suitable habitat for Eastern Small-footed Bat (*Myotis leibii*) such as rock outcrops, under bridges, or in caves and mines, this species is not expected to occur within the Subject Property.

3.3.4 Snag Tree Survey

A search for potentially suitable maternity roosting trees was conducted during leaf-off period on May 3, 2025, with an unobstructed canopy, all trees >25 cm DBH within the Study Area were surveyed for suitable maternity roost characteristics. Based on the size of the proposed building footprint, 0.89 ha, a single ecologist walked transects to view multiple angles of all trees. Trees with snag attributes (i.e. cavities, loose bark, crack) in the Subject Property were flagged as

potential roosting habitat if they met the specific habitat preferences described in **Table 3**. This work was completed to identify suitable areas for the deployment of acoustic monitors.

3.3.5 Acoustic Monitoring Study

Acoustic monitoring methods were based on the 2022 *Maternity Roost Surveys (Forests/Woodlands)* protocol (Ministry of Environment Conservation and Parks, 2022). One SM4BAT FS Ultrasonic Detectors was deployed in one location (**Figure 2**). SM4BAT FS Ultrasonic Detectors have one microphone output, resulting in a total of one microphone recording locations that were deployed in areas with little understory and/or in proximity to potential snag tree habitat on the Subject Property. The SM4BAT Detectors are capable of 16-bit digital high-speed sampling, using ultrasonic microphones designed specifically for recording bat echolocation calls covering a 25 m radius (Wildlife Acoustics, n.d.). The microphones were positioned off the ground and angled upwards to maximize bat detection and reduce noise. The detectors were strategically placed near potential snag trees to maximize potential for high-quality bat calls, as well as within areas with an open understory. The detectors were programmed to record for approximately 8 hours starting at sunset and ending at sunrise, from June 3 to June 13 (10 evenings at each location) with recordings triggered when ultrasonic signals from the bats were detected in the vicinity.

3.3.6 Species at Risk Habitat Assessment

For the purposes of this report, SAR include species listed as Endangered, Threatened or Special Concern under Ontario's ESA. Based on our experience in potential habitat opportunities and species distribution in the region, a site-specific SAR screening was completed.

Prior to field work, existing SAR records were queried with the NHIC database and other online resources. Habitat opportunities for SAR on the site were then assessed by comparing habitat preferences of species deemed to have potential to occur against current site conditions. The species noted during the NHIC search and other species known through professional experience to have potential to occur were considered in the assessment.

3.3.7 Significant Wildlife Habitat Screening

The criteria for the identification of Significant Wildlife Habitat (SWH) features are provided in the *Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E* (Ontario Ministry of Natural Resources and Forestry, 2015). Under the PPS, planning authorities including MNRF and regional and local municipalities have the responsibility to identify and designate SWH. To evaluate the potential for SWH within the Subject Property, a SWH screening was completed using the criteria outlined in the Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E.

Ministry of Natural Resources (2000) also provides example types of impacts and mitigation suggestions which can be referenced when determining effects of activities on wildlife habitat identified in the Significant Wildlife Habitat Technical Guide.

4.0 Existing Conditions

The Subject Property consists of forest and anthropogenically influenced meadow, with an existing solar power generating station. Natural heritage features within the Subject Property include the woodland area. Most surveys were focussed within the Study Area described above which contains primarily wooded habitat. Many areas on the Study Area show signs of tree clearing directly south of the solar power generating station.

4.1 Vegetation and Flora

4.1.1 Vegetation Communities

Vegetation communities within the Study Area were mapped and described according to the *Ecosites of Ontario - Great Lakes to St. Lawrence* (Banton, et al., 2009).

Existing environmental conditions are shown in **Figure 2**, with a general summary of communities provided in **Table 2**. Representative photos of vegetation communities are also provided (**Photos 1 - 4**).

Table 2: ELC Communities

Vegetation Community	General Community Notes
Dry – Fresh, Coarse: Maple Hardwood Open Tall Treed (G058oTt)	This community was located primarily within the proposed area of development. Tree clearing has occurred extensively through the community to remove taller trees that may shade the downslope solar power generating station. The sparse (10% cover) canopy consisted of Sugar Maple (*Acer saccharum*). The subcanopy covered approximately 50% of the community and consisted of Balsam Fir (*Abies balsamea*) and White Spruce (*Picea glauca*). The understory was dense (70% cover) and consisted of Red Raspberry (*Rubus idaeus*), Black Raspberry (*Rubus occidentalis*), and Sugar Maple. Ground cover was surveyed, though due to the timing of surveys, most species captured were spring ephemerals such as Trout Lily (*Erythonium americanum*) and not representative of the majority of the growing season.
Dry – Fresh, Coarse: Spruce – Fir Conifer Closed Tall Treed (G052cTt)	This community was located primarily east of the proposed area of development. Clearing of larger canopy trees has occurred in this community to a lesser degree than in the G058oTt community. The canopy was moderately dense (60% cover) and consisted of Balsam Fir. The subcanopy was dense (70% cover) and consisted of Basam Fir and White Spruce. The understory covered approximately 50% of the community and consisted of Sugar Maple. Ground cover was surveyed, though due to the timing of surveys, most species captured were spring ephemerals such as Trout Lily (*Erythronium americanum*) and not representative of the majority of the growing season.
Dry – Fresh, Coarse: Maple Hardwood Closed Tall Treed (G058cTt)	This community was located in the south portion of the Study Area. Removal of some canopy trees has occurred in this community to avoid shading of the solar power generating station. The canopy is sparse (20% cover) consisting of Sugar Maple and American Beech (*Fagus grandifolia*). The subcanopy covered approximately 50% of the community and consisted of Sugar Maple, American Beech, and Balsam Fir. The understory was dense (80% cover) consisting of regenerating Sugar Maple and American Beech. Ground cover was surveyed, though due to the timing of surveys, most species captured were spring ephemerals such as Trout Lily (*Erythronium americanum*) and not representative of the majority of the growing season.

Vegetation Community	General Community Notes
Dry – Fresh, Coarse: Cedar – Hemlock Conifer Closed Tall Treed (G051cTt)	This community was located in the west portion of the Study Area. The eastern extent of this community had larger canopy trees removed to prevent shading of the solar power generating station. The canopy was very dense (90% cover) and consisted of Eastern Hemlock (*Tsuga canadensis*) and Yellow Birch (*Betula alleghaniensis*). The subcanopy was dense (70% cover) consisting of Eastern Hemlock and Yellow Birch. The understory was sparse (30% cover) consisting primarily of Red Raspberry. Ground cover was highly variable between the open and undisturbed sections of this community. Woodfern species (*Dryopteris sp*.) were the primary plant species with their relative cover approximately 10% in undisturbed forest and 50% in more open canopy.

Photo 1: G058oTt community (May 2, 2025)

Photo 2: G052cTt community (May 2, 2025)

Photo 3: G058cTt community (May 2, 2025)

Photo 4: G051cTt community (May 2, 2025)

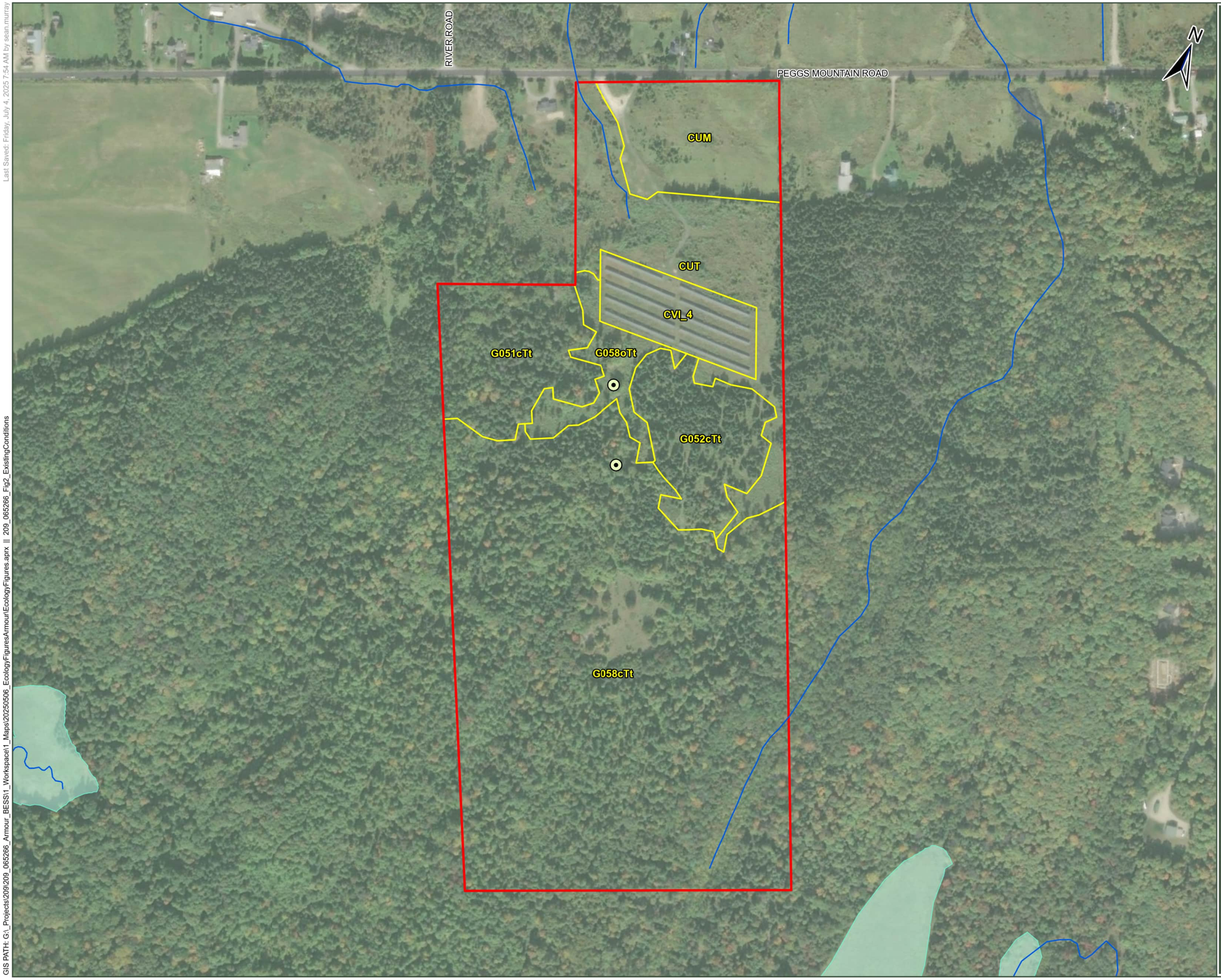
4.1.2 Flora

A total of 36 species of vascular plants were recorded within the Subject Property, including 22 (62%) native species, 7 (19%) species which are non-native to Ontario and 7 (19%) species were identified to the genus only due to the limited representation of key characteristics (**Appendix B**). No species ranked provincially as S1 – S3 were found within the Subject Property.

The Coefficient of Conservatism (CC) of a floristic species is a measure of its sensitivity to disturbance and the degree of habitat specificity it requires (Catling, 2013; Oldham, Bakowsky, & Sutherland, 1995). Measured on a scale between 0 and 10, a native species that establishes easily and/or in a variety of ecological communities would score low; while a plant that is very sensitive to human disturbances and/or lives only in specific environments (e.g. only fen wetlands) would score high.

Based on the data collected, the average CC for the Site is 4.27, indicating that most of the species on the Subject Property are found in a variety of plant communities, including disturbed sites or plant communities with minor disturbances. Three species, Wild Leek (*Allium tricoccum*), Tamarack (*Larix laricina*), and Eastern Hemlock, have CCs of 7, indicating a fidelity to communities of advanced successional stage, but perhaps with minor disturbances. These species are not considered rare.

No SAR plants were observed during the field investigations.



LEGEND:

- SNAG TREE (SUGAR MAPLE)
- WATERCOURSE[1]
- ECOLOGICAL LAND CLASSIFICATION (ELC)
- WETLAND - UNEVALUATED AS PER OWES[1]
- SITE LOCATION

ELC Legend

CUM - Cultural Meadow
CUT - Cultural Thicket
CVI - Power Generation
G051cTt - Dry - Fresh, Coarse: Cedar - Hemlock Conifer
G052cTt - Dry - Fresh, Coarse: Spruce - Fir Conifer
G058cTt/G058oTt - Dry - Fresh, Coarse: Maple Hardwood

NOTES:
NOTE 1 - BASEMAP DATA PROVIDED BY ONTARIO'S MINISTRY OF NATURAL RESOURCES AND FORESTRY (ONTARIO HYDRO NETWORK AND ROAD SEGMENTS)

SERVICE LAYER CREDITS: MAXAR, MICROSOFT (2024)

0 50 100 150 200 250 m

SCALE: 1:4,500
PAGE SIZE: 11 x 17
NAD 1983 UTM Zone 17N

THIS MAP IS FOR CONCEPTUAL PURPOSES ONLY AND SHOULD NOT BE USED FOR NAVIGATION

SOLARBANK CORPORATION
219 PEGGS MOUNTAIN ROAD IN ARMOUR
ONTARIO, CANADA

ELT1 BESS SAR SCREENING

EXISTING ENVIRONMENTAL CONDITIONS

SLR

FIGURE NO:
2

DATE: July 4, 2025

PROJECT NO: 209.065266.00001

Last Saved: Friday, July 4, 2025 7:54 AM by sean.murray

GIS PATH: G:_Projects\209\209_065266_Armour_BESS\1_Workspace\1_Maps\20250506_EcologyFigures\Armour\EcologyFigures.aprx || 209_065266_Fig2_ExistingConditions

4.2 Wildlife

4.2.1 Breeding Birds

A total of 34 bird species were documented in the Subject Property, with no SAR or rare bird species observed. Seven area sensitive species; Winter Wren (*Troglodytes hiemalis*), Veery (*Catharus fuscescens*), Magnolia Warbler (*Setophaga magnolia*), Black-throated Green Warbler (*Setophaga virens*), Blackburnian Warbler (*Setophaga fusca*), Black-and-white Warbler (*Mniotilta varia*), and American Redstart (*Setophaga ruticilla*) was identified within the Subject Property. All birds recorded within the Subject Property are considered common in Ontario (S4/S5). All bird species had possible breeding evidence as males were singing in suitable nesting habitat. The most common species found in the Subject Property included White-throated Sparrow (*Zonotrichia albicollis*), Chestnut-sided Warbler (*Setophaga pensylvanica*), and Song Sparrow (*Melospiza melodia*) which are common to a variety of open forest habitats. The full survey results are provided in **Appendix C.**

4.2.2 Potential Maternity Roost Habitat and Snag Survey

A Bat Habitat Suitability Assessment was completed using aerial photography and ELC field investigation of the Subject Property. Due to the largely treed nature of the Subject Property, all forested portions of the Subject Property had potential to contain Maternity Roosting Habitat and therefore a screening was completed for snag trees in the focused area of the proposed development.

The Study Area was traversed on May 2, 2025 to identify any potential bat habitat trees. During the survey, two snag trees were located. One individual was located within the proposed development area and one individual was located outside the proposed area of development. The individual to be removed was a Sugar Maple with a DBH of >25 cm and a cavity approximately 6 m off the ground.

Photo 5: Sugar Maple snag (May 2, 2025)

4.2.3 Acoustic Monitoring Locations and Field Data Collection

One SM4BAT FS Ultrasonic Detector (with one microphone) was deployed adjacent to the snag tree that was identified within the development footprint (**Figure 2**). The detector was deployed from June 3 to June 13, 2024. To assess presence of bat species, statistical probability requires a sufficient sample size (i.e., number of recorded files) for reliability and percent confidence. For most species, this requires more than 10 accepted decisions (# files). As a rule of thumb, any species' decision summary count (# files) below 10 requires manual vetting to establish presence. A summary of the results of the acoustic data analysis is provided in **Table 3** below:

Table 3: Bat Acoustic Monitor Summary

Detector #	Species	# Files	Confidence Level (%)
1	Big Brown Bat	5	77
	Hoary Bat	6	92
	Silver-haired Bat	12	98
	Myotis sp.	1	-

High confidence values for two species of SAR bats (Hoary and Silver-haired Bats) as well as Big Brown Bat were recorded by the detector. One file recorded the presence of one species of *Myotis*. Due to the singular nature of this call and the similarity of *Myotis sp.* calls, it cannot be

determined which species was present. However, due to the low number of files for each species recorded during the 10-night period, it is expected there is little usage of the Study Area by SAR bat species.

4.2.4 Incidental Wildlife

The following incidental wildlife observations were made within the Subject Property:

- White-tailed Deer (*Odocoileus virginianus*) (scat)
- Moose (*Alces alces*) (scat, tracks)
- Coyote (*Canis latrans*) (scat)
- Black Bear (*Ursus americanus*) (observed, scat)
- Red Squirrel (*Tamiasciurus hudsonicus*) (observed)
- Eastern Chipmunk (*Tamias striatus*) (observed)
- Ruffed Grouse (*Bonasa umbellus*) (observed)

This list does not include bird species noted during the May 2, 2025, site visit that were also found during breeding bird surveys.

5.0 Assessment of Significance

There are no provincially designated areas such as Provincially Significant Wetlands (PSWs), or Areas of Natural and Scientific Interest (ANSIs) found on or directly adjacent to the Subject Property.

5.1 Species at Risk Habitat Screening

A previous Species at Risk Assessment was completed to determine whether SAR habitat is present, potentially present, or absent within the Subject Property. The NHIC database, the Ontario Breeding Bird Atlas (OBBA), the Ontario Reptile and Amphibian Atlas (ORAA), the Ontario Butterfly Atlas (OBA) and DFO aquatic SAR mapping, and eBird records were screened for SAR records. Based on professional experience, it was determined that mature snag trees on and adjacent to the Subject Property may present habitat opportunities for SAR bat species. Species identified in the previous report that have no suitable habitat opportunities within or adjacent to the Subject Property were not assessed further in the screening in **Appendix C**. Findings within the SAR Assessment have been updated to reflect field investigations within appropriate timing windows.

Based on available background information and field investigations, the Subject Property was screened for potential SAR habitat opportunities. The assessment was conducted by comparing habitat preferences of species deemed to have potential to occur against current site conditions. This SAR habitat assessment can be found in **Appendix C**, providing a detailed description of each species' habitat (including those deemed to not have potential habitat), as well as a discussion of habitat suitability within and surrounding the Subject Property, potential impacts, and mitigation, where applicable. Based on the rationale provided in **Appendix C**, the following SAR were screened as having potential or confirmed habitat within or adjacent to the Subject Property. Species determined to have no potential habitat or to not be present following appropriate surveys, will not be included but can be found in **Appendix C**.

Mammals

- Tri-colored Bat (Eastern Pipistrelle) (*Perimyotis subflavus*) – Endangered
- Eastern Small-footed Myotis (*Myotis leibii*) – Endangered
- Little Brown Myotis (*Myotis lucifugus*) – Endangered
- Northern Myotis (M*yotis septentrionalis*) – Endangered
- Eastern Red Bat (*Lasiurus borealis*) – Endangered
- Hoary Bat (*Lasiurus cinereus*) – Endangered
- Silver-haired Bat (*Lasionycteris noctivagans*) – Endangered

Insects

- Monarch Butterfly (*Danaus plexippus*) – Special Concern

5.2 Significant Wildlife Habitat

Significant Wildlife Habitat (SWH) can be difficult to appropriately determine at the site-specific level, as the assessment must incorporate information from a wide geographic area and consider other factors such as regional resource patterns and landscape effects. The screening summary presented in **Appendix D** considers all SWH types for Ecoregion 5E.

Significant Wildlife Habitat is considered a significant feature in Provincial, Regional and City of Brampton OP policies. SWH is defined by the MNRF in the Significant Wildlife Habitat Technical Guide (Ontario Ministry of Natural Resources, 2000) and the Natural Heritage Reference Manual (Ontario Ministry of Natural Resources, 2010) and includes the following broad categories:

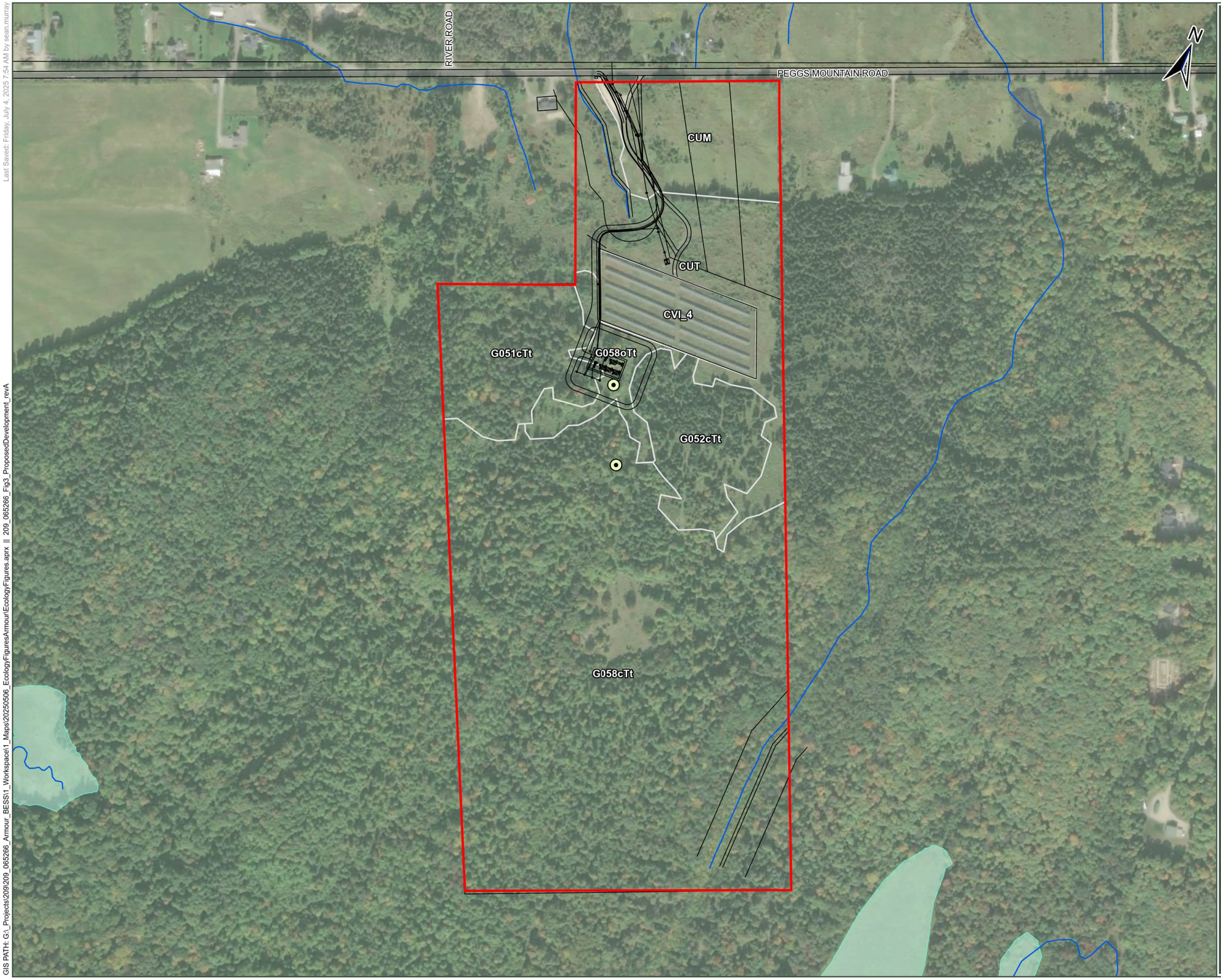
- Habitats of Seasonal Concentration of Animals;
- Rare Vegetation Communities or Specialized Habitats for Wildlife;
- Habitats of Species of Conservation Concern; and
- Animal Movement Corridors.

Three SWH types were identified as a part of the Subject Property. Raptor Wintering Area and Woodland Raptor Nesting Habitat are likely to exist within the undisturbed forested communities of the Subject Property and surrounding lands. Little undisturbed forest exists within the Study Area, therefore, works associated with the proposed development are not expected to cause any impacts to these potential SWH categories. Habitat opportunities (i.e., presence of appropriate plant species) for Species of Special Concern (Monarch Butterfly) exists within the Study Area. Common Milkweed (*Asclepias syriaca*) was located during field investigations. Common Milkweed is a common and widespread plant across Ontario as well as the open spaces of the Subject Property. The proposed development will have a negligible impact on the availability of habitat for milkweed and therefore no impacts to Monarch butterfly are expected due to relative abundant availability of common milkweeds.

6.0 Proposed Development

The proposed development will result in removal of on-site vegetation, as shown on **Figure 3** for the proposed Battery Energy Storage System (BESS) development. This includes improvements to an existing access road in addition to proposed culvert installation, pad

mounted utility auxiliary transformer, chain-link fence, a 2 m wide grounding buffer around the fence, and battery containers.



LEGEND:

- SNAG TREE (SUGAR MAPLE)
- DEVELOPMENT PLAN
- WATERCOURSE
- PROVINCIALLY SIGNIFICANT WETLAND
- ECOLOGICAL LAND CLASSIFICATION (ELC)
- SITE LOCATION

ELC Legend

CUM - Cultural Meadow
CUT - Cultural Thicket
CVI - Power Generation
G051cTt - Dry - Fresh, Coarse: Cedar - Hemlock Conifer
G052cTt - Dry - Fresh, Coarse: Spruce - Fir Conifer
G058cTt/G058oTt - Dry - Fresh, Coarse: Maple Hardwood

NOTES:
NOTE 1 - BASEMAP DATA PROVIDED BY ONTARIO'S MINISTRY OF NATURAL RESOURCES AND FORESTRY (ONTARIO HYDRO NETWORK AND ROAD SEGMENTS)

SERVICE LAYER CREDITS: MAXAR, MICROSOFT (2024)

0 25 50 100 150 200 m

SCALE: 1:4,500
PAGE SIZE: 11 x 17
NAD 1983 UTM Zone 17N

THIS MAP IS FOR CONCEPTUAL PURPOSES ONLY AND SHOULD NOT BE USED FOR NAVIGATION

SOLARBANK CORPORATION
219 PEGGS MOUNTAIN ROAD IN ARMOUR
ONTARIO, CANADA

ELT1 BESS SAR SCREENING

PROPOSED DEVELOPMENT

SLR

FIGURE NO:
3

DATE: July 4, 2025

PROJECT NO: 209.065266.00001

Last Saved: Friday, July 4, 2025 7:54 AM by sean.murray

GIS PATH: G:_Projects\209\209_065266_Armour_BESS\1_Workspace\1_Maps\20250506_EcologyFigures\Armour\EcologyFigures.aprx || 209_065266_Fig3_ProposedDevelopment_revA

7.0 Impact Assessment

Based on the assessment of environmental constraints and opportunities, the proposed development plan has a relatively small footprint (approximately 0.84ha) and will result in the removal of a portion of woodland within the Subject Property. The impacts associated with the removal of woodland include the removal of trees of various sizes and ground vegetation with localized removal of wildlife habitat that is well represented in the immediate adjacent areas and in the general surrounding landscape. There is the potential for disturbance to wildlife, such as birds and mammals, during construction and therefore appropriate timing windows for tree and vegetation removal have been provided.

7.1 Direct Impacts

Direct impacts include those that have an immediate effect on natural features and are generally associated with site preparation and construction activities, such as vegetation clearing and grubbing, grading, excavation, addition of gravel and hard surfaces, and building of structures.

7.1.1 Terrestrial Habitat

The proposed development will result in the removal of a small amount (approx. 0.84ha) of forest on the Subject Property. Vegetation removal will result in the removal of native species. No SAR or rare plants were observed during the field investigations; however, mitigations for wildlife species should be followed as described in **Section 8.1.3**.

7.1.2 Invasive Species

Construction activities have the potential to unintentionally facilitate the spread of invasive plant species through the moving of equipment, soils, and plant materials within and outside of the Subject Property. The establishment and spread of invasive plant species can have substantial negative impacts on ecosystem function and can incur significant costs to eradicate or control. Vehicles and machinery should be properly cleaned following the procedures outlined in the Clean Equipment Protocol for Industry (Ontario Invasive Plant Council, 2013) prior to entering and leaving the Subject Property.

7.1.3 Species at Risk and Species of Conservation Concern

Three species of SAR bats were recorded during acoustic monitoring. Due to the low number of files for each species (6 for Hoary Bat, 12 for Silver-haired Bat, 1 for *Myotis*), it is expected that the Study Area receives little usage by SAR Bats. It is also noted that two snag trees within the Study Area (0.84 ha) is below the 10 snags per hectare preferred by SAR bat species (Ministry of Natural Resources and Forestry 2017). Additionally, due to the largely forested nature of the surrounding lands the removal of a singular snag tree is not expected to result in loss of habitat for SAR bats on the landscape. It is recommended that the timing windows for vegetation removal below are followed to ensure SAR bats are protected.

7.2 Indirect Impacts

Indirect impacts are not caused by immediate project actions but result from the implementation of the project, typically after project completion or outside of the project footprint. Examples of indirect impacts include increased edge effects on woodland habitat following clearing for construction or sedimentation in stormwater runoff following construction activities.

The Site Plan proposes an increase in impermeable surfaces within the Subject Property, which will impede the natural drainage currently available in a very localized manner. Stormwater runoff controls will be spoken to in the Detailed Stormwater Management Plan included as a part of this submission.

8.0 Mitigation Measures and Enhancement Opportunities

Mitigation measures are recommended in the following sections to minimize project impacts from the full development of the Subject Property on the local landscape level and associated natural features.

8.1 General Mitigation Measures

8.1.1 Construction Access, Site Controls and Operational Constraints

- Any temporarily stockpiled material will be properly contained (e.g., within silt fencing) in areas separated by a minimum of 30 m from any waterbody.
- All construction materials and debris will be removed and appropriately disposed of following construction.
- All activity will be controlled to prevent entry of any petroleum products, debris, or other potential deleterious substances, in addition to sediment as outlined above, to any waterbody. No storage, maintenance, or refuelling of equipment will be conducted near any waterbody.

8.1.2 Considerations for Construction

- Vegetation removal in preparation for site grading and construction should take place outside of sensitive timing windows for wildlife species:
    - Breeding bird season per Environment Canada's (2018) nesting periods for migratory birds: April 1 to August 31
    - Bat activity season: April 1 to October 31
- To protect wildlife in general, no animals are to be knowingly harmed. If wildlife is encountered during construction, work must stop, and animals allowed to disperse on their own. If necessary, the environmental consultant or MECP should be contacted for advice.
- Construction monitoring by a certified inspector of sediment and erosion control is recommended, where applicable. It is understood that civil engineers will be onsite during construction to address any potential ESC concerns.

9.0 Policy Conformity

A summary of applicable natural heritage policies and the manner in which the proposed development plan meets their requirements is provided in **Table 3** below.

Table 4: Policy Conformity

Policy Document	Policy Intent/Objective	Implications and Policy Conformity
Provincial Planning Statement (2024)	According to the Provincial Planning Statement, development is generally prohibited within significant natural heritage features (NHF).	This EIS describes the features and functions on and directly adjacent to the Subject Property. It has been determined that the Study Area contains no significant natural heritage features that would be impacted by development. Final analysis of acoustic data for the potential presence SAR is pending and should they be present, appropriate mitigation measures and approvals will be determined in consultation with the MECP.
Armour Township Official Plan	Identify, protect, conserve, enhance, and manage the Township's Natural Heritage System and natural resources.	SLR did not find any environmental constraints to the Study Area. No impacts to natural heritage features are expected from the proposed development.
Endangered Species Act	Species and the habitat of species designated as Endangered or Threatened are afforded legal protection.	Through acoustic monitoring, it is known that SAR bats are using the Study Area for roosting in low abundances. To avoid impacts to these species it is recommended that vegetation clearing not occur during the bat maternity roosting season (generally occurs annually between April 1 to October 31). Appropriate mitigation measures and approvals should be determined in consultation with the MECP.
Migratory Birds Convention Act	Protect most species of migratory birds and their nests and eggs anywhere they are found in Canada.	Vegetation removal should be completed between August 16 and April 14 of any given year. No vegetation removal especially advised between late May and early July (peak nesting season). Biologist to screen for bird nesting for any proposed vegetation removal in 'shoulder seasons'.

10.0 Conclusions and Recommendations

The findings of our study are the result of a background review, field investigations, and an assessment of ecological data using the current scientific understanding of the ecology of the area, as well as the current natural heritage policy requirements. Through the work completed, we have identified the existing environmental conditions of the Subject Property, which are outlined in this report and illustrated on **Figures 2** and **3**.

Based on the above, it is our professional opinion that with the implementation of the mitigation measures, the proposed development is environmentally feasible and consistent with the applicable natural heritage policies.

11.0 Closure

Regards,

SLR Consulting (Canada) Ltd.

Carlene Perkin, B.Sc.
Ecologist, ISA Certified Arborist

Dirk Janas, B.Sc.
Principal Ecologist

12.0 References

Bird Studies Canada. 2025. *Atlas of the Breeding Birds of Ontario.* http://www.birdsontario.org/atlas/index.jsp?lang=en.

California Academy of Sciences. 2025. *iNaturalist.* https://www.inaturalist.org/.

Cornell Lab of Orinthology. 2025. *eBird.* https://ebird.org/home.

Crins, W. J. 2004. "Locally Rare Vascular Plants - Site District 5E."

Crins, W. J. 2004. "Provincially and Regionally Rare Vascular Plant Species - Ecoregion 5E."

Crins, W. J., P. A. Gray, P. W.C. Uhlig, and M. C. Wester. 2009. *The Ecosystems of Ontario, Part 1: Ecozones and Ecoregions.* Technical Report SIB TER IMA TR-01, Peterborough, Ontario: Ontario Ministry of Natural Resources, 71. https://www.ontario.ca/page/ecosystems-ontario-part-1-ecozones-and-ecoregions.

Dobbyn, Jon (Sandy). 1996. *Atlas of the Mammals of Ontario.*

EXP. 2024. "219 Peggs Mountain Road, Burk's Falls, Ontario: Phase One Environmental Site Assessment ."

Fisheries and Oceans Canada. 2025. *Aquatic Species at Risk Map.* http://www.dfo-mpo.gc.ca/species-especes/sara-lep/map-carte/index-eng.html.

Government of Canada. 2018. *Beneficial Management Practices - Avoiding Harm to Migratory Birds.* https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/beneficial-management-practices.html.

—. 1994. "Migratory Birds Convention Act, 1994 (S.C. 1994, c. 22)." http://laws-lois.justice.gc.ca/eng/acts/m-7.01/.

Government of Ontario. 2007. "Endangered Species Act, 2007, S.O. 2007, c. 6." https://www.ontario.ca/laws/statute/07e06.

—. 1997. "Fish and Wildlife Conservation Act, 1997, S.O. 1997, c. 41." *ontario.ca.* https://www.ontario.ca/laws/statute/97f41.

Ministry of Natural Resources and Forestry. 2018. *Natural Heritage Information Request Guide.* Ministry of Natural Resources and Forestry.

Ministry of Natural Resources and Forestry. 2017. *Survey Protocol for Species at Risk Bats within Treed Habitats: Little Brown Myotis, Northern Myotis & Tri-Colored Bat .* Guelph: Ministry of Natural Resources and Forestry - Guelph District.

Ministry of Natural Resources. 2025. *Make a Map: Natural Heritage Areas.* http://www.gisapplication.lrc.gov.on.ca/mamnh/Index.html?site=MNR_NHLUPS_NaturalHeritage&viewer=NaturalHeritage&locale=en-US.

—. 2025. *Make a Map: Natural Heritage Areas.* http://www.gisapplication.lrc.gov.on.ca/mamnh/Index.html?site=MNR_NHLUPS_NaturalHeritage&viewer=NaturalHeritage&locale=en-US.

Ontario Ministry of Municipal Affairs and Housing. 2024. "Provincial Planning Statement, 2024." doi:ISBN 978-1-4606-3522-3.

Ontario Ministry of Natural Resources and Forestry. 2017. "Wildland Fire Risk Assessment and Mitigation Reference Manual 2017." *Government of Ontario.* August. Accessed May 23, 2025. https://irp-

cdn.multiscreensite.com/20e551fd/files/uploaded/wildland_fire_risk_assessment_and_mitigation_reference_manual.pdf.

Ontario Nature. 2025. *Ontario Reptile and Amphibian Atlas.* https://ontarionature.org/programs/citizen-science/reptile-amphibian-atlas/.

SLR. 2025. "Species at Risk (SAR) Desktop Screening."

SolarBank. n.d. "Vegetation Plan: 903 BESS: 219 Pegg's Mountain Road, Burk's Falls, ON."

Toronto Entomologists Association. 2025. "Ontario Butterfly Atlas." https://www.ontarioinsects.org/atlas/part2.html.

Township of Armour. 2024. "Official Plan Office Consolidation." *Township of Armour.* December 9. Accessed May 22, 2025. https://irp.cdn-website.com/20e551fd/files/uploaded/ArmourOP_Consol_Dec9_2024.pdf.

—. 2019. "Tree Canopy and Natural Vegetation Policy." *Township of Armour.* February 26. Accessed May 23, 2025. https://irp-cdn.multiscreensite.com/20e551fd/files/uploaded/Bylaw-Tree_Canopy_Policy.pdf.

—. 2006. "Woodlands Conservation Bylaw." *Township of Armour.* March 14. Accessed May 23, 2025. https://irp-cdn.multiscreensite.com/20e551fd/files/uploaded/Bylaw-Woodlands.pdf.

TULLOCH. 2025. "Peer-Review: EIS and Vegetation Plan."

Appendix A TULLOCH Peer-review

Environmental Impact Study (EIS)

219 Peggs Mountain Road, Armour

SolarBank Corporation

SLR Project No.: 209.065266.00001

July 15, 2025

TULLOCH

Peer-Review: EIS and Vegetation Plan

SolarBank BESS Facility

Township of Armour

219 Peggs Mountain Road, Armour Township

April 28, 2025 (v1.0)

Sudbury Office
131 Fielding Road, Lively, ON, P3Y 1L7.

Township of Armour
PO Box 533, 56 Ontario Street
Burk's Falls, Ontario
P0A 1C0

April 28, 2025

Subject: Peer Review of SolarBank Environmental Impact Study and Vegetation Management Plan the proposed BESS facility at 219 Peggs Mountain Road, Armour Township.

TULLOCH Engineering ('TULLOCH') has been retained to undertake a peer-review of Environmental Impact Study ('EIS') and Vegetation Management Plan submissions made by SolarBank (the 'Proponent') in partial fulfillment of municipal applications to construct a Battery Energy Storage System ('BESS'') facility at 219 Peggs Mountain Road, Armour Township (the 'Site'). Per municipal pre-consultation instructions dated January 11, 2024, the Proponent was instructed to provide a:

> "*Site assessment / environmental impact study (at application)*
>
> *A preliminary site assessment may be required for certain types of development proposals as outlined in Official Plan Section 2.4.3(c)(iv). Such an assessment would determine whether more detailed work is warranted by a specialist. Any proposal for development or site alteration within or adjacent to any environmental constraint area including wetlands identified in the Official Plan or through a preliminary site assessment shall provide an inventory and assessment of sensitive features and functions to determine areas to be protected and any mitigation measures necessary. This assessment may include a tree or wetland preservation plan if the proposed development may have an adverse effect on wetlands or a significant tree or group of trees including a woodlot. Ministry of Environment input and approval required (Phase 1) Impacts on air, water, wildlife, habitats, human health – includes mitigation measures*."

And a:

> *"Vegetation Management Plan - Schedule to Site Plan – buffer area from softwood, hayfield, etc."*

In response to the above pre-consultation, the Proponent has submitted the following documents that are the subject of this peer review:

- *219 Peggs Mountain Road, Burk's Falls, Ontario: Phase One Environmental Site Assessment*. Prepared by EXP Services Inc. First released in draft on January 16, 2024. Published January 23, 2024. Revised January 10, 2025.

- *EASR Confirmation of Registration*. Provided by the Ministry of the Environment, Conservation and Parks. Filed on August 28, 2024. Revised October 09, 2024.

- *Vegetation Plan: 903 BESS: 219 Pegg's Mountain Road, Burk's Falls, ON*. Prepared by SolarBank. Unspecified date.

Fulsome peer-review comments are tabulated in Attachment I. TULLOCH staff qualifications are provided in Attachment II.

Environmental Impact Study (EIS)

Section 2.4 (Environmental Constraints Areas) of the Official Plan: Township of Armour open with a definition of Environmental Constraints Area as:

> *"The purpose of this section is to recognize that certain areas of Armour Township have special environmental values and other constraints which should be taken into account when applications for new or extended development are considered by Council. Such areas include mineral aggregate resource deposits, significant wildlife habitats, deer wintering areas, significant habitat of endangered and threatened species, abandoned mine hazards, significant fish habitat and wetlands. Except for significant habitat of endangered and threatened species, these features, where known, are shown on Schedule "B" to this Plan as environmental constraints to development."*

Section 5.1.2(f) of the Official Plan (Site Assessment and/or Environmental Impact Study) defines an EIS study as:

> *"A preliminary site assessment may be required for certain types of development proposals as outlined in OP Section 2.4.3(c)(iii). Such an assessment would determine whether more detailed assessment is warranted by a specialist. Any proposal for development or site alteration within or adjacent to any environmental constraint area identified in the Official Plan of the Township of Armour or through a preliminary site assessment shall provide an inventory and assessment of sensitive features and functions to determine areas to be protected and any mitigation measures necessary."*

And the referenced Official Plan Section 2.4.3(c)(iii) states:

"While a small number of locations of significant habitat of endangered and threatened species and significant wildlife habitat are known, the majority can only be identified through site assessment. Accordingly, before new site-specific planning approvals are granted for larger scale development (e.g. subdivisions/condominiums, major industrial or commercial developments), Council will generally require that an appropriate level of site assessment be carried out by a qualified professional before new planning approvals are granted. This will ensure that such significant habitats, if present, are identified. In the case of habitat of endangered species and threatened species, development and site alteration shall not be permitted, except in accordance with provincial and federal requirements."

The *219 Peggs Mountain Road, Burk's Falls, Ontario: Phase One Environmental Site Assessment* report was reviewed against the above policies, and industry standards for Environmental Impact Studies, by Kelly Major (M.Sc. EP), Senior Ecologist with TULLOCH. His findings summarize as follows.

- The *219 Peggs Mountain Road, Burk's Falls, Ontario: Phase One Environmental Site Assessment* report appears to be a Phase One Environmental Site Assessment ('Phase One ESA') report, which differs in objective and scope from an EIS. As indicated in the executive summary of that report, "*a Phase One ESA is a systematic qualitative process to assess the environmental condition of a Site based in its history and current uses*." Conversely, an EIS generally considers the current conditions of a site and assesses any foreseen future impacts of a proposed undertaking on the natural environment. The report authors identify that their Phase One ESA "*does not constitute an audit of environmental management practices*."
    - We recommend that an Environmental Impact Study be prepared in alignment with Section 5.1.2(f) of the Official Plan (Site Assessment and/or Environmental Impact Study). As indicated in Section 2.4.3(c)(iii), this assessment should reflect an appropriate level of site assessments. Given the small footprint of the proposed facility, the passive nature of the land use, the existing similar land use, and the Site's considerable distance form any major waterway or wetland system, we agree with the pre-consultation instructions that the scope of an EIS should focus on the confirmation of wetland presence / absence, impacts to wetlands (if present) and any impacts resulting from tree removal. In keeping with industry standards set out in in Ontario's Natural Heritage Reference Manual, we recommend that the scope of the EIS include the footprint of the proposed BESS facility and areas within 120m.
    - It is noted that on-site investigations were performed by EXP Services Inc. on December 12, 2023. Site photos indicate snow cover. The timing of this field assessment would not be appropriate for the assessment of some environmental constraint areas. Specifically, wetlands are defined and mapped for municipal planning purposes according to Ontario's Wetland Evaluation System based on plant community composition; this cannot be accurately assessed when the plant

community has senesced and is obscured by snow. Water features can also be obscured by snow. None of the aerial and site imagery reviewed by TULLOCH suggest the presence of wetlands or surface water features within 120m of the BESS Site. It is none-the-less recommended that an on-site investigation be performed during an appropriate time of year (leaf-on) to allow for a more defensible confirmation of the presence / absence of these sensitive features and functions, and to determine if any areas should be protected and / or any mitigation measures that should be adopted.

- The *219 Peggs Mountain Road, Burk's Falls, Ontario: Phase One Environmental Site Assessment* report included a review of some sources of provincial and federal data that would typically be consulted for an Environmental Impact Study; such as the Natural Heritage Information Centre make-a-map database. We recommend a more fulsome review of available resources be undertaken, such as federal (e.g., Species at Risk Act Aquatic Species Mapping), Provincial (e.g., Geospatial Ontario), Authoritative Atlas (e.g., Ontario Breeding Bird Atlas, Ontario Reptiles and Amphibians Atlas), and citizen science (e.g., iNaturalist, eBird) databases. It is also recommended that the EIS consult Schedule B of the Township's Official Plan (Environmental Constraints Areas). TULLOCH acknowledges that Schedule B of the Official Plan does not appear to attribute any constraint areas with this Site, but this fact should be verified and disclosed in an EIS.

- The *219 Peggs Mountain Road, Burk's Falls, Ontario: Phase One Environmental Site Assessment* report does not provide any assessment of project impacts on environmental constraint areas known (or likely) to be present at the Site. An Environmental Impact Study should assess project impacts on any observed environmental constraint areas on Site, or adjacent to the Site (typically within 120m). An EIS should also include mitigation strategies to avoid, or otherwise minimize, those impacts.

- Pre-consultation directives include "*Ministry of Environment input and approval required (Phase 1) Impacts on air, water, wildlife, habitats, human health – includes mitigation measures.*" The Proponent has consulted the Ministry of the Environment, Conservation and Parks (the 'MECP') via an EASR Registration under Section 20.21 (1) (a) of the Environmental Protection Act. They also sought a Freedom of Information request from the MECP for records pertaining to the Site. An EIS would be necessary to determine if other provincial (or federal) regulatory reviews are warranted. This is because such determinations are based on an understanding of any environmental constraints identified on a site, as well as an assessment of project impacts and residual impacts once mitigation strategies have been considered. Additional regulatory reviews would be triggered per the administering Ministry's policies. For example, the MECP would seek to be consulted should the presence of a threatened or endangered species be

confirmed at a site and actions were being proposed that would harm the species or damage its habitat (required for Endangered Species Act compliance). Fisheries and Oceans Canada (the 'DFO') would seek to be consulted if work is proposed within fish-bearing waters (for Fisheries Act compliance). We recommend provincial and federal consultations be pursued only in alignment with the policies of the corresponding Ministries, and this need should be evaluated by a qualified professional and outlined in an EIS.

Given that the Proponent included a Phase One Environmental Site Assessment in their submission, the Township requested that TULLOCH expand its review to also consider the *219 Peggs Mountain Road, Burk's Falls, Ontario: Phase One Environmental Site Assessment* report against O.Reg. 153/04; the standards of a Phase One Environmental Site Assessment. This expanded review was performed by Adam Kvas (P.Eng), Environmental Engineer with TULLOCH. His review comments are provided in Attachment I.

Vegetation Management Plan

The *Vegetation Plan: 903 BESS: 219 Pegg's Mountain Road, Burk's Falls, ON.,* prepared by SolarBank, was reviewed by Kelly Major (M.Sc. EP), Senior Ecologist with TULLOCH. Vegetation Management Plans are not defined in the Township's Official plan, except with regard to the conservation of shorelines in Section 2.2.17(c) which would not apply in this case. TULLOCH findings are as follows:

- Without a given definition of the intended objectives and scope of a Vegetation Management Plan, all comments below are considered suggestions.
    - The Vegetation Plan sets out objectives "*to establish an integrated vegetation management schedule for battery systems, utility collection lines, and access roads (as necessary) for the Project to preserve the reliability of the Project components.*" It seeks to "*prevent outages associated with vegetation located on or near Project components, to minimize outages caused by insufficient clearances from nearby vegetation, and to implement inspection schedules, treatment schedules, and environmental controls to avoid off-site effects*." Given community concerns regarding fire risks, the Proponent may consider including the mitigation of fire risks (from within and from outside of the Site) as another objective of this document. TULLOCH acknowledges that the Proponent has also undertaken a Hazard Mitigation Analysis report (not reviewed by this reviewer); there may be opportunities to draw a more direct connection between the role of vegetation management and fire hazard mitigation.
    - The Vegetation Plan sets out a 30m vegetated setback from the BESS facility, and the facility is situated on a concrete surface. This 30m setback appears to align

closely with mitigations provided in Section 7.5.1.1 of Ontario's Wildland Fire Risk Assessment and Mitigation Reference Manual. This Manual recommends that all vegetation be set back at least 10m from structures to prevent surface fires, followed by 20m of modified vegetation to avoid high-intensity and crowning fires. The Manual refers to these two areas as Priority Zones 1 and 2, respectively. Given community concerns regarding fire risks, the Proponent may consider clarifying how their vegetation management plan aligns with these provincial best practices. The Proponent may also consider if any Priority Zone 3 vegetation management (areas 30-100m of a structure) is warranted for this Site.

- The Vegetation Plan sets out a maintenance schedule that includes approximately four annual mows, with a goal of keeping grasses below 12-18 inches. We question if grass of this height within the 30m vegetative setback has the potential to facilitate ground-level fires under dry conditions. We recommend the Proponent clarify to what standard grasses should be maintained to prevent the spread of ground-level fires and whether the present mowing schedule will be adequate to meet that standard.

Closing

TULLOCH is pleased to provide this letter as record of our review and findings. Please contact the undersigned should you have any questions or require any clarifications.

Sincerely yours,

Kelly Major (M.Sc. EP)
Senior Ecologist
Certified environmental Professional

Adam Kvas (P.Eng)
Environmental Engineer

ATTACHMENT I

Peer-Review Comments

Comment #	Section/Page number	Report Statement	TULLOCH Comment	Context / Recommendations
TULLOCH Comments with respect to the standards of an Environmental Impact Study (EIS). Reviewer: Kelly Major (M.Sc. EP; Senior Ecologist)				
1	Executive Summary and Section 2.0	"*EXP Services Inc. (EXP) was retained … to complete a Phase One Environmental Site Assessment* " "*A Phase One ESA is a systematic qualitative process to assess the environmental condition of a Site based in its history and current uses* " "*This Phase One ESA does not constitute an audit of environmental management practices…* "	The pre-consultation dated January 11, 2024 requested a "Site Assessment / Environmental Impact Study." A Phase One ESA differs in objectives and scope from an Environmental Impact Study, with the latter being a forward looking assessment of foreseen project impacts on the natural environment and any proposed mitigations required to eliminate or minimise those impacts. The Township's official plan provides some guidance on their EIS expectations in Section 5.1.2(f) (Site Assessment and/or Environmental Impact Study), Section 2.4.3(c)(iii) , and Section 2.4.1 (Environmental Constraint Areas Definition).	We recommend that an Environmental Impact Study be prepared in alignment with Section 5.1.2(f) of the Official Plan (Site Assessment and/or Environmental Impact Study). As indicated in Section 2.4.3(c)(iii), this assessment should reflect an appropriate level of site assessments. Given the small footprint of the proposed facility, the passive nature of the land use, the existing similar land use, and the Site's considerable distance form any major waterway or wetland system, we agree with the pre-consultation instructions that the scope of an EIS should focus on the confirmation of wetland presence / absence, impacts to wetlands (if present) and any impacts resulting from tree removal. In keeping with industry standards set out in in Ontario's Natural Heritage Reference Manual, we recommend that the scope of the EIS include the footprint of the proposed BESS facility and areas within 120m.
2	Section 4 (Records Review)	Various sources of record reviews are listed.	The Phase One ESA report includes a review of some sources of provincial and federal data that would typically be consulted for an Environmental Impact Study; such as the Natural Heritage Information Centre make-a-map database. Several other sources of Natural Heritage information would typically be consulted as part of an EIS. Schedule B of the Township's Official Plan (Environmental Constraints Areas) does not appear to have been reviewed.	We recommend that a more fulsome review of available resources be undertaken, such as federal (e.g., Species at Risk Act Aquatic Species Mapping), Provincial (e.g., Geospatial Ontario), Authoritative Atlas (e.g., Ontario Breeding Bird Atlas, Ontario Reptiles and Amphibians Atlas), and citizen science (e.g., iNaturalist, eBird) databases. It is also recommended that the EIS consult Schedule B of the Township's Official Plan (Environmental Constraints Areas). TULLOCH acknowledges that Schedule B of the Official Plan does not appear to attribute any constraint areas with this Site, but this fact should be verified and disclosed in an EIS.
3	Section 4.3.2 (Topography, Hydrology and Geology)	"The Magnetawan River is located approximately 900 m north o the Site."	This statement may be correct relative to the lot frontage and road right-of-way. Regarding the footprint of the BESS, the Magnetawan River is located approximately 1,400 m to the north.	We recommend that any references to the proximity of the Magnetawan River be revised to 1,400 m.
4	Section 4.3.4 (Water Bodies and Areas of Natural Significance)	Watercourses "*were not observed during our site inspection* ". The "*site was snow-covered at the time* ".	See Comment 5 (below) regarding appropriate timing of on-site investigations.	See Comment 5 (below) regarding appropriate timing of on-site investigations.
5	Section 6.1 (Site Reconnaissance General Requirements) Appendix J (Site Photos)	"*The Phase One Site reconnaissance was conducted on December 12, 2023…* " Site photos indicate snow cover.	The timing of this field assessment would not be appropriate for the assessment of some environmental constraint areas. Specifically, wetlands are defined and mapped for municipal planning purposes according to Ontario's Wetland Evaluation System based on plant community composition; this cannot be accurately assessed when the plant community has senesced and is obscured by snow. Water features can also be obscured by snow.	None of the aerial and site imagery reviewed by TULLOCH suggest the presence of wetlands or surface water features within 120m of the BESS Site. It is none-the-less recommended that an on-site investigation be performed during an appropriate time of year (leaf-on) to allow for a more defensible confirmation of the presence / absence of these sensitive features and functions, and to determine if any areas should be protected and / or any mitigation measures be adopted.
6	General Comment		The Phase One ESA report does not provide any assessment of project impacts on environmental constraint areas known (or likely) to be present at the Site. It also provides no mitigations to eliminate or minimise those impacts.	We recommend an Environmental Impact Study that assesses project impacts on any observed environmental constraint areas on Site, or adjacent to the Site (typically within 120m). The EIS should also include mitigation strategies to avoid, or otherwise minimize, those impacts.

Comment #	Section/Page number	Report Statement	TULLOCH Comment	Context / Recommendations
7	General Comment		Pre-consultation directives include "*Ministry of Environment input and approval required (Phase 1) Impacts on air, water, wildlife, habitats, human health – includes mitigation measures.* " It is unclear the intent of this instruction. The Proponent has consulted the Ministry of the Environment, Conservation and Parks (the 'MECP') via an EASR Registration under Section 20.21 (1) (a) of the Environmental Protection Act. They also sought a Freedom of Information request from the MECP for records pertaining to the Site. An EIS would be necessary to determine if other provincial (or federal) regulatory reviews are warranted. This is because such determinations are based on an understanding of any environmental constraints identified on a site, as well as an assessment of project impacts and residual impacts once mitigation strategies have been considered. Additional regulatory reviews would be triggered per the administering Ministry's policies. For example, the MECP would seek to be consulted should the presence of a threatened or endangered species be confirmed at a site and actions were being proposed that would harm the species or damage its habitat (required for Endangered Species Act compliance). Fisheries and Oceans Canada (the 'DFO') would seek to be consulted if work is proposed within fish-bearing waters (for Fisheries Act compliance).	We recommend that any further provincial (or federal) consultations be pursued only in alignment with the policies of the corresponding Ministries, and this need should be evaluated by a qualified professional as part of the EIS. We generally caution against initiating unnecessary provincial (or federal) regulatory reviews as this can misalign with Ministry policies and result in unnecessary regulatory delays.

TULLOCH Comments with respect to Phase One Environmental Impact Assessment standard in O.Reg. 153/04. Reviewer: Adam Kvas (P.Eng; Environmental Engineer)				
Comment #	**Section/Page number**	**Report Statement**	**TULLOCH Comment**	**Context / Recommendations**
8	1-Executive Summary/Page 4	It is EXP's understanding that the Client intends to develop the northern portion of the Site with a Battery Energy Storage System (BESS) as continued industrial land use. It is noted that the development will include a concrete slab on-grade structure with associated underground utility lines and small building structures to house the equipment. This report has been prepared to support the continued industrial use of the Site. Given that there is no proposed change in land use, no Record of Site Condition (RSC) will be required for the site as set out in Ontario Regulation 153/04, as amended (O.Reg. 153/04).	A Phase I Environmental Site Assessment (ESA) is typically conducted to evaluate the existing environmental condition of a property in scenarios such as property transactions, financing requirements, or land use changes requiring municipal approval. The primary intent of an ESA is to assess potential environmental risks rather than directly supporting new development. As stated in Ontario Regulation 153/04, an RSC is required when a site's land use transitions to a more sensitive use, including agricultural, institutional, parkland, residential, or commercial purposes. If the proposed development maintains its industrial designation, an RSC would not typically be required under the regulation. However, ensuring compliance with other environmental due diligence processes remains important for site development.	It is recommended that the ***Township of Armour's Development Application Pre-Consultation Checklist, dated January 11, 2024*** , be reviewed by all affected parties to ensure alignment with regulatory and procedural requirements. Section 7 of the checklist specifies the need for a Site Assessment/Environmental Impact Study, rather than an Environmental Contamination Report. However, the report provided falls under the category of an Environmental Contamination Report, which was not requested by the Township. To mitigate potential confusion regarding the required environmental deliverable, it is recommended that the Development Application Pre-Consultation Checklist be updated as follows to explicitly clarify distinctions between a Environmental Site Assessment, and Environmental Impact Study. Environmental Site Assessment ☐ ~~Environmental contamination report~~ (at application ☐) (during processing ☐) Any development or site alteration on lands or adjacent to lands that were previously used for a purpose that may have caused contamination of the property should be reviewed to address the need for further environmental testing or remediation in accordance with Provincial regulations/guidelines. Environmental Impact Study ☒ ~~Site assessment / environmental impact study~~ (at application ☒) (during processing ☐) A preliminary site assessment may be required for certain types of development proposals as outlined in Official Plan Section 2.4.3(c)(iv). Such an assessment would determine whether more detailed work is warranted by a specialist. Any proposal for development or site alteration within or adjacent to any environmental constraint area including wetlands identified in the Official Plan or through a preliminary site assessment shall provide an inventory and assessment of sensitive features and functions to determine areas to be protected and any mitigation measures necessary. This assessment may include a tree or wetland preservation plan if the proposed development may have an adverse effect on wetlands or a significant tree or group of trees including a woodlot. **Ministry of Environment input and approval required (Phase 1) Impacts on air, water, wildlife, habitats, human health – includes mitigation measures**
9	1-Executive Summary/Page 4	It is noted that general environmental management and housekeeping practices were reviewed as part of this assessment insofar as they could impact the environmental condition of the property. However, a detailed review of regulatory compliance issues was beyond the scope of our investigation.	There is a typographical error in "insofar" that should be corrected for clarity. Additionally, the language in this paragraph may be misleading, as it implies a review of environmental management related to the proposed Battery Energy Storage System (BESS) development. However, this is not required and is not further elaborated within the report. Furthermore, the reference to regulatory compliance issues lacks a clear link to relevant regulatory standards or guidelines, making it difficult for the reviewer to assess the intended regulatory scope. Clarifying the specific compliance aspects referenced or removing ambiguous language may help improve the precision of this section.	The sentences in question do not align with the intended scope and context of the Environmental Site Assessment (ESA) report. To ensure accuracy and prevent misinterpretation, it is recommended that the Township seeks clarification from the author regarding the specific regulatory compliance issues referenced in the report.

Comment #	Section/Page number	Report Statement	TULLOCH Comment	Context / Recommendations
10	1-Executive Summary/Page 4	Based on the findings of this Phase One ESA, and work previously completed by EXP, no APECs were identified at the Site.	Typically the Potentially Contaminated Activities (PCA) are presented in the executive summary before providing a conclusion on the APECS. Acronym APECS needs to be defined (first mention).	Industry best practices suggest that key environmental terminology and regulatory acronyms should be clearly introduced upon first use to avoid any potential ambiguity. Providing a definition for APECs ensures that all stakeholders—including non-technical readers—fully understand the environmental assessment findings. Moreover, presenting PCAs before concluding on APECs aligns with standard ESA reporting conventions, reinforcing logical sequencing within the report.
11	2- Introduction/Page 5	It is EXP's understanding that the Client intends to develop the northern portion of the Site with a Battery Energy Storage System (BESS) as continued industrial land use. It is noted that the development will include a concrete slab on-grade structure with associated underground utility lines and small building structures to house the equipment	The inclusion of details regarding the proposed development is not applicable to a Phase I Environmental Site Assessment (ESA) report, as the primary purpose of a Phase I ESA is to identify potential environmental risks based on historical and existing site conditions, rather than assessing future development plans.	
12	4.1.1 Phase One Study Area Determination / Page 8	The Pase One Study Area and a Surrounding Land Use Plan are shown on Figure 2.	Figure 2 does not depict the 250-meter offset for the Phase One Study Area surrounding the site boundary. To maintain consistency with Ontario Regulation 153/04 standards, the rationale for including wholly neighboring properties within the Phase One Study Area should be explicitly stated in this section.	Ontario Regulation 153/04 establishes specific requirements for defining the Phase One Study Area, including a 250-meter offset to assess potential environmental risks. If the study area deviates from this standard by including additional properties, a clear justification should be provided to ensure transparency and regulatory compliance. Clarifying this rationale will help prevent ambiguity and enhance the technical accuracy of the report.
13	4.3.1 Aerial Photographs / Page 11	A solar farm is observed on the Site in 2020. However, it is noted that the solar farm itself is not considered to pose an environmental concern to soil and groundwater at the Site. Furthermore, the transformer associated with the solar panels was pole mounted and not placed directiy on the ground. This, it is not anticipated to directly impact soil or groundwater at the Site.	The justification for why the solar farm is not considered an environmental concern is not provided until Section 6.2.16 of the report. To improve clarity, key environmental considerations should be briefly summarized earlier in the report to ensure a logical flow of information. Additionally, it remains unclear whether each individual solar panel has a pole-mounted transformer or whether a single transformer serves the entire solar farm. This distinction should be explicitly clarified within the assessment. Furthermore, Drawing 1 depicts a transformer north of the solar farm, while Drawing 2 identifies PCA 1 as the solar farm itself, introducing potential inconsistencies. Clear differentiation should be provided on what specific feature is designated as the PCA and why. To enhance transparency, a direct inquiry to the Site Owner should be made regarding the presence of insulating fluids within any solar farm components, including transformers, to determine if there is any potential risk associated with Polychlorinated Biphenyls (PCBs).	Transformers used in solar panel systems are typically designed for power conversion and voltage regulation, rather than serving as insulating fluid reservoirs containing PCBs—which were historically used across older transformer technologies. Clarifying this distinction within the report would prevent any misinterpretation of potential environmental risks and ensure that all relevant regulatory considerations are addressed.

Comment #	Section/Page number	Report Statement	TULLOCH Comment	Context / Recommendations
14	4.3.1 Aerial Photographs / Page 11	Quarry Operation - PCA 2 (other) Quarry	The identification of Quarry Operation – PCA 2 (Other) Quarry requires a justification for its inclusion, given that the site is located 500 meters outside the prescribed 250-meter Phase One Study Area. The PCA identifier on Figure 2 should either be adjusted to fall within the 250-meter offset study area or a clear rationale for including the full extent of the quarry property should be provided in Section 4.1.1.	Ontario Regulation 153/04 establishes standard boundaries for defining PCAs within a Phase One Study Area, typically 250 meters from the site boundary. If additional properties beyond this distance are included in the assessment, the basis for their inclusion should be explicitly justified using historical or environmental risk factors. Without further evidence of contaminating activities associated with the quarry, its designation as a PCA could lead to uncertainty regarding its environmental relevance to the site in question.
15	4.3.3 Fill Materials / Page 12	Given that the Site has never been developed prior to the installation of the solar farm structures and the elevation at the developed area does not appear to vary significantly relative to the surrounding properties, it was unlikely that fill material was brought to the Site for grading purposes and fill is not anticipated to be present at the Site.	The statement suggests that fill material is not anticipated to be present based on site elevation and historical development patterns. However, without explicit confirmation from interviews, ambiguity remains regarding whether fill was imported as a sub-base for the solar farm structures. If this question was asked during the interview process, documenting the response would eliminate uncertainty in this section.	Under Ontario Regulation 153/04, the Importation of Fill Material of Unknown Quality is classified as a Potentially Contaminating Activity (PCA) when applicable. If fill material was introduced during construction, assessing its source, composition, and potential environmental impact would be necessary. Including direct confirmation from interviews can strengthen the accuracy and transparency of the report.
16	4.3.4 Water Bodies / Page 12	Based on the review of available resources from the Ministry of Natural Resources and Forestry website on December 15, 2023, no areas of natural significance were identified at the Site or within 30 m of the Site.	Each of the nine (9) the definition of the area of natural significance should be presented and justified in this section. This section is incomplete. According to O.Reg 153/04, "areas of natural significance" means any of the following: *1. An area reserved or set apart as a provincial park or conservation reserve under the Provincial Parks and Conservation Reserves Act, 2006.* *2. An area of natural and scientific interest (life science or earth science) identified by the Ministry of Natural Resources as having provincial significance.* *3. A wetland identified by the Ministry of Natural Resources as having provincial significance.* *4. An area designated by a municipality in its official plan as environmentally significant, however expressed, including designations of areas as environmentally sensitive, as being of environmental concern and as being ecologically significant.* *5. An area designated as an escarpment natural area or an escarpment protection area by the Niagara Escarpment Plan under the Niagara Escarpment Planning and Development Act.* *6. An area identified by the Ministry of Natural Resources as significant habitat of a threatened or endangered species.* *7. An area which is habitat of a species that is classified under section 7 of the Endangered Species Act, 2007 as a threatened or endangered species.* *8. Property within an area designated as a natural core area or natural linkage area within the area to which the Oak Ridges Moraine Conservation Plan under the Oak Ridges Moraine Conservation Act, 2001 applies.*	There should be a table or similar within the body of the report why each of the nine definitions are not applicable to the Site with justification and references.

Comment #	Section/Page number	Report Statement	TULLOCH Comment	Context / Recommendations
17	4.4 Site Operating Records / Page 13	There were no records of environmental significance available for review at the time of this Phase One ESA.	The report statement should clarify whether no records of environmental significance exist or whether records were unavailable for review at the time of the Phase One ESA.	This distinction is critical to understanding whether the absence of records is due to non-existence or restricted access before the report's preparation.
18	5 - Interview/ Page 14	An interview was conducted with David Creasor, the site owner, via e-mail on December 5,2023. David Creasor has been familiar with the site for 2 years.	The interview provides limited site history based on the interviewee's 2-year familiarity with the site. To strengthen the completeness of the Environmental Site Assessment (ESA), additional site-specific questions should be incorporated to clarify potential environmental risks and site management practices, particularly regarding the solar farm and associated components. Recommended Additional Questions: - What year was the solar farm constructed? (Provides historical context for potential site modifications or contamination risks.) - Are copies or details available regarding the installed solar panels and associated transformer equipment? (Confirms whether materials or components have known environmental concerns.) - If no imported fill is present, how are the solar panels mounted to the native ground? (Ensures clarity on installation methods and whether any subsurface modifications have occurred.) - How is vegetation maintained within the solar farm? (Determines if herbicides or other environmental management practices could impact the site condition.)	Some solar farms utilize pesticides, particularly herbicides, for vegetation management. If such practices are implemented at the site, Potentially Contaminating Activity (PCA) 40—which includes pesticide manufacturing, processing, bulk storage, and large-scale applications—could be applicable under Ontario Regulation 153/04.
19	6.2.1 Site Description and Buildings /Page 15	Hydro poles were observed along the driveway.	If any of the Hydro poles had mounted transformers and they were located within the 250 m study area, they should be identified as PCAs.	
20	6.2.13 Areas of Stained Soil, Pavement or Stressed Vegetation / Page 17	Given the use of the Site as a solar farm and undeveloped land and because it is mainly covered by undisturbed vegetation, the reduced visibility of the ground surface is considered to be of low concern and is not anticipated to impact the findings and conclusions of this Phase One investigation.	Some vegetation disturbance is evident from aerial imagery for the development of the solar farm and access road.	

Comment #	Section/Page number	Report Statement	TULLOCH Comment	Context / Recommendations
21	6.2.14 Fill and Debris / Page 17	No fill was observed to be present at the Site.Given that the Site has never been developed prior to the installation of the solar farm structures and the elevation at the developed area does not appear to vary significantly relative to the surrounding properties, it was unlikely that fill material was brought to the Site for grading purposes.	Given that the Site was snow-covered at the time of the inspection as described in section 6.2.13, how were the assesors able to determine that no fill was observed at the Site? Investigation of fill could be determined during the interview process.	
22	Section 7.1 - Current and Past Uses/ Page 22	Based on our review of the inspection reports, previous environmental report and aerial photographs, the Site was first developed circa 2016 as the current solar farm.	While the review of inspection reports, previous environmental studies, and aerial photographs provides an approximate development date (circa 2016) for the solar farm, the most reliable determination of the actual construction date should be obtained through direct communication with the Site owner.	
23	Section 7.2 - Potentially Contaminating Activites (PCAs)	No, the solar farm itself is not considered to pose an environmental concern to soil and groundwater at the Site. Furthermore, the transformer associated with the solar panels was pole mounted and not placed directly on the ground. This, it is not anticipated to directly impact soil or groundwater at the Site.	Tulloch agrees with the overall determination that the Potentially Contaminating Activity (PCA) does not contribute to an Area of Potential Environmental Concern (APEC). However, the justification should explicitly confirm that no insulating fluids containing Polychlorinated Biphenyls (PCBs) are present within any components of the solar farm, including the transformer. This confirmation strengthens the environmental assessment and eliminates any remaining ambiguity.	PCBs were historically used in electrical transformers as insulating fluids, and while modern solar farm transformers are generally designed for power conversion and voltage regulation, verification is necessary to ensure compliance with Ontario Regulation 153/04. If PCBs are confirmed absent, this should be clearly stated within the report to reinforce the conclusion that no environmental risks to soil or groundwater exist due to the solar farm infrastructure.
24	Section 7.2 - Potentially Contaminating Activites (PCAs)	No, based on the significant distance (500 m) separating the actual quarry operations from the site.	Tulloch agrees.	
25	Section 7.2 - Potentially Contaminating Activites (PCAs)	Lack of information on vegetation maintenance.	Tulloch suggests that information on vegetation management processes at the solar farm be obtained to assess whether Potentially Contaminating Activity (PCA) 40—which includes pesticide manufacturing, processing, bulk storage, and large-scale applications—is applicable under Ontario Regulation 153/04.	
26	Figures	Satelitle Imagery Sources	Source and year of satelite imagery should be referenced within the Drawings.	
27	Appendix D	ERIS report Project Property	The ERIS project propoerty boundary does not match the Site boundary presented within the report. It also includes Pins 0685 and 0684.	In this case this had no impact on the overall report, however, could have created some confusion for determining on-Site vs. off-Site PCAs if any were triggered within the ERIS report.
28	Appendix K	Phase One ESA Conceptual Site Model	The CSM should be included in Section 7 of the report if following the RSC O.Reg 153/04 reporting format.	

PEER REVIEW OF THE VEGETATION MANAGEMENT PLAN

Comment #	Section/Page number	Report Statement	TULLOCH Comment	Context / Recommendations
1	General Comment		Vegetation Management Plans are not defined in the Township's Official plan, except with regard to the conservation of shorelines in Section 2.2.17(c) which would not apply in this case. Without a given definition of the intended objectives and scope of a Vegetation Management Plan, all comments herein are considered suggestions.	
2	Objectives	The Vegetation Plan sets out objectives "to establish an integrated vegetation management schedule for battery systems, utility collection lines, and access roads (as necessary) for the Project to preserve the reliability of the Project components." It seeks to "prevent outages associated with vegetation located on or near Project components, to minimize outages caused by insufficient clearances from nearby vegetation, and to implement inspection schedules, treatment schedules, and environmental controls to avoid off-site effects".		Given community concerns regarding fire risks, the proponent may consider including the mitigation of fire risks (from within and from outside of the Site) as another objective of this document. TULLOCH acknowledges that the Proponent has also undertaken a Hazard Mitigation Analysis report (not reviewed by this reviewer); there may be opportunities to draw a more direct connection between the role of vegetation management and hazard mitigation.
3	Vegetated Setbacks	The Vegetation Plan sets out a 30m vegetated setback from the BESS facility, and the facility is situated on a concrete surface.	This 30m setback appears to align closely with mitigations provided in Section 7.5.1.1 of Ontario's Wildland Fire Risk Assessment and Mitigation Reference Manual. This Manual recommends that all vegetation be set back at least 10m from structures to prevent surface fires, followed by 20m of modified vegetation to avoid high-intensity and crowning fires. The Manual refers to these areas as Priority Zones 1 and 2, respectively.	Given community concerns regarding fire risks, the proponent may consider clarifying how their vegetation management plan aligns with these provincial best practices. The proponent may also consider if any Priority Zone 3 vegetation management (areas 30-100m of a structure) is warranted for this Site.
4	Maintenance Schedual	A maintenance schedule is provided that includes approximately four annual mows, with a goal of keeping grasses below 12-18 inches.	We question if grass of this height within the 30m vegetative setback has the potential to facilitate ground-level fires under dry conditions.	We recommend the Proponent clarify to what standard grasses should be maintained to prevent the spread of ground-level fires and whether the present mowing schedule will be adequate to meet that standard.

ATTACHMENT II

Statement of Qualifications

Kelly Major, M.Sc. EP is a Senior Terrestrial Ecologist and certified Environmental Professional (EP) at TULLOCH Engineering. He has worked as a biologist throughout Ontario for nearly 15 years in the consulting, government, and academic sectors. He began his career as a community ecologist with several academic journal and MNR policy publications to his credit.

As a consultant, Mr. Major is TULLOCH's terrestrial technical lead with specialties in environmental impact assessment, species at risk, Natural Heritage, and wetland evaluation. He has participated in over 350 projects, working with industry and public sector clients to find feasible and reasonable solutions that allow their projects to proceed in compliance with environmental legislation, regulatory policies and general best practices.

Mr. Major is recognized by the MNR as formally trained in the Ontario Wetland Evaluation System (OWES) and the Ontario Ecological Land Classification (ELC) system. He is also recognized by the MTO as RAQS certified in the Natural Sciences. He has served as an expert witness in LPAT tribunals.

Adam Kvas, P.Eng is a Project Engineer at TULLOCH Engineering. Adam is an environmental engineer with extensive experience in various programs across all Ontario, including extensive time spent on active mines and abandoned mines. He has specialized in subsurface investigations, remediation of contaminated soils and groundwater, and regulatory compliance monitoring in remote locations.

Adam possesses a wide range of skills, including project coordination, hydrogeological and hydrology assessments, developing specification packages, contract administration, technical report writing, and has managed hundreds of projects. His expertise includes performing small-scale landfill capacity surveys, expansion designs, site decommissioning, site remediation, remedial options analysis, cost estimates and regulatory compliance monitoring.

TULLOCH
ENGINEERING

Appendix B Vascular Plant List

Environmental Impact Study (EIS)

219 Peggs Mountain Road, Armour

SolarBank Corporation

SLR Project No.: 209.065266.00001

July 15, 2025

Family	Scientific Name	Common Name	S Rank	COSEWIC Status	SAR Schedule 1 Status	SARO Status	Coefficient of Conservatism	Coefficient of Wetness
Aceraceae	*Acer rubrum*	Red Maple	S5				4	0
Aceraceae	*Acer saccharum*	Sugar Maple	S5				4	3
Apocynaceae	*Asclepias syriaca*	Common Milkweed	S5				0	5
Asteraceae	*Achillea millefolium*	Common Yarrow	SNA					3
ASTERACEAE	*Hieracium sp.*	Hawkweed Species						
Asteraceae	*Leucanthemum vulgare*	Oxeye Daisy	SNA					5
ASTERACEAE	*Solidago sp.*	Goldenrod Species						
Asteraceae	*Taraxacum officinale*	Common Dandelion	SNA					3
Betulaceae	*Betula alleghaniensis*	Yellow Birch	S5				6	0
Betulaceae	*Betula papyrifera*	Paper Birch	S5				2	3
Betulaceae	*Ostrya virginiana*	Eastern Hop-hornbeam	S5				4	3
CAPRIFOLIACEAE	*Sambucus sp.*	Elderberry Species						
Cupressaceae	*Juniperus communis*	Common Juniper	S5				4	3
CYPERACEAE	*Carex sp.*	Sedge Species						
DRYOPTERIDACEA	*Dryopteris sp.*	Wood Fern Species						
Dryopteridaceae	*Onoclea sensibilis*	Sensitive Fern	S5				4	-3
Fabaceae	*Trifolium pratense*	Red Clover	SNA					3
Fabaceae	*Vicia cracca*	Tufted Vetch	SNA					5
Fagaceae	*Fagus grandifolia*	American Beech	S4				6	3
Iridaceae	*Sisyrinchium montanum*	Strict Blue-eyed-grass	S5				4	0
Liliaceae	*Allium tricoccum*	Wild Leek	S4				7	3
Liliaceae	*Erythronium americanum*	Yellow Trout-lily	S5				5	5
Liliaceae	*Trillium erectum*	Red Trillium	S5				6	3
Pinaceae	*Abies balsamea*	Balsam Fir	S5				5	-3
Pinaceae	*Larix laricina*	Tamarack	S5				7	-3
Pinaceae	*Picea glauca*	White Spruce	S5				6	3
Pinaceae	*Pinus sylvestris*	Scots Pine	SNA					3
Pinaceae	*Tsuga canadensis*	Eastern Hemlock	S5				7	3
Poaceae	*Phleum pratense*	Common Timothy	SNA					3
POACEAE	*Poa sp.*	Bluegrass Species						
Rosaceae	*Fragaria vesca*	Woodland Strawberry	S5				4	3
ROSACEAE	*Prunus sp.*	Cherry Species						
Rosaceae	*Rubus idaeus*	Red Raspberry	S5				2	3

Rosaceae	*Rubus occidentalis*	Black Raspberry	S5				2	5
Rosaceae	*Spiraea alba*	White Meadowsweet	S5				3	-3
Salicaceae	*Populus tremuloides*	Trembling Aspen	S5				2	0

Appendix C SAR Screening Table

Environmental Impact Study (EIS)

219 Peggs Mountain Road, Armour

SolarBank Corporation

SLR Project No.: 209.065266.00001

July 15, 2025

NAME	SARA STATUS	SARO	COSEWIC	SCHEDULE	S-RANK	HABITAT REQUIREMENTS	SOURCE OF RECORD	HABITAT PRESENT (P/N)	RATIONALE	POTENTIAL IMPACTS AND MITIGATION
AVIFAUNA										
Bank Swallow (*Riparia riparia*)	THR	THR	THR	1	S4B	The Bank Swallow is threatened by loss of breeding and foraging habitat, destruction of nesting habitat and widespread pesticide use. Bank swallows are small songbirds with brown upperparts, white underparts and a distinctive dark breast band. It averages 12 cm long and weighs between 10 and 18 grams. The swallow can be distinguished in flight from other swallows by its quick, erratic wing beats and its almost constant buzzy, chattering vocalizations. They nest in burrows in natural and human-made settings where there are vertical faces in silt and sand deposit, including banks of rivers and lakes, active sand and gravel pits or former ones where the banks remain suitable. The birds breed in colonies ranging from several to a few thousand pairs (Ministry of Natural Resources and Forestry, 2014).	OBBA, 2025; eBird, 2024	N	No suitable vertical face habitats are present on the Site.	None anticipated.
Barn Swallow (*Hirundo rustica*)	THR	SC	SC	1	S4B	The Barn Swallow is found throughout southern Ontario, and can range into the north as long as suitable nesting locations can be found. These birds prefer to nest within human made structures such as barns, bridges, and culverts. Barn Swallow nests are cup-shaped and made of mud; they are typically attached to horizontal beams or vertical walls underneath an overhang. A significant decline in populations of this species has been documented since the mid-1980s, which is thought to be related to a decline in prey. Since the Barn Swallow is an aerial insectivore, this species relies on the presence of flying insects at specific times during the year. Changes in building practices and materials may also be having an impact on this species (Ministry of Natural Resources and Forestry, 2015).	OBBA, 2025; eBird, 2024	N	No human-made structures are present on the Site.	None anticipated.
Bobolink (*Dolichonyx oryzivorus*)	THR	THR	SC	1	S4B	The Bobolink is found in grasslands and hayfields, and feeds and nests on the ground. This species is widely distributed across most of Ontario; however, are designated at risk because of rapid population decline over the last 50 years (Ministry of Natural Resources and Forestry, 2014). The historical habitat of the bobolink was tallgrass prairie and other natural open meadow communities; however, as a result of the clearing of native prairies and the post-colonial increase in agriculture, bobolinks are now widely found in hayfields. Due to their reproductive cycle, nesting habits, and use of agricultural areas, bobolink nests and young are particularly vulnerable to loss as a result of common agricultural practices (i.e. first cut hay).	OBBA, 2025; eBird, 2021	N	Not detected during breeding bird surveys.	None anticipated.
Canada Warbler (*Cardellina canadensis*)	THR	SC	SC	1	S5B	The Canada Warbler is found in a variety of forest types, but is most abundant in moist, mixed forests with a well-developed, dense shrub layer. This species can also be locally abundant in regenerating forests following natural or anthropogenic disturbances. Nests are usually located on or near the ground on mossy logs, and along stream banks. In Canada, habitat loss due to conversion of swamp forests, agricultural activities and road development have contributed to the species' significant long-term decline, and its special concern designation. A reduction in forests with a well-developed shrub-layer has also likely impacted Canada warblers throughout their breeding range in Ontario (Committee on the Status of Endangered Wildlife in Canada, 2008).	OBBA, 2025; eBird, 2024	N	Not detected during breeding bird surveys.	None anticipated.
Chimney Swift (*Chaetura pelagica*)	THR	THR	THR	1	S3B	The Chimney Swift is a threatened species which breeds in Ontario and winters in northwestern South America. It is found mostly near urban areas where the presence of chimneys or other manmade structures provide nesting and roosting habitat. Prior to settlement, the Chimney Swift would mainly nest in cave walls and hollow tress. The Chimney Swift initially benefitted from human settlement; however, recent declines in flying insects and the modernization of chimneys are factors attributed to their current population declines. As a threatened species, the Chimney Swift receives protection for both species and habitat under the ESA (Ministry of Natural Resources and Forestry, 2014).	OBBA, 2025; eBird, 2024	N	Suitable structures are not present within the Site.	None anticipated.
Common Nighthawk (*Chordeiles minor*)	SC	SC	SC	1	S4B	The Common Nighthawk is an extremely well camouflaged bird that inhabits gravel beaches, rock outcrops and burned woodlands, that have little to no ground vegetation. This species can also be found in highly disturbed locations such as clear cuts, mine tailings areas, cultivated fields, urban parks, gravel roads, and orchards. As an insectivore, the primary threat to this species is the widespread application of pesticides (Ministry of Natural Resources and Forestry, 2015). Special concern species do not receive habitat protection under the ESA.	OBBA, 2025; eBird, 2023	N	Dense understory vegetation in areas of open canopy are unfavourable to this species.	None anticipated.
Eastern Meadowlark (*Sturnella magna*)	THR	THR	THR	1	S4B,S3N	The Eastern Meadowlark is a bird that prefers pastures and hayfields, but is also found to breed in orchards, shrubby fields and human use areas such as airports and roadsides. Eastern meadowlarks can nest from early May to mid-August, in nests that are built on the ground and well-camouflaged with a roof woven from grasses. The decline in population of these species is thought to be at least partially related to habitat destruction and agricultural practices (Ministry of Natural Resources and Forestry, 2014).	OBBA, 2025; eBird, 2024	N	Not detected during breeding bird surveys.	None anticipated.

Eastern Wood-Pewee (*Contopus virens*)	SC	SC	SC	1	S4B	The Eastern Wood-pewee is classified as a species of special concern by COSSARO. Their population has been gradually declining since the mid-1960's (The Cornell Lab of Ornithology, 2015). The Eastern Wood-pewee is a "flycatcher", a bird that eats flying insects, that lives in the mid-canopy layer of forest clearings and edges of deciduous and mixed forests. It prefers intermediate-age forest stands with little understory vegetation. Threats to the population are largely unknown; however, causes may include loss of habitat due to urban development and decreases in the availability of flying insect prey (Ministry of Natural Resources and Forestry, 2014).	OBBA, 2025; eBird, 2021	N	Not detected during breeding bird surveys.	None anticipated.
Evening Grosbeak (*Coccothraustes vespertinus*)	SC	SC	SC	1	S4	The Evening Grosbeak nests in coniferous-dominated forests across northern Ontario, as far south as the Georgian Bay. It depends heavily on Spruce Budworm as its main food source. Potential threats to this species include window strikes, habitat loss from forestry, climate change impacts on habitat, collisions with vehicles, and budworm control measures.	OBBA, 2025; eBird, 2023	N	Not detected during breeding bird surveys.	None anticipated.
Golden-winged Warbler (*Vermivora chrysoptera*)	THR	SC	THR	1	S3B	The Golden-winged Warbler is classified as a species of special concern by COSSARO. It is a small grey songbird, with yellow patches on its wings and forehead. Nests are built on the gound, in areas with young shrubs surrounded by mature forest. Threats to the species include habitat loss, hybridization with blue-winged warblers, and nest parasitism by brown-headed cowbirds (Ministry of Natural Resources and Forestry, 2014).	OBBA, 2025; eBird, 2021	N	Not detected during breeding bird surveys.	None anticipated.
Lesser Yellowlegs (*Tringa flavipes*)	-	THR	SC	-	3S4B,S5	Lesser Yellowlegs is a migratory shorebird. It breeds mainly in boreal wetlands and typically nests on dry ground near wetland areas like peatlands and marshes, which are used for foraging (Government of Canada, 2023).	eBird, 2023	N	No wetland environments are mapped on the Site.	None anticipated.
Olive-sided Flycatcher (*Contopus cooperi*)	SC	SC	SC	1	S4B	The Olive-sided Flycatcher is most often found along natural forest edges and openings. It will use forests that have been logged or burned, if there are ample tall snags and trees to use for foraging perches. Olive-sided flycatchers' breeding habitat usually consists of coniferous or mixed forest adjacent to rivers or wetlands. In Ontario, Olive-sided flycatchers commonly nest in conifers such as White and Black Spruce, Jack Pine and Balsam Fir.	OBBA, 2025	N	Although the Site contains edge forest habitat, forest communities are not adjacent to wetlands or streams.	None anticipated.
Peregrine Falcon (*Falco peregrinus*)	SC	SC	-	1	S4	The Peregrine Falcon is a species of Special Concern in Ontario because of habitat loss and destruction, disturbance and persecution by people, and environmental contaminants. Peregrine falcons are medium sized birds of prey, with a blue back, cream-coloured chest covered in dark markings and bright yellow legs and feet. It can be found nesting on tall, steep cliff ledges close to large bodies of water. The majority of Ontario's breeding population is found around Lake Superior in northwestern Ontario (Ministry of Natural Resources and Forestry, 2014).	eBird, 2022	N	The Site does not contain cliff habitat, and the species is at the edge of its range.	None anticipated.
Rusty Blackbird (*Euphagus carolinus*)	SC	SC	SC	1	S4B,S3N	The breeding range of Rusty Blackbird in Ontario is concentrated in the Hudson Bay Lowlands and northern Boreal Sheild ecozones. It breeds in wet forests, including areas with fens, bogs, muskeg, and beaver ponds. The Rusty Blackbird winters in swamps, wet woodlands, and pond edges, and often forages on agricultural lands. Declines in this species' population may be a result of habitat loss and extermination programs in its wintering habitat where it forms large aggregations.	eBird, 2021	N	No wetland environments are mapped on the Site, and the species is at the edge of its breeding range.	None anticipated.

Wood Thrush (*Hylocichla mustelina*)	THR	SC	THR	1	S4B	The Wood Thrush is a species of Special Concern because of habitat degradation or destruction by anthropogenic development. The Wood Thrush is a medium-sized songbird, generally rusty-brown on the upper parts with white under parts and large blackish spots on the breast and sides, and about 20 cm long. The Wood Thrush forages for food in leaf litter or on semi-bare ground, including larval and adult insects as well as plant material. They seek moist stands of trees with well-developed undergrowth in large mature deciduous and mixed (conifer-deciduous) forests. The Wood Thrush flies south to Mexico and Central America for the winter (Ministry of Natural Resources and Forestry, 2014).	OBBA, 2025	N	Not detected during breeding bird surveys.	None anticipated.
HERPTILES										
Blanding's Turtle (*Emydoidea blandingii*)	END	THR	END	1	S3	Blanding's turtles are threatened in Ontario primarily as a result of habitat loss and fragmentation. Blanding's turtles spend the majority of their life cycle in the aquatic environment, using terrestrial sites for travel between habitat patches and to lay clutches of eggs. These turtles prefer shallow nutrient rich water with organic sediment and dense vegetation. Blanding's turtles nest in dry coniferous and mixed forest habitats, as well as fields and roadsides (Government of Canada, 2015).	ORAA, 2025	N	No wetland environments or open water are mapped on the Site.	None anticipated.
Eastern Hog-Nosed Snake (*Heterodon platirhinos*)	THR	THR	THR	1	S3	The eastern hog-nosed snake (Heterodon platirhinos) is classified as a threatened species by COSSARO, and is one of Ontario's most interesting reptiles, with a very unique defence system. The eastern hog-nosed, if challenged by a predator, rises to strike in a way that is reminiscent of a cobra, and then proceeds to roll onto it's back and play dead. Despite its somewhat threatening appearance, the eastern hog-nosed snake is a harmless predator of many amphibians. Eastern hog-nosed snakes prefer sandy well drained habitats such as beaches and dry forests because they lay their eggs and hibernate in these areas. The main diet of this snake is toads and frogs, so they usually stay close to water including marshes and swamps, where they have an increased chance of finding their preferred prey (Ministry of Natural Resource and Forestry, 2014).	ORAA, 2025	N	No suitable habitat present.	None anticipated.
Snapping Turtle (*Chelydra serpentina*)	SC	SC	SC	1	S4	The snapping turtle is a species of special concern in Ontario due to the potential for the species to become threatened or endangered as a result of biological factors or other identified threats. While not presently protected by law, the snapping turtle has been recognized as a species of special concern by COSSARO. Snapping turtles spend the majority of their lives in water and travel slightly upland to gravel or sandy embankments or beaches to lay their eggs (Ontario Ministry of Natural Resources and Forestry, 2014).	ORAA, 2025	N	No suitable wetland habitat present.	None anticipated.
VASCULAR PLANTS										
Black Ash (*Fraxinus nigra*)	-	END	THR	-	S4	Found throughout Ontario in moist ecosystems; commonly found in northern swampy woodlands (MNRF 2018). This species typically grows on mucky or peaty soils and is considered a facultative wetland species (Reznicek et al. 2011).	Professional Experience	N	No suitable wetland habitat present.	None anticipated.
MAMMALS										
Eastern Red Bat (*Lasiurus borealis*)	-	END	END	-	S3	Eastern red bats roost in the foliage of deciduous or sometimes evergreen trees and occassionally in shrubs (Bat Conservation International, 2024; COSEWIC, 2024). Trees used as maternity roosts tend to be large diameter and tall, reaching or exceeding the height of the surrounding canopy. Their solitary roosting behaviour and well-camouflaged fur results in roosts being highly cryptic. Roost sites that have overhead foliage for cover and open flight space below are selected. Eastern red bats typically uses several trees during the breeding season (COSEWIC, 2024).	Professional Experience	N	Not detected during acoustic monitoring.	None anticipated.
Hoary Bat (*Lasiurus cinereus*)	-	END	END	-	S3	Hoary bats roost solitarily amoung the foliage of trees, with preferences including maple, oak, ash, elder, hemlock, and redwood trees (Bat Conservation International, 2024). Trees used as maternity roosts tend to be large diameter and tall, reaching or exceeding the height of the surrounding canopy. There is little information regarding roost switching and roost area for Hoary Bats (COSEWIC, 2024).	Professional Experience	Y	Detected during acoustic monitoring	Timing windows (vegetation and/or structure removal outside of the active period for this species), in consultation with the MECP, are recommended following field surveys.
Silver-haired Bat (*Lasionycteris noctivagans*)	-	END	END	-	S3	Silver-haired Bats occurs primarily under bark and in the cavities of trees, making them reliant on habitats where large, decaying trees are available. Silver-haired Bats roost in a variety of large diameter coniferous and deciduous trees. Frequent roost switching is common (COSEWIC, 2024).	Professional Experience	Y	Detected during acoustic monitoring	Timing windows (vegetation and/or structure removal outside of the active period for this species), in consultation with the MECP, are recommended following field surveys.

Tri-colored Bat (*Perimyotis subflavus*)	END	END	END	1	S3?	Tri-colored Bat is a small bat that is widely distributed in eastern North America and whose range extends north to southern Ontario. Tri-colored Bat is rare in this region of Ontario which is at the northernmost limit of the natural range for the species. These bats prefer to nest in foliage, tree cavities and woodpecker holes, and are occasionally found in buildings; though this is not their preferred habitat. Winter hibernation takes place in caves, mines and deep crevices. Tri-colored Bat feed primarily on small insects and prefer an open forest habitat type in proximity to water (University of Michigan Museum of Zoology, 2004).	Professional Experience	N	Not detected during acoustic monitoring.	None anticipated.
Eastern Small-footed Myotis (*Myotis leibii*)	-	END	-	-	S2S3	The eastern small-footed myotis, a bat, are an endangered species threatened by a disease known as white nose syndrome, caused by a fungus from Europe. Eastern small-footed myotis' fur has black roots and shiny light brown tips, giving it a yellowish-brown appearance. Its face mask, ears and wings are black, and its underside is grayish-brown, about 8 cm long in size and weighs 4-5 grams. In the spring and summer, eastern small-footed myotis will roost in a variety of habitats, including in or under rocks, in rock outcrops, in buildings, under bridges, or in caves, mines, or hollow trees. They change their roosting locations daily and hunt at night for insects to eat, including beetles, mosquitos, moths, and flies. They hibernate in winter, often in caves and abandoned mines. They can be found from south of Georgian Bay to Lake Erie and east to the Pembroke area, and choose colder and drier sites (Ministry of Natural Resources and Forestry, 2014).	Professional Experience	P	One recording of a Myotis sp. was noted during acoustic monitoring. Species identification was not possible	Timing windows (vegetation and/or structure removal outside of the active period for this species), in consultation with the MECP, are recommended following field surveys.
Little Brown Myotis (*Myotis lucifugus*)	END	END	END	1	S3	Little brown myotis, a bat, are an endangered species threatened by a disease known as white nose syndrome, caused by a fungus from Europe. Little brown myotis have glossy brown fur and usually weigh between four and 11 grams. Bats are nocturnal. During the day they roost in trees and buildings. They often select attics, abandoned buildings and barns for summer colonies where they can raise their young. Little brown myotis hibernate from October or November to March or April, most often in caves or abandoned mines that are humid and remain above freezing – an ideal environment for the fungus to grow and flourish. The syndrome affects bats by disrupting their hibernation cycle, so that they use up body fat supplies before the spring when they can once again find food sources (Ministry of Natural Resources and Forestry, 2014).	Professional Experience	P	One recording of a Myotis sp. was noted during acoustic monitoring. Species identification was not possible	Timing windows (vegetation and/or structure removal outside of the active period for this species), in consultation with the MECP, are recommended following field surveys.
Northern Myotis (*Myotis septentrionalis*)	END	END	END	1	S3	Northern myotis, a bat, are an endangered species threatened by a disease known as white nose syndrome, caused by a fungus from Europe. Northern myotis have dull yellow-brown fur with pale grey bellies. They are approximately eight cm long, with a wingspan of about 25 cm, and usually weigh six to nine grams. Northern myotis can be found in boreal forests but occurs throughout southern Ontario to the north shore of Lake Superior and occasionally as far north as Moosonee. roosting under loose bark and in the cavities of trees. Northern Myotis roosts within tree crevices, hollows and under the bark of live and dead trees, particularly when trees are located within a forest gap. These bats hibernate from October or November to March or April, most often in caves or abandoned mines (Ministry of Natural Resources and Forestry, 2014).	Professional Experience	P	One recording of a Myotis sp. was noted during acoustic monitoring. Species identification was not possible	Timing windows (vegetation and/or structure removal outside of the active period for this species), in consultation with the MECP, are recommended following field surveys.
INSECTS										
Monarch Butterfly (*Danaus plexippus*)	END	SC	END	1	S2N,S4B	The monarch is an orange and black butterfly with small white spots and is classified as a species of special concern by COSSARO. The monarch relies on milkweed plants as a food source for growing caterpillars, but the adult butterflies forage in diverse habitats for nectar from wildflowers. The greatest threat to the monarch is loss of overwintering habitat in Mexico. Other threats include use of pesticides and herbicides throughout its range (Ministry of Natural Resources and Forestry, 2014).	OBA, 2025	Y	Common Milkweed, this species' host plant, found within the Study Area.	Habitat protection does not apply to Special Concern Species. Minimize disturbance within meadow community as much as possible.

Notes:
SC - Special Concern
THR - Threatened
END - Endangered
S1 - Extremely rare in Ontario
S2 - Very rare in Ontario
S3 - Rare to uncommon in Ontario
S4 - Considered to be common in Ontario
S5 - Species is widespread in Ontario
SH - Possibly extirpated
S#S# - Indicates insufficient information exists to assign a single rank.
S#? - Indicates some uncertainty with the classification due to insufficient data.
S#N - Nonbreeding
S#B - Breeding
Y= Yes, P = Potential, N = No

Appendix D SWH Screening Table

Environmental Impact Study (EIS)

219 Peggs Mountain Road, Armour

SolarBank Corporation

SLR Project No.: 209.065266.00001

July 15, 2025

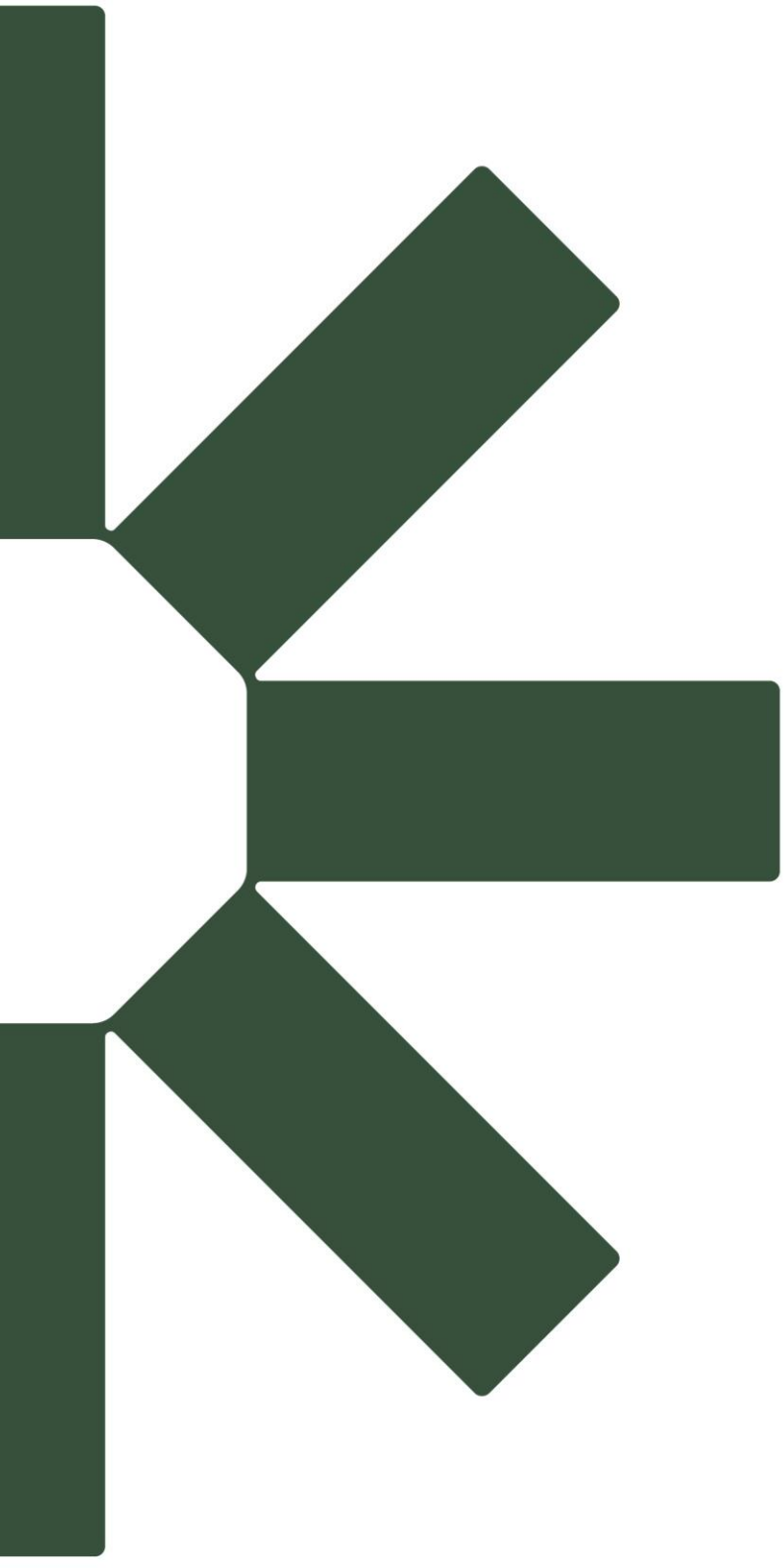
Project No.: **Date:** **Sheet No.:**

Observer(s): **Weather:**

SWH Type	Associated Species	Associated ELC Ecosites	Habitat Criteria	Presence (Y/P/N)	Additional Notes
Seasonal Concentration Areas of Animals					
Waterfowl Stopover and Staging Areas (Terrestrial)	Ducks	Fields, Meadows, Sparse Shrubs: G060-062, G077-079, C093-095, G109-111	Fields with sheet-water flooding mid-March to May	N	
Waterfowl Stopover and Staging Area (Aquatic)	Ducks, Geese	G142-152: Ponds, Lakes, Inlets, Marshes, open/shrubby fens, Shallow Water Ecosites	Sewage & SWM ponds **not** SWH. Reservoir managed as a large wetland or pond/lake qualifies.	N	
Shorebird Migratory Stopover Area	Shorebirds	G005-006, G160-162, G170-172, G176-178, G186-188, G204-G214: Beaches, Shorelines	Shorelines. Sewage treatment ponds and storm water ponds **not** SWH.	N	
Raptor Wintering Area	Hawks, Owls	Combination of Forest and meadow/field. Woodland Ecosites: G011-019, 023-028, 033-043, 048-059, 064-076,081-092, 097-108, 113-125	Raptor wintering sites: >20ha, with a combo of forest and upland. Meadow (>15ha) with adjacent woodlands.	Y	Large tracts of undisturbed forest exist within the southern extent of the Subject Property and surorunding lands. Any impacts from development are expected to be negligible.
Bat Hibernacula	Big Brown Bat, Tri-coloured Bat	Caves, Rock Talus: G158-159, 164, 180-181	Cave, Mines, Karsts. Buildings and active mine sites **not** SWH.	N	
Bat Maternity Colonies	Big Brown Bat, Silver-haired Bat	Decidious or mixed forests: G016-019, 028, 040-043, 055-059, 070-076, 088-092, 103-108, 118-125	Mature deciduous and mixed forest stands with >10/ha cavity trees >25 cm DBH.	N	Study Area contains younger and regenerating forests with very low snag density.
Turtle Wintering Area	Turtles	Swamps, Open fens & marshes, Open and shallow water: G128-G135, G140-G152	**Free water beneath ice**. Soft mud substrate. Permanent water bodies, large wetlands, bogs, fens with adequate DO.	N	
Reptile Hibernaculum	Snakes	Habitat may be found in any ecosite (esp. w/ rock) other than very wet ones. **Five-lined Skink:** G056-G059, G070-G076, G087-G092, G103-G108, G118-G125	**Access below frost line:** burrows; **rock** crevices, piles or slopes, **stone** fences or foundations. Conifer/shrubby swamps/swales, poor fens, depressions in bedrock w/ accumulations of sphagnum moss or sedge hummock ground cover.	N	
Colonially-nesting Bird Breeding Habitat (Bank and Cliff)	Cliff Swallow, Northern Rough-winged Swallow	Eroding banks, sandy hills, borrow pits, steep slopes, sand piles, cliff faces, bridge abutments, silos, barns. (long G-list)	Exposed soil banks, sandy hills, borrow pits, steep slopes, and sand piles that are undisturbed or naturally eroding. **Not** a licensed/permitted aggregate area.	N	
Colonially-nesting Bird Breeding Habitat (Tree/Shrubs)	Great Blue Heron, Black-crowned Night Heron	Forested Ecosites: G064-G076, G081-G092, G097-G108, G113-G125, G128-G136	Nests in live or dead standing trees in wetlands, lakes, islands and peninsulas. Shrubs and emergents may be used. Nests in trees are 11 to 15 m from ground, near top of the tree.	N	
Colonially-nesting Bird Breeding Habitat (Ground)	Herring Gull, Great Black-backed Gull, Little Gull, Ring-billed Gull, Common Tern, Caspian Tern, Brewer's Blackbird	Rocky island or peninsula in lake or river. Close to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird). (long G-list)	**Gulls and terns:** on islands or peninsulas with open water or marshy areas. **Brewers Blackbird colonies:** foundon the ground in low bushes close to streams and irrigation ditches.	N	
Deer Yarding Areas	White-tailed Deer	All Tall Treed forest and swamp Ecosites.	Determined by MNRF - no studies	N	
Rare Vegetation Communities					
Beach/Beach Ridge/Bar/Sand Dunes	Marram Grass (*Ammophila breviligulata),* Beach Pea (*Lathyrus japonicus*)	Central Ontario FEC: ES1, ES2. ELC Ecosites: G005-G006, G166-G168, G182-G184, G213-214	Characterized by unstable sand: Any identified beach, beach ridge, or sand dune.	N	
Shallow Atlantic Coastal Marsh	Virginia Meadowbeauty (*Rhexia virgininica*)	G143-G145, G148-G152	Shallow marsh on shallow mineral or mineral organic shoreline. Subject to low wave energy. Inland lakes and beaver ponds with fluctuating water levels.	N	
Cliffs and Talus Slopes	In 5E: primarily Precambrian rock and are typically sparsely vegetated.	Ecosites: G158-159, G166-G168, G173-G175, G182-G184, G201-G203	**Cliff:** near vertical bedrock >3m **Talus Slope:** coarse rock rubble at the base of a cliff	N	
Rock Barren (Precambian)	Dry and ericacious species: Common species in Criteria guide	G163-G165, G179-G181 Central Ontario Forest Ecosites: ES8	Vegetation patchy but < 60%. Must be > 1ha.	N	
Sand Barren	Veg list in Criteria Guide	G007, G215 Central Ontario Forest Ecosites: ES10	No minimum size. Vegetation can vary from patchy and barren to tree covered, but <60%. Exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion.	N	
Alvar	*Penstemon hirsutus, Panicum philadelphicum, Scutellaria parvula, Rhus aromatica, Monarda fistulosa, Senecio pauperculus*	S. Ontario Sites: ALO1, ALS1, ALT1, FOC1, FOC2, CUM2, CUS2, CUT2-1, CUW2 Central Ontario Ecosites: ES13.1, ES14.1, ES16.1, ES21.1, ES9	Alvar >0.5 ha. Vegetation cover varies from patchy to barren with <60% tree cover.	N	

Old Growth Forest		Ecosites: G011-G015, G017-G018, G023, G027, G033, G036, G039-G042, G048, G051, G054-G058, G064, G066, G069, G071-G075, G081, G084, G087, G089-G091, G103, G105-G107, G113, G115, G118, G120-G124 Central Ontario Forest Ecosites: ES11, ES12, ES14, ES20, ES21-ESES30	Woodland areas 30 ha or greater in size or with at least 10 ha interior habitat assuming 100 m buffer at edge of forest.	N	
Bog	*Sphagnum* moss	G126, G137-G138	Any size bog.	N	
Tallgrass Prairie	Big Blue Stem (*Andropogon gerardi*) Prairie Cordgrass (*Spartina pectinata*)	TPO1, TPO2 Central Ontario Ecosite: ES10	An open Tallgrass Prairie habitat has < 25% tree cover. No minimum size. Remnant sites such as railway right of ways **not** SWH.	N	
Savannah		TPS1, TPS2, TPW1, TPW2, CUS2	A Savannah is a tallgrass prairie habitat that has tree cover between 25 – 60%. No minimum size.	N	
Red Spruce	Red Spruce (*Picea rubens*)	G036, G051, G066, G084, G086, G100, G102, G116, G117. Central Ontario Forest Ecosites: ES 30.1, ES 30.2	Red Spruce is a shade tolerant conifer, growing best in cool, moist climate. It will grow in shallow, till soils any may grow on site unfavourable to other species such as organic soil over rock, steep slopes and wet bottomlands. No minimum size.	N	
White Oak	White Oak (*Quercus alba*)	G017, G041, G057, G072, G090, G106, G121. Central Ontario Forest Ecosites: ES 14.1, ES 14.2	Forest stands containing white oak trees. No minimum size.	N	
Specialized Habitat for Wildlife					
Waterfowl Nesting Area	Ducks	Upland habitats adjacent to: G129-G135, G142-G152. Note: includes adjacency to PSW	Extends 120 m from a wetland (>0.5 ha) or a cluster of 3 or more small wetlands (<0.5 ha) . Upland areas should be at least 120 m wide. Wood Ducks and Hooded Mergansers use cavity trees (>40cm dbh).	N	
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	Osprey, Bald Eagle	Forest communities directly adjacent to riparian areas - river, lakes, ponds and wetland	Nesting areas are associated with waterbodies along forested shorelines, islands, or on structures over water. Nests located on man-made objects are not included as SWH.	N	
Woodland Raptor Nesting Habitat	Red-taild Hawk, Great Horned Owl, Merlin, Northern Goshawk, Cooper's Hawk, Sharp-shinned Hawk, Red-shouldered Hawk, Barred Owl, Broad-winged Hawk	All forested ecosites. May also be found in forested swamps G128-G133.	>30 ha with > 10 ha interior habitat.	Y	Large tracts of undisturbed forest exist within the southern extent of the Subject Property and surorunding lands. Any impacts from development are expected to be negligible.
Turtle and Lizard Nesting Areas	Midland Painted Turtle, Snapping Turtle, Northern Map Turtle, Five-lined Skink	Turtle nesting areas may be adjacent to G138, G140-149 Five-lined Skink in Central Ontario: ES14.2, ES17-ES20, ES23-ES30 or G056-G059	Nest sites within open sunny areas, close to water with soil suitable for digging. Sand and gravel beaches. Skinks will nest under logs, in stumps or under loos rock in partially wooded areas	N	
Seeps and Springs	Wild Turkey, Ruffed Grouse, Spruce Grouse, Moose, White-tailed Deer, Salamander spp.	Seeps/Springs are areas where ground water comes to the surface. Often found within headwater areas within forested habitats.	Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream/river system.	N	
Aquatic Feeding Habitat	Moose, White-tailed Deer	Habitat may be found in any ecosite in all forested ecosites adjacent to water.	Wetlands and isolated embayments in rivers or lakes which provie an abundance of submerged aquatic vegetation are prefered. Adjacent stands of lowland conifer or mixed woods will provide cover and shade.	N	
Mineral Licks	Moose, White-tailed Deer	Habitat may be found in any ecosite in all forested ecosites.	Found in upwelling groundwater and the soil around these seepage areas. Typically occurs in areas of sedimentary and volcanic bedrock	N	
Denning Sites for Mink, Otter, Marten Fisher, and Eastern Wolf	Mink, Otter, Marten, Fisher, Grey Wolf, Eastern Wolf	Habitat may be found in any ecosite in all forested ecosites.	Mink prefer shorelines dominated by coniferous or mixed forests with dens usually underground. Otters prefer undisturbed shorelines along waterbodies with fish, abundant shrubby vegetation and downed woody debris. Marten and Fisher require large tracts of coniferous or mixed forests of mature or older age classes. Denning sites are often in cavities in large trees.	N	

Amphibian Breeding Habitat (Woodland)	Woodland Frogs, Toads, Eastern Newt and Salamanders	All forested ecosites. The wetland breeding ponds (including vernal pools) may be permanent, seasonal, ephemeral, large or small in size.	Wetland, pond or woodland pool of >500 m^2 within or adjacent to wooded areas. Permanent ponds or those containing water until mid-July are preferred.	N	
Amphibian Breeding Habitat (Wetlands)	Toads, Frogs, Eastern Newt and Salamanders	Ecosites: G129-G135, G142-G152 Typically isolated (>120m) from woodland ecosites, however larger wetlands may be adjacent to woodlands.	Wetlands and pools >500m^2 isolated from woodland ecosites with high species diversity. Permanent water with abundant vegetation for bullfrogs.	N	
Mast Producing Areas	Black Bear, White-tailed Deer, Wild Turkey, Ruffed Grouse	G015, G017, G019, G027-G028, G041-G043, G057, G059, G072, G090, G106, G108, G121 Central Ontario Forest Ecosites: ES14, ES17.1, ES23-ES26	Most important areas are mature forests >0.5ha containing numerous large beech and red oak trees that supply energy-rich mast that wildlife prefer. Sites providing long-term, relatively stable food supplies, forest openings or barrens >1ha provide excellent sites for mast producing shrubs.	N	
Habitat of Species of Conservation Concern					
Marsh Bird Breeding Habitat	Wetland Birds	Ecosites: G138-G152 For Green Heron: Above ecosites plus G129-G136	Wetlands with shallow water and emergent vegetation.	N	
Open Country Bird Breeding Habitat	Upland Sandpiper, Grasshopper Sparrow, Vesper Sparrow, Northern Harrier, Savannah Sparrow, Short-eared Owl	G008-G009, G020-G021, G029-G031, G044-G046, G060-G062, G077-G079, G093-G095, G109-111	Grassland and meadow >30 ha. Not being actively used for farming. Habitat established for 5 years or more.	N	
Shrub/Early Successional Bird Breeding Habitat	Willow Flycatcher, Brown Thrasher, Blue-winged Warbler, Tennessee Warbler, Prairie Warbler, Eastern Towhee, Clay-coloured Sparrow, Field Sparrow, Golden-winged Warbler	Ecosties: G009-G010, G021-G022, G031-G032, G046-G047, G062-G063, G079-G080, G095-G096, G111-G112, G134-G135	Large field areas succeeding to shrub and thicket habitats > 10 ha. Areas not actively used for farming in the last 5 years. Larger shrub thicket habitats (>30ha) are more likely to support a diversity of species.	N	
Special Concern and Rare Wildlife Species	Any species of concern or rare wildlife species	Any ELC code.	Presence of species of concern or rare wildlife species.	Y	Monarch butterfly.



Making Sustainability Happen