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Natural Heritage Site Investigation
Proposed Groundmount Solar Facility LP 9 and LP 10
1572 Story Road
Midhurst, ON

Project Number
WSL-00002250-00

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Date Submitted
October 2012

Legal Notification

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Southern Region Renewable Energy Operations Team Coordinator
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Chapter 1 –
Introduction & Background

1 Introduction & Background

Exp Services Inc. (**exp**) was retained by Mr. Sam Qin of Future Solar Developments Inc. to conduct a Site Investigation of natural heritage features located on and or in the surrounding areas of the proposed ground-mounted solar facility set for plots LP 9 and LP 10 located at 1572 Story Road, Midhurst, Ontario. For the purpose of this report all aspects of the proposed project layout, including the panel, road, transmission, laydown area and construction limits will be collectively identified as the "project location". The project involves the design and construction of two (2) 100 kilowatt (kW) solar farms. The proposed solar panel plot is part of a two (2) facility "cluster" at this address.

The purpose of this investigation was to identify natural heritage features located in close proximity to the proposed solar farms and to resolve any potential effect(s) that the construction activities will have on the natural environment.

1.1 Legislative Requirements

Ontario Regulation (O. Reg.) 359/09 – *Renewable Energy Approvals Under Part V.0.1 of the Act*, made under the *Environmental Protection Act* (herein referred to as the 'REA Regulation') identifies the Renewable Energy Approval (REA) requirements for renewable energy projects in Ontario. In accordance with Section 4 of the REA Regulation, ground mounted solar facilities with a name plate capacity greater than 12 kW are classified as a Class 3 solar facility and therefore, require a REA.

Section 25 of the REA Regulation requires the following natural heritage records review for Class 3 solar projects in order to identify whether the project is:

a) In or within 120 m of a provincial park or conservation reserve area;
b) In a natural feature;
c) Within 50 m of an area of natural or scientific interest (ANSI) (earth science); and,
d) Within 120 m of a natural feature that is not an ANSI (earth science).

Natural features are defined in Part 1.1 of the REA Regulation as:

a) An ANSI (earth science)
b) An ANSI (life science)
c) A coastal wetland
d) A northern wetland
e) A southern wetland
f) A valleyland
g) A wildlife habitat
h) A woodland

According to Subsection 3 of 26 the proponent (Future Solar Developments Inc.) shall conduct the following Site Investigation in order to determine the following:

a) A physical investigation of the air, land and water within 120 metres of the project location in order to determine if:
    i. the results of the analysis summarized in the "records review" report are correct or require correction , and identify any required corrections;

ii. Whether any additional natural features exist, other than those that were identified in the "records review" report;

iii. The boundaries, located within 120 metres of the project location, of any natural feature that was identified in the records review or the Site Investigation; and,

iv. The distance from the project location to the boundaries determined under clause (c).

b) The proponent must also prepare a report setting out the following as part of Subsection 3 of Section 26:

i. any corrections to the "records review" report and the determinations made as a result of conducting the Site Investigation;

ii. information that relates to each natural feature identified in the records review and in the Site Investigation including the type, attributes, composition and function of the feature.

iii. A map the shows the following features:

- The boundaries that are located within the 120 metres of the project location of any natural feature that was identified in the records review and Site Investigation;
- The location and type of each natural feature identified in relation to the project location; and,
- The distance of the boundaries from the project location.

iv. The date and time of the beginning and completion of the Site Investigation;

v. The duration of the Site Investigation;

vi. The weather conditions at the time the Site Investigation was conducted;

vii. A summary of the methods used to make the observations for the purposes of the Site Investigation;

viii. The name and qualifications of any person conducting the Site Investigation; and,

ix. Field notes kept by the person conducting the Site Investigation.

This natural heritage Site Investigation report has been prepared to meet the above requirements as presented in subsection 3 section 26 of the REA Regulation. The methodology utilized as part of the Site Investigation follow the Ontario Ministry of Natural Resources Natural Heritage Assessment Guidelines for Renewable Energy Projects dated July 2011.

1.2 Summary of Results of Records Review

The projection has been identified to contain natural features, as presented in **Table 1-1** (**exp**, 2012). The following Site Investigation will delineate the boundaries of those natural features identified.

Table 1-1: Summary of Records Review for LP 9 and LP 10

REA Regulation	Natural Heritage Feature Existence Yes/No/Unknown	Records Review Requirement
Is in or within 120 m of a provincial park or conservation reserve?	No	Ontario's Crown Land Use Policy Atlas, in addition to the OMNR records review, indicated that no provincial parks or conservation reserves are located in or within 120 m of the project locations.
Is the project located in a natural feature?	Yes	NHIC, LIO, SOP, SCOP and OMNR records indicate that natural features exist within 120 m of the project locations. Site Investigation required.
Is the project area located within 50 m of an ANSI (earth science)	No	NHIC, SOP, SCOP and OMNR records indicate that the project locations are not located within 50 m of an ANSI (earth science).
Is the project area located within 120 m of a natural feature that is not an ANSI		
a) ANSI (life science)	No	NHIC, SOP, SCOP and OMNR records indicate that the project locations are not located within 120 m of an ANSI (life science).
b) Coastal wetland	No	NHIC, SOP, SCOP and OMNR records indicate that the project locations are not located within 120 m of a coastal wetland.
c) Northern wetland	No	The project locations are not located north of Ecoregions 5E, 6E and 7E as identified in Figure 1 of the Provincial Policy Statement.
d) Southern wetland	Yes	OMNR and NVCA records indicate that wetlands are located within 120 m of the LP 10 project location. Site investigation is required to verify and delineate this feature.
e) Valleyland	Unknown	It is not known if valleyland exist within 120 m of the project locations. Site investigation is required.
f) Woodland	Yes	OMNR, Simcoe County Geo-Maps and SOLRIS indicate that woodlands are located within 120 m of both project locations. Site investigation is required to verify and delineate this feature.
g) Wildlife habitat	Unknown	It is not known if wildlife habitat exists within 120 m of the project locations. Site investigation is required.

1.3 Site Investigation

A visit to the LP 9 and LP 10 project locations was completed on January 11, 2012. Weather at the time of the visit was sunny. Temperature at the time of visit ranged from 1 to 2 °C. The Site Investigation was conducted over the course of 1.5 hours, between 11:00 AM and 12:30 PM. A second Site Investigation was completed on August 15, 2012 between 7:30 AM and 12:30 PM, with temperatures ranging between 15 and 20 °C. During the Site Investigation, incidental observations of terrestrial and aquatic wildlife and birds were noted.

Subsequent Site Investigations were completed on May 7th and June 28th to conduct frog surveys at the project locations. These Investigations were completed after sunset as per the Marsh Monitoring Program protocol (MMP). Information concerning these surveys is presented in Appendix C.

1.3.1 Name and Qualifications of Person Conducting Site Investigation

Ms. Melissa Torchia, M.A.Sc, is an ecologist that specializes in ecological inventories for sites across the province of Ontario. In this regard she is familiar with methods required for natural heritage assessments that help quantify the natural environment in support of environmental assessments, environmental impact studies and endangered species screening. She is a certified Ontario Wetland Evaluator and Arborist; in addition she has also completed natural heritage data sensitivity training provided by the Ontario Ministry of Natural Resources (OMNR). Examples of past studies include riparian habitats and forest investigations in cities such as, Brantford, Welland, Ivy Lea, Algonquin Park and Picton. These assessments were guided by the *Ontario Environmental Protection Act*, *Ontario Environmental Assessment Act*, *Ontario Endangered Species Act*, and the *Ontario Planning Act*. Melissa has also been involved with the preparation of a planting plan for the endangered species of butternut, in addition to planting plans for creek restoration projects. Melissa Torchia received her Honours Bachelor of Science degree in environmental science at York University. She then received her Master's in Applied Science degree, specializing in urban forestry from Ryerson University. Her Master's thesis focused on the use of trees to cool the urban microclimate, which was conducted in the downtown core of Toronto on the University of Toronto Campus.

Annette Maher, B.Sc., M.A.Sc. is an Environmental Scientist with exp Services Inc. in Brampton, ON. She obtained her Bachelor of Science degree in Biology from McGill University, and her Master of Applied Science degree in Environmental Applied Science and Management from Ryerson University. Her master's thesis was focused on fisheries biology and small stream ecology. Also, she completed an Advanced Diploma in Ecosystem Management Technology at Sir Sanford Fleming College.

Annette has 3 years of professional experience within the ecological and environmental industry. This experience includes natural heritage inventories for primarily terrestrial and wetland environments, developing and implementing property management and restoration plans, conducting ecological land classifications, and completing botanical and wildlife inventories. She also has experience with stream surveys. Other experience includes the supervision of volunteers and administration of community consultation events in different locales across Canada.

1.4 Property Description

The project location is located in Midhurst, Ontario, and is proposed to contain two (2) 100 kW solar plots LP 9 and LP 10. A general land classification for both LP 9 and LP 10 project location is an open field dominated by grasses and herbaceous plants. The LP 10 project location is fenced off by barbed wire. Both areas were dry and did not show signs of pooling during the August Site Investigation.

East of LP 10 is the property owner's residential dwelling. To the east of the residential dwelling is a wetland that was wet during both the January and August Site Investigations. Extending from the wetland was a treed swamp comprised of both coniferous and deciduous tree species. This area was flooded during the January Site Investigation, but

was dry during the August Site Investigation. Ground cover was dominated by water horsetail (*Equisetum fluviatile*).

This wooded area east of the residential dwelling extended around behind the LP 10 project location into the adjacent north property. Part of the north property was identified as a red pine plantation.

Throughout the central region of the property, the dominant vegetation was coniferous tree species ranging in density with various patches previously cleared through selective harvests. Those trees present along the southern edge, and hill slope consisted of a mix of coniferous and deciduous trees that ranged in age from immature to mature.

A small dugout quarry pond is located approximately 19 metres north of the LP 9 project location. This pond was surrounded by vegetation and small shrubs. It was frozen to the bottom during the January Site Investigation, but contained water during the August Investigation and provided habitat for a number of amphibians.

There was another large woodland located south of the LP 10 project location and south east of the LP 9 project location; south of Story Road. This woodland was dominated by deciduous trees, with very few coniferous species. The stand of trees was mature, with few signs of new growth. The woodland appeared to be present in a swamp, as the ground was iced over at the time of the January Site Investigation. It contained a number of wetland species that were confirmed during the August Site Investigation. There were numerous signs indicating wildlife usage, in addition to abundant fungal growth present on trees.

For natural feature boundaries refer to **Figure 1**. Photos of the project location and surrounding areas are found in Appendix A.

Chapter 2 – Methodology

2 Methodology

Natural heritage features were identified within the records review prepared by **exp** (2012), whereby, unknown and known features were further investigated to identify their presence or absence within 120 metres of the LP 9 and LP 10 project locations, as well as to delineate boundary limits.

Both project locations and lands within 120 metres were investigated by the observer on foot in order to document and characterize the natural features present. Boundaries outside 120 metres of the LP9 and LP 10 project location were also investigated in order to better understand the ecological systems present.

Photographs on and within 120 metres of both project locations were taken in order to document the vegetation communities, in addition to any other natural features that may be considered for significance. Wildlife observations were made throughout the Site Investigations either through visual sightings, auditory calls or tracks. Areas searched as part of the investigation included the identification of habitat for wildlife, in addition to habitat for species of special concern.

Chapter 3 –
Site Investigation Observation Results

3 Site Investigation Observation Results

3.1 Ecological Land Classification

The ELC is an approach that attempts to identify the distribution and groupings of plant species, and categorize, organize and name ecosystems. The goal of the Ontario ELC program is to establish a comprehensive and consistent province wide approach for ecosystem description, inventory and interpretation. When complete, the ELC can be used to improve the collective ability to manage both natural resources and the information about those resources. The following sections are components of the ELC which describes and classifies the subject Site, as identified in *Ecological Land Classification for Southern Ontario: First Approximation and Its Application*, by the Ministry of Natural Resources (Lee *et al*., 1998).

Field notes were compiled with respect to community description and classification; stand characteristics; list of plant species present; extent of disturbance; and, a description of the wildlife habitat.

Animal and plant species significance or rarity on a National and Provincial level was based on the Natural Heritage Information Centre (NHIC) database as well as standard status lists obtained from the Committee On the Status of Endangered Wildlife in Canada (COSEWIC, 2012) and Species at Risk in Ontario (SARO, 2012).

All information was applied to the ELC for Southern Ontario Field Guide (SCSS FG-02) (Lee *et al.,* 1998). The data collected was applied and compared to the various descriptions of community types found in Southern Ontario, and used to outline ecological patterns on the landscape. Descriptive standards and disturbance factors listed in the manual were applied to the field notes and physical and biological characteristics observed on or within the project location.

3.1.1 Stand Composition

A stand characteristic is the classification of a collection of plants having a relatively uniform composition and structure. The purpose of identifying the stand characteristics at a given location is to categorize the habitats present in order to determine the types of natural features and to investigate the wildlife expected to be in the area.

Both the LP 9 and LP 10 project locations contain grasses and herbaceous plants. The wetland east of the residential dwelling contained both deciduous and coniferous tree species. The canopy contained few gaps and was quite dense. Trees in this region ranged from ten (10) to 25 metres in height. There were signs of deadfall, but there were no signs of snags. The ground cover in the woodland was dominated by water horsetail.

Vegetation that existed in the middle of the property between project location LP 9 and LP 10 was dominated by coniferous tree species. There were gaps in these canopies, as routes have been created for recreational vehicle use according to the property owner. The stand of trees along the roadway; southern edge of the property, contained a mix of both deciduous and coniferous species that ranged between five (5) to 25 metres in height.

Sporadic coniferous trees had been planted just west of the LP 9 project location that ranged in height of two (2) to ten (10) metres.

3.1.2 Community Description and Classification

The organizational framework contained within the *ELC for Southern Ontario* (Lee *et al.*, 1998) protocol describes communities according to six (6) nested levels: Site Region, System, Community Class, Community Series, Ecosite, and Vegetation Type. These nested levels vary in spatial scale, with the Site Region classifying communities at the largest spatial scale, to Vegetation Type which describes communities at the finest spatial scale.

There are two (2) Site Regions in Southern Ontario, 6E and 7E (Lee *et al.,* 1998). The project location is situated within Site Region 6E, the Great Lakes – St. Lawrence Forest Region. This region is characterized as mixed forest. Dominant species associated with this region include, White pine (*Pinus strobus*), Red pine (*Pinus resinosa*), Eastern hemlock (*Tsuga canadensis*), Sugar maple (*Acer saccharum*), Red maple (*Acer rubrum*), Yellow birch (*Betula alleghaniensis*), Red oak (*Quercus rubra*), Basswood (*Tilia americana*), and American elm (*Ulmus americana*). Additional species known to this area include Eastern white cedar (*Thuja occidentalis*), Large-toothed aspen (*Populus grandidentata*), Beech (*Fagus grandifolia*), White oak (*Quercus alba*), Butternut (*Juglans cinerea*), and White ash (*Fraxinus alba*) (Lee *et al.,* 1998).

The System is an organizational level in the ELC that helps to reduce a complex natural landscape into a small number of community based units. The system identified at the property location is classified as Terrestrial.

The Community Class is useful in organizing communities into groups with similar ecological patterns and processes (Lee *et al.,* 1998). The community series breaks down community classes further, and are based on the type of vegetation cover or the plant form that make up the community, such as open, treed, or shrub; deciduous, coniferous, or mixed. The purpose of identifying the community types at a given site is to categorize the overall habitat of the area, and determine the types of natural features and wildlife expected to be at the site.

There were a number of different Community Classes present at the project location which included: Forest, Cultural and Marsh. Community Series found at the LP10 project location included Thicket and Deciduous Swamp, Plantation, Mixed forest, Mixed Swamp, Shallow Marsh and Cultural Meadow. Community Series found at the LP9 project location include Plantation, Cultural Meadow and Mixed Forest.

In addition, vegetation communities are further categorized into an Ecosite and Vegetation Type according to ELC protocol. An Ecosite is defined as “a part of an ecosection having relatively uniform parent material, soil and hydrology, and a chronosequence of vegetation” (Lee *et al*., 1998). Thus, it is a landscape unit with a consistent set of environmental factors and vegetation characteristics. Vegetation Type is the finest level of resolution in the ELC, representing plant species assemblages associated with an Ecosite.

The ecosite and vegetation communities found on and within 120 metres of the LP 9 and LP 10 project locations include:

- Deciduous Swamp (SWD)
- Thicket Swamp (SWT)
- Mineral Thicket Swamp Ecosite (SWT2)
- White Cedar- Hardwood Mineral Mixed Swamp Type (SWM1-1)
- Shallow Marsh (MAS)

- Mixed Forest (FOM)
- Cultural Plantation (CUP)
- Coniferous Plantation (CUP3)
- Scotch Pine Coniferous Plantation Type (CUP3-3)
- Dry Moist Old Field Meadow Type (CUM1-1)

For ecosite and vegetation community polygons refer to **Figure 2.**

3.1.3 Plant Community

A plant community is a unit of vegetation within a given area. Identifying a plant community within a project location is necessary to determine the type of environment present (e.g. shade-tolerant area) and to identify the type of wildlife expected to be at the project location, in addition to sensitive areas. This information will also aid in the identification of any locally, regionally or provincially rare, threatened or endangered vegetative species and communities at the project location. If identified, these species and/or communities will need to be preserved and protected.

3.1.3.1 Deciduous Swamp (SWD)

The wooded area located south of Story Road can be characterized as a Deciduous Swamp (SWD). Deciduous swamps are characterized by communities that have over 25 percent of trees greater than five (5) metres in height, with the majority of species (> 75 percent) identified as deciduous (Lee *et al.*, 1998).

Dominant upper canopy species identified during the Site Investigations included Freeman's maple (*Acer freemannii*), Red maple, Yellow birch, Black ash (*Fraxinus nigra*) and Eastern white cedar. The understory consisted of saplings of the above noted species Wild black currant (*Ribes americanum*) and American beech.

The ground layer is comprised of a diversity of ferns and sedges, and herbaceous plants such as Jack-in-the-pulpit (*Arisaema triphyllum*), False nettle (*Boehmeria cylindrical*), Fringed sedge (*Carex crinite*), Bladder sedge (*Carex intumescens*), Spinulose wood fern (*Dryopteris carthusiana*), Fowl manna grass (*Glyceria striata*), Canada mayflower (*Maianthemum canadensis*), Sensitive fern (*Onoclea sensibilis*), Cinnamon fern (*Osmundastrum cinnamomeum*), Braken fern (*Peteridium aquilinum*), Fowl meadow grass (*Poa palustris*), Raspberry (*Rubus* spp.), Water parsnip (*Sium suave*), and moss species (*Sphaghnum* spp.). Dominant plant species observed during both Site Investigations are presented in **Table 3-1.**

Table 3-1: List of Dominant Plant Species Observed in SWD

Layer	Scientific Name	Common Name
Upper Canopy	*Acer rubrum*	Red maple
	Acer freemanii	Freeman's maple
	Betula alleghaniensis	Yellow birch
	Fraxinus nigra	Black ash
	Thuja occidentalis	Eastern white cedar
Understory	*Ribes americanum*	Wild black currant
	Fagus grandifolia	American beech
Ground Layer	*Arisaema triphyllum*	Jack-in-the-pulpit

Layer	Scientific Name	Common Name
Ground Layer	*Boehmeria cylindrica*	False nettle
	Carex crinita	Fringed sedge
	Carex intumescens	Bladder sedge
	Dryopteris carthusiana	Spinulose wood fern
	Glyceria striata	Fowl manna grass
	Maianthemum canadensis	Canada mayflower
	Onoclea sensibilis	Sensitive fern
	Osmundastrum cinnamomeum	Cinnamon fern
	Peteridium aquilinum	Bracken fern
	Poa palustris	Fowl meadow grass
	Rubus spp.	Raspberry
	Sium suave	Water parsnip
	Sphaghnum spp.	Moss spp.

3.1.3.2 Thicket Swamp (SWT)

A Thicket Swamp (SWT) is located just north of a Shallow Marsh. Thicket Swamps are comprised of both trees and shrubs, with the majority of vegetation characterized by less than 25 percent of trees and greater than 25 percent of hydrophytic shrubs, such as Willow (*Salix* sp.) and Alder (*Alnus* sp.). These communities experience periods of flooding throughout the year, with the ground becoming dry by early to mid-summer (Lee *et al.*, 1998).

The dominant plant community is this area is comprised of Freeman's maple, White spruce (*Picea glauca*), White pine, Scotch pine (*Pinus sylvestris*), Balsam poplar (*Populus balsamifera*), Eastern white cedar, Red maple, Black ash, and American elm. The subcanopy and understory layer consist of saplings of the above noted species along with Black chokeberry (*Aronia melanocarpa*), White willow (*Salix alba*), Slender willow (*Salix petiolaris*), Speckled alder (*Alnus incana*), and Red osier dogwood (*Cornus sericea*). Ground cover contained species of common milkweed (*Asclepias syriaca*), swamp milkweed (*Asclepias incarnate*), Canada bluejoint (*Calamagrostis canadensis*), Water horsetail (*Equisetum fluviatile*), Spotted-joe-pye-weed (*Eupatorium maculatum*), Northern bungleweed (*Lycopus uniflorus*), Purple loosestrife (*Lythrum salicaria*), Raspberry species and Goldenrod species (*Solidago* spp.). Dominant plant species observed during the Site Investigation are presented in **Table 3-2.**

Table 3-2: List of Dominant Plant Species Observed in SWT

Layer	Scientific Name	Common Name
Upper Canopy	*Acer freemanii*	Freeman's maple
	Picea glauca	White spruce
	Pinus strobus	White pine
	Pinus sylvestris	Scotch pine
	Populus balsamifera	Balsam poplar

Layer	Scientific Name	Common Name
Upper Canopy	*Thuja occidentalis*	Eastern white cedar
	Acer rubrum	Red maple
	Fraxinus nigra	Black ash
	Ulmus Americana	American elm
Sub Canopy	*Aronia melanocarpa*	Black chokeberry
	Salix alba	White willow
	Alnus incana	Speckled alder
	Salix petiolaris	Slender willow
Understory	*Cornus sericea*	Red osier dogwood
Ground Layer	*Asclepias syriaca*	Common milkweed
	Asclepias incarnata	Swamp mlkweed
	Calamagrostis canadensis	Canada bluejoint
	Equisetum fluviatile	Water horsetail
	Eupatorium maculatum	Spotted joe-pye weed
	Lycopus uniflorus	Northern bungleweed
	Lythrum salicaria	Purple loosestrife
	Rubus spp.	Raspberry spp.
	Solidago spp.	Goldenrod spp.

3.1.3.3 Mineral Thicket Swamp Ecosite (SWT2)

A small Mineral Thicket Swamp ecosite (SWT2) is located south of the Shallow Marsh across the dirt pathway. These wetlands are connected through a small plastic culvert that runs under the dirt pathway. Dominant vegetation found in this region consists of Freeman's maple, Scotch pine, Russian olive (*Elaeagnus angustifolia*), Eastern white cedar, Common cattail (*Typha latifolia*), Willow species, Water horsetail, Cotton grass (*Eriophorum* spp.), Purple loosestrife, Fringed sedge (*Carex crinita*), Brownish sedge (*Carex brunnescens*), Hooded ladies'-tresses (*Spiranthes romanzoffiana*), Goldenrod species, Slender white aster (*Aster borealis*), and other aster species (*Aster* spp.). A summary of dominant species is presented in **Table 3-3**.

Table 3-3: List of Dominant Plant Species Observed in SWT2

Layer	Scientific Name	Common Name
Upper Canopy	*Acer freemanii*	Freeman's maple
	Pinus sylvestris	Scotch pine
Subcanopy	*Elaeagnus angustifolia*	Russian olive
	Thuja occidentalis	Eastern white cedar
	Typha latifolia	Common cattail
	Salix spp.	Willow species
Ground Layer	*Equisetum fluviatile*	Water horsetail
	Eriophorum spp.	Cotton grass
	Lythrum salicaria	Purple loosestrife
	Carex crinita	Fringed sedge

Layer	Scientific Name	Common Name
Ground Layer	*Carex brunnescens*	Brownish sedge
	Spiranthes romanzoffiana	Hooded ladies'-tresses
	Solidago spp.	Goldenrod spp.
	Aster borealis	Slender white aster
	Aster spp.	Aster spp.

3.1.3.4 White Cedar – Hardwood Mineral Mixed Swamp Type (SWM1-1)

The vegetation community east of the Shallow Marsh can be characterized as a White Cedar – Hardwood Mineral Mixed Swamp Type (SWM1-1). This vegetation community spans from the southern property boundary at Story Road to beyond the property line to the north. The upper canopy of this community is comprised of a mixture of coniferous (more than 25 percent) and deciduous tree species (more than 25 percent) (Lee *et al.*, 1998). These species include Jack Pine (*Pinus banksiana*), Scotch pine, Trembling aspen (*Populus tremuloides*), Paper birch (*Betula papyrifera*), Eastern white cedar, Russian olive, American beech, Cherry species (*Prunus* spp.), Willow species, Red osier dogwood, Wild carrot (*Daucus carota*), Water horsetail, Cotton grass, Goldenrod, Hooded ladies'-tresses and Bird vetch (*Vicia cracca*). Dominant plant species observed during both Site Investigations are presented in **Table 3-4.**

Table 3-4: List of Dominant Plant Species Observed in SWM1-1

Layer	Scientific Name	Common Name
Upper Canopy	*Pinus banksiana*	Jack pine
	Pinus sylvestris	Scotch pine
	Populus tremuloides	Trembling aspen
	Betula papyrifera	Paper birch
	Thuja occidentalis	Eastern white cedar
Sub Canopy	*Elaeagnus angustifolia*	Russian olive
	Fagus grandifolia	American beech
	Prunus spp.	Cherry spp.
	Salix spp.	Willow spp.
Understory	*Cornus sericea*	Red osier dogwood
Ground Layer	*Daucus carota*	Wild carrot
	Equisetum fluviatile	Water horsetail
	Eriophorum spp.	Cotton grass
	Solidago spp.	Goldenrod spp.
	Spiranthes romanzoffiana	Hooded Ladies'-tresses
	Vicia cracca	Bird vetch

3.1.3.5 Shallow Marsh (MAS)

A small marsh vegetation community located east of the property owner's residential dwelling is situated within the 120 metre buffer zone around the LP 10 project location. Information gathered from the August Site Investigation enabled ELC classification of this

area as a part of the Shallow Marsh (MAS) Community Series. Shallow Marshes have less than 25 percent tree and shrub cover, over 25 percent hydrophytic emergent macrophyte cover, and standing water that is up to two (2) metres deep for much of the growing season (Lee *et al.,* 1998). Two (2) interconnected permanent shallow ponds are present within this community. A variety of vegetation are present within these ponds and surrounding areas which include: Speckled alder (*Alnus incana*), Balsam willow (*Salix pyrifolia*), White willow, Red osier dogwood, Small flowered agalinis (*Agalinis pauoercula*), Swamp milkweed, Common milkweed, Slender white aster, other aster species, Fringed sedge, Green sedge (*Carex viridula*), Wild carrot, Water horsetail, Spotted joe-pye weed, White boneset (*Eupatorium perfoliatum*), Fowl manna grass, Canada rush (*Junicus canadensis*), Purple loosestrife, Common reed (*Phragmites australis*), Hardstem bulrush (*Scirpus acutus*), Woolgrass (*Scirpus cyperinus*), Goldenrod, Hooded ladies'-tresses, and Common cattail (*Typha latifolia*). Dominant plant species observed during both Site Investigations are presented in **Table 3-5**.

Table 3-5: List of Dominant Plant Species Observed in MAS

Layer	Scientific Name	Common Name
Sub Canopy	*Alnus incana*	Speckled alder
	Salix pyrifolia	Balsam willow
	Salix alba	White willow
Understory	*Cornus sericea*	Red osier dogwood
Ground Layer	*Agalinis pauoercula*	Small flowered agalinis
	Asclepias incarnate	Swamp milkweed
	Asclepias syriaca	Common milkweed
	Aster borealis	Slender white aster
	Aster spp.	Aster spp.
	Carex crinite	Fringed sedge
	Carex viridula	Green sedge
	Daucus carota	Wild carrot
	Equisetum fluviatile	Water horsetail
	Eupatorium maculatum	Spotted joe-pye weed
	Eupatorium perfoliatum	White boneset
	Glyceria striata	Fowl manna grass
	Junicus Canadensis	Canada rush
	Lythrum salicaria	Purple loosestrife
	Phragmites australis	Common reed
	Scirpus acutus	Hardstem bulrush
	Scirpus cyperinus	Woolgrass
	Solidago spp.	Goldenrod spp.
	Spiranthes romanzoffiana	Hooded ladies'-tresses
	Typha latifolia	Common cattail

3.1.3.6 Mixed Forest (FOM)

The Mixed Forest (FOM), located along Story Road, just south of the project location LP 10 contained a mixed of both coniferous and deciduous trees that are connected with the plantation of Scotch Pine, and deciduous trees such as Trembling aspen, Large-toothed aspen, Balsam poplar, Paper birch, Staghorn sumac (*Rhus typhina*) and Poison Ivy (*Toxidendron* spp.).

Another Mixed Forest was located on the adjacent property north of the LP 9 project location. This area was fenced off by barbed wire, so no Investigations were conducted on the adjacent property.

3.1.3.7 Cultural Plantation (CUP)

A Cultural Plantation exists just east of the project location for LP 10. This plantation included Scotch pine, Red pine (*Pinus resinosa*), White pine and Red oak (*Quercus rubra*).

3.1.3.8 Coniferous Plantation (CUP3)

The Coniferous Plantation (CUP3) north of the LP 10 project location, outside the property boundary is a Red pine plantation. The Coniferous Plantation, just east of the LP 9 project location contains a mix of Scotch pine, Red pine and White pine.

3.1.3.9 Scotch Pine Coniferous Plantation Type (CUP3-3)

The area immediately south of the LP 10 project location and north of Story Road contains many planted Scotch pine. This community was therefore characterized as a Scotch Pine Coniferous Plantation Type (CUP3-3).

3.1.3.10 Dry – Moist Old Field Meadow Type (CUM1-1)

Both of the LP 9 and LP 10 project locations are situated on fields that were previously cleared; identified as a Dry-Moist Old Field Meadow Type (CUM1-1). The LP 10 project location is within an area that has been fenced off by barbed wire. This area was mapped as a wetland in accordance with the Nottawasaga Valley Conservation Authority (NVCA) and Simcoe County Geo Mapping. However, upon visiting the project location, this area was dry, and characterized by herbaceous plants which included Ticklegrass (*Agrostis scabra*), Common milkweed, Wild carrot, Alfalfa *(Medicago sativa)*, Reed canary grass (Phalaris arundinacea), Kentucky bluegrass (*Poa pratensis*), Great mullein (*Verbascum thapus*), Goldenrod, Purple loosestrife, Bladder campion (*Silene vulgaris*) and Curly dock (*Rumex crispus*).

A small dugout quarry pond is present approximately 19 metres north-east of the LP 9 project location. Some emergent macrophytes, including Common cattail, are present. Some taller shrubs and herbaceous plants, such as White willow and Common Ragweed *(Ambrosia artemisiifolia)* are growing around the perimeter of the pond. In addition, occasional Scotch and Red pine are located to the west of the LP 9 project location.

A list of dominant plant species observed during both Site Investigations is presented in **Table 3-6.**

Table 3-6: List of Dominant Plant Species Observed in CUM1-1

Layer	Scientific Name	Common Name
Ground Layer	*Agrostis scabra*	Ticklegrass
	Asclepias syriaca	Common milkweed
	Daucus carota	Wild carrot
	Medicago sativa	Alfalfa
	Phalaris arundinacea	Reed canary grass
	Poa pratensis	Kentucky bluegrass
	Verbascum thapus	Great mullein
	Solidago spp.	Goldenrod spp.
	Lythrum salicaria	Purple loosestrife
	Silene vulgaris	Bladder campion
	Rumex crispus	Curly dock

3.1.4 Extent of Disturbance

A project location can also be described by the extent and intensity by which management or disturbance has occurred on the project location. It is important to note disturbance as it can influence community structure and function. Anthropogenic disturbances are usually more selective, and directly affect one (1) or several specific species, where as physical forces such as earthquakes or drought can affect the entire plant community.

Disturbances such as non-native species, gaps in forest canopy, plantations, tracks and trails, noise, disease and death of trees as well as wind throw (blown down) are recorded and observed at a given location.

The dominant form of disturbance on and within 120 metres of the property location is the presence of non-native and invasive species in the vegetation communities. Invasive species are particularly prevalent in the Dry – Moist Old Field Meadow Type (CUM1-1) and Scotch Pine Coniferous Plantation Type (CUP3-3). Invasive herbaceous plants and grasses are dominant and widespread in the CUM1-1 communities, and planted Scotch pine characterizes the majority of the species composition in CUP3-3. Scotch pine and Russian olive are also common in the White Cedar – Hardwood Mineral Mixed Swamp type (SWM1-1). Invasive species, such as Purple loosestrife and Common reed are also present in a few vegetation communities, but they occur infrequently and their extent is localized.

Well-marked dirt trails are present throughout the property. There is one main dirt trail that runs parallel to Story Road through most of the property. A few smaller arterial dirt trails extend off of this main trail; used for recreational vehicles as communicated by the property owner. A more permanent gravel driveway extends out from east of the property owner's residential dwelling to Story Road.

The residential dwelling and associated disturbance is fairly permanent. However, the extent of the disturbance is localized and is restricted to the area immediately surrounding the house and driveway. There is a small corn field and chicken coop located north of the dwelling, which in itself is also limited in extent and localized.

Evidence of various recreational activities wad noted during both Site Investigations. Dirt bike trails and various ATV and snowmobile tracks were located along the northern part of the property, mainly in between the LP 9 and LP 10 project locations. In addition, a serious of gunshots were heard at the time of the August Site Investigation. These gunshots originated from the northern property inside the CUP3; a known Hunters and Anglers Conservation Club (BDHACC, 2011).

Flooding was evident inside the wetland during the January Site Investigation, but was less extensive during the August Site Investigation. Black knot fungus was present on the *Prunus* spp. found inside the woodland (SWM1-1). Gaps in the forest canopy were evident on the subject property, as there were sporadic patches of trees located throughout.

During the January Site Investigation, there was evidence of moderate deer (*Odocoileus virginianus)* browse activity within the wooded area SWM1-1, as tracks were noted throughout, in addition to presence of skat. Other tracks noted within 120 metres of the project location include those from rabbits (*Leporidae* spp.).

3.1.5 Wildlife and Wildlife Habitat

In terms of wildlife and wildlife habitat, the subject property may contain elements that can provide suitable habitats for wildlife. For example, small mammals and birds often inhabit soils or use fallen logs. In addition, the presence of trees, or species of trees that produce fruits such as nuts or berries, may prove to be an important food source for some species.

Those areas inside the 120 metre buffer zone do contain a few tree species that produce fruit (for example, trees such as *Malnus* spp. and *Prunus* spp.) and seeds (trees such as *Acer* sp.) that local animal and bird species may feed upon. The density of the forest cover in the area east of the residential dwelling does provide significant shelter for local wildlife to take refuge during periods of extreme weather conditions, in addition to the forest south of Story Road.

On the whole, wildlife sightings observed during the Site Investigations are presented in **Table 3-7** and include sightings of Black-capped chickadee (*Poecile atricapillus*), American goldfinch (*Spinus tristis*), American robin (*Turdus migratorius*), Gray catbird *(Dumetella carolinensis*), American crow *(Corvus brachyrhynchos*), Blue jay (Cyanocitta cristata), Philadelphia vireo (Vireo philadelphicus), Monarch (*Danaus plexippus*), Black and yellow garden spider (*Argiope aurantia*), Green frogs (*Lithobates clamitans*), and Mink frogs (*Lithobates septentrionalis*). Wood frogs were spotted in the southern wetland (SWD) south of Story Road. Both white-tailed deer and rabbit tracks and skat were present throughout the east woodland as well, as noted during the January Site Investigation. Two (2) amphibian surveys were conducted in May and June. Those species observed include Spring peepers (*Pseudacris crucifer*), American toad (*Anaxyrus americanus*), Green frogs, Leopard frogs (*Lithobates pipiens*) and Mink frogs.

Table 3-7: Wildlife Evidence in Surrounding Area

Scientific Name	Common Name	Notes/Evidence	Date Observed
Odocoileus virginianus	White-tailed deer	Tracks/Scat	January
Leporidae spp.	Rabbit species	Tracks/Scat	January
Poecile atricapillus	Black-capped chickadee	Sighting	January/August
Spinus tristis	American gold-finch	Sighting	August
Turdus migratorius	American robin	Sighting	June
Dumetella carolinensis	Gray catbird	Vocals	August
Corvus brachyrhychos	American crow	Sighting/Vocals	August
Cyanocitta cristata	Blue jay	Vocals	August
Vireo philadelphicus	Philadelphia vireo	Sighting	August
Danaus plexippus	Monarch	Sighting	August
Argiope aurantia	Black and yellow garden spider	Sighting	August
Rana sylvatica	Wood frog	Sighting	August
Rana clamitans	Green frog	Sighting/Vocals	August
Lithobates septentrionalis	Mink frog	Sighting	August
Pseudacris cruifer	Spring peeper	Vocals	August
Anaxyrus americanus	American toad	Vocals	August
Lithobates pipiens	Leopard frog	Sighting	August

3.2 Adjacent Land

The adjacent land to the north and west of the subject property is woodland; that consist of both a plantation and mixed forest. South of the project locations is another residential property and a large deciduous swamp. There is also a residential property east of the property on the east side of the wooded area SWM1-1.

Chapter 4 –
Confirmation of Records Review Results

4 Confirmation of Records Review Results

4.1 Key Natural Heritage Features

Natural heritage features are defined as those that contain significant wetlands, significant woodlands, significant valleylands, significant portions of habitat for endangered and threatened species, significant wildlife habitat, and significant areas of natural and scientific interest (ANSIs). All of these features are important for their environmental and social values as a legacy of the natural landscapes of an area.

The following sections confirm the presence or absence of natural features on or within 120 metres of the project locations that were identified or unknown in the records review prepared by **exp** (2012).

4.1.1 Provincial Parks & Conservation Reserve

Record Review Results:

The records review concluded that no provincial parks or conservation reserves are located on or within 120 metres of the project locations. There is therefore no need to confirm the presence of parks and reserves during a Site Investigation.

4.1.2 Wetlands

Wetlands are defined in the REA Regulation, as land such as a swamp, marsh, bog or fen, other than land that is being used for agricultural purposes and no longer exhibits wetland characteristics, that,

(a) is seasonally of permanently covered by shallow water or has the water table close to or at the surface; and,
(b) has hydric soils and vegetation dominated by hydrophytic or water-tolerant plants.

In regards to wetlands, provincially significant means a wetland that OMNR has identified as provincially significant or that is considered to be provincially significant when evaluated using evaluation criteria or procedures established or accepted by the OMNR.

Record Review Results:

OMNR record review indicated that wetlands occur within 120 metres of the project locations. Also NVCA records indicate that the LP 10 project location is located within an area regulated by Ontario Regulation 172/06, and mapping provided indicated unevaluated wetland exists within the project location of LP10 (**exp**, 2012). A Site Investigation was required to gather more information about this feature. In addition, mapping provided by LIO indicated that a number of unevaluated wetlands and one (1) evaluated wetland (Midhurst Swamp (SP5) is located in close proximity to the subject property.

Site Investigation Results:

Site Investigations confirmed that a shallow marsh (MAS) and a series of swamp communities (SWT, SWD, SWT2, and SWM1-1) are present within 120 metres of the LP 10 project location. The marsh is located east of the LP 10 project location, east of the property owner's residential dwelling. This area contains areas that are permanently flooded. The Swamps (SWM1-1, SWT and SWT2) are also located east of the property owner's

residential dwelling. Both SWT and SWM1-1 surround the MAS community. These areas were dry at the time of the August Site Investigation, but experienced flooding during the January Site Investigation. The SWT2 community is located south side of the foot path, just south of MAS. These communities are connected by a small black plastic culvert that is underneath the foot path. A small natural pond is located in this area that appears to experience water year round, as it was filled with water during both Site Investigations.

Another wetland classified as a deciduous swamp (SWD) is located south of Story Road. This community is not connected with the communities found on the north side of Story Road discussed above. However, this community is also within 120 metres of the LP 10 project location.

The NVCA and Simcoe County had previously mapped the area for the LP 10 project location as an unevaluated wetland. Upon visiting the project location, this area had previously been graded as it appeared flat and was covered by a field of grasses and herbaceous plants not characterized by wetland species.

A small dugout quarry pond is located north of the LP 9 project location. This pond was frozen to the bottom during the January Site Investigation, but did contain a significant amount of water during the August Site Investigation; providing habitat for a large number of amphibians, including those which were undergoing metamorphosis.

A summary of the wetland evaluation is found in Appendix B.

4.1.3 Woodlands

As per the definition in the REA Regulation, woodland means a treed area, woodlot or forested area, other than a cultivated fruit or nut orchard or a plantation established for the purpose of producing Christmas trees, that is located south and east of the Canadian Shield.

Larger woodlands are more likely to contain a greater diversity of plant and animal species and communities than smaller woodlands. They are also better buffered against edge effects or agricultural and urban activities.

Records Review Results:

Both Simcoe County Geo-Maps and OMNR records indicate that woodlands are present within 120 metres of both project locations. OMNR records indicate that the woodland is contiguous with an extensive woodland in the area. A Site Investigation was required to gather more information about this feature.

Site Investigation Results:

Woodlands are located on the east, and north sides of the LP10 project location. Those areas east of the project location are on the east side of the residential dwelling and are characterized as swamplands (SWT, SWT2 and SWM1-1). These areas extend north and connect with the coniferous plantation (CUP3) that is located on the adjacent north property. This Plantation extends north and west, which transitions into a Mixed Forest (FOM) to the west; both are situated on the adjacent lands north of the subject property. Another plantation is located west of the subject property; west of the LP 9 project location opposite a dirt road.

Another large woodland characterized as deciduous wwamp (SWD) is located south of

Story Road. This woodland is quite extensive and extends south and east. A part of this woodland is present within the 120 metre buffer from the LP 10 project location.

4.1.4 Valleylands

The REA Regulation identifies valleylands as a natural area south and east of the Canadian Shield that occurs in a valley or other landform depression that has water flowing through or standing for some period of the year.

Records Review Results:

The presence or absence of valleylands was not confirmed by the records review. Therefore, a Site Investigation was required to confirm the presence and/or absence of this feature.

Site Investigation Results:

During the August Site Investigation, it was confirmed that no valleylands were present in or within 120 metres of the project locations.

4.1.5 Areas of Natural and Scientific Interest (ANSIs)

ANSIs are defined in the REA Regulation as areas that have earth or life science values related to protection, scientific study or education. Only ANSIs confirmed by the OMNR as provincially significant are afforded protection through the REA Regulation.

ANSIs are divided into two (2) types: life science ANSI and earth science ANSI. Specifically, a life science ANSI can contain specific types of forests, valleys, prairies and wetlands of ecological importance. That is, they represent examples that are relatively undisturbed in terms of vegetation community and/or landforms associated with that vegetation. Those listed as provincially significant life science ANSIs are the best examples of that particular natural heritage feature in the province. In contrast, earth science ANSIs includes representative examples of bedrock, fossil, and landforms in Ontario, in addition to on-going geological processes.

Records Review Results:

Records reviewed indicated that no ANSIs (life science or earth science) are present in or within 120 metres of the project locations. There is therefore no need to confirm the presence of ANSIs during the Site Investigation.

4.1.6 Wildlife Habitat

Wildlife habitats are defined as areas where plants, animals and other organisms live or have the potential to live and find adequate amounts of food, water, shelter and space to sustain their population, including an area where a species concentrates at a vulnerable point in its annual or life cycle and an area that is important to a migratory or non-migratory species (REA Regulation).

According to the Significant Wildlife Habitat Technical Guide (2000), significant wildlife habitat is described under four (4) categories:

- Seasonal concentrations of animals;
- Rare vegetation communities or specialized habitats for wildlife;
- Wildlife movement corridors; and,

- Habitats of species of conservation concern.

4.1.6.1 Seasonal Concentration Areas

Areas of seasonal concentrations of animals are:

- areas where animals occur in relatively high densities for the species at specific periods in their life cycle and/or during particular seasons; and,
- tend to be localized and relatively small in relation to the area of habitat used at other times of the year.

An assessment of the potential for the project location as a wildlife concentration area was carried out. Resources outlined in both the OMNR Significant Wildlife Habitat Technical Guide (2000) and the Significant Wildlife Habitat Ecoregion 6E Criterion Schedule were utilized to evaluate the potential for species concentration occurrence.

4.1.6.1.1 Deer Winter Congregation Areas

Deer and moose often inhabit forested regions and may venture onto disturbed areas. Deer winter congregation areas are defined by woodlands that are greater than 100 hectares in size or larger. Those woodlands that are less than 100 hectares may be considered if OMNR studies and assessments have deemed them significant. Conifer plantations that are smaller than 50 hectares may also be used as congregation areas.

Deer management is the responsibility of the OMNR and any deer winter congregation areas considered to be significant will be mapped by the OMNR.

Records Review Results:

Records reviewed indicated that this natural feature is not present in or within 120 metres of the project locations. There is therefore no need to confirm the presence of this feature during the Site Investigation.

4.1.6.1.2 Deer Yarding Areas

In the winter, deer often congregate in yards in order to survive severe winter conditions. Deer yards are often comprised of two (2) areas known as Stratum I and Stratum II. Stratum I is known as the core of the deer yard and is found within Stratum II. This area is normally comprised of coniferous tree species. Stratum II covers the entire deer yard area. Stratum II can be comprised of both deciduous and coniferous tree species, and can also include agricultural land.

Record Review Results:

Records reviewed indicated that this natural feature is not present in or within 120 metres of the project locations. However, the OMNR has indicated that a Site Investigation was required to verify this information.

Site Investigation Results:

The woodland south of Story Road is made up of mostly deciduous tree species in the upper canopy, and is therefore not an appropriate location for a deer yard.

Observations made during the January Site Investigation confirmed the presence of White-tailed Deer in the woodland (SWM1-1) east of the LP 10 project location; east of the

residential dwelling. This woodland is characterized as a White Cedar – Hardwood Mineral Mixed Swamp with Eastern white cedar as one of the dominant species. However, the majority of this swamp falls beyond the 120 metre buffer zone around the LP 10 project location, and the small size of this vegetation community may limit its value as a deer yard. Therefore, observations in connection with confirmation from OMNR concerning mapping of deer yards via email correspondence, indicant that none are present within 120 metres of either project location.

4.1.6.1.3 Waterfowl Stopover and Staging Areas (Terrestrial & Aquatic)

Terrestrial waterfowl stopover and staging areas are usually comprised of fields that contain flooding and/or sheet water during spring snowmelt and run-off. These habitats often contain important invertebrate foraging opportunities for migrating waterfowl such as American wigeon (*Anas americana*) and American black duck (*Anas rubripes*). Aquatic stopover and staging areas contain ponds, marshes, lakes, bays, coastal inlets and watercourses that may be used during their migration. Reservoirs managed as a large wetland or pond/lake are also included.

Records Review Results:

The presence or absence of this feature was not confirmed by the records review. Therefore, a Site Investigation was required to confirm the presence and/or absence of this feature.

Site Investigation Results:

Site Investigations revealed that there are no terrestrial or aquatic waterfowl stopover and staging areas in or within 120 metres of each of the project locations as the topography of the field is fairly flat and unlikely to hold standing water for any significant period of time during the year. The shallow marsh (MAS) located east of the property owner's residential dwelling would be considered too small of a habitat to provide habitat for a large number of individuals, and therefore, would not be considered a terrestrial or aquatic waterfowl stopover or staging area.

4.1.6.1.4 Shorebird Migratory Stopover Area

These habitats include shorelines of lakes, rivers, and wetlands, including beach areas, bars, and seasonally flooded, muddy and un-vegetated shoreline habitats. Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores, are extremely important for migratory shorebirds in May to mid-June and early July to October. Sewage treatment ponds and storm water ponds do not qualify as a significant wildlife habitat.

Records Review Results:

The presence or absence of this feature was not confirmed by the records review. Therefore, a Site Investigation was required to confirm the presence and/or absence of this feature.

Site Investigation Results:

Site Investigations revealed that there are no shorebird migratory stopover areas in or within 120 metres of the project locations as there is no shoreline habitat nearby.

4.1.6.1.5 Raptor Wintering Area

Raptor wintering areas can be described as a combination of fields and woodlands that provide roosting, foraging and resting for wintering raptors. These areas need to greater than 20 hectares with a combination of forest and upland. These habitats are often least disturbed sites, idle/fallow or lightly grazed fields and/or meadows.

Records Review Results:

The presence or absence of this feature was not confirmed by the records review. Therefore, a Site Investigation was required to confirm the presence and/or absence of this feature.

Site Investigation Results:

Site Investigations revealed that this feature is not present in or within 120 metres of both project locations. Although there are large expansive woodlands located in close proximity to the project location, the presence of open fields greater than 15 to 20 hectares in size with limited disturbance was not observed. Tracks and trails are located throughout the subject property that are used for snowmobiling and ATV use throughout the year. In addition the woodland located north is known as The Barrie District Hunters and Anglers Conservation Club, which contains two (2) 100 yard firearms ranges, a turkey shooting range, a 3D archery range, and a five (5) Stand Sporting Clay range (BDHACC, 2011). The majority of the woodland located south of the subject property was outside of the 120 metre buffer zone of LP 10, and was not within the buffer zone of LP 9. This woodland was located near areas that are actively farmed on the south west side of Story Road. Therefore, no raptor wintering areas were located in or within 120 metres of both the LP 9 and LP 10 project location.

4.1.6.1.6 Bat Hibernacula, Maternity and Migratory Stopover Areas

Bat hibernacula are often not well known, but may be found in caves, mine shafts, underground foundation and karsts.

Bat maternity colonies are normally found in tree cavities and in buildings, however, habitats found in buildings are not considered significant wildlife habitat. Maternity roosts are not found in caves or mines in Ontario. Maternity colonies are located in mature deciduous or mixed forest stands that are greater than 10 hectares in area with tree snags that are greater than 25 centimetres diameter-at-breast-height (dbh). Female bats tend to prefer tree snags in the early stages of decay. Northern myotis (*Myotis septentrionalis*) prefer contiguous tracts of older forest cover for foraging and roosting in snags and trees. Silver-haired bats (*Lasionycteris noctivagans*) tend to prefer mature forest stands comprised of deciduous or mixed deciduous species, and those older areas that have approximately 21 snags per hectare.

Migratory bats that travel long distances typically migrate during the late summer and early fall from summer breeding habitats throughout Ontario to southern wintering areas. During migration in the fall, bats tend to congregate at unknown areas at stopover habitats.

Records Review Results:

The presence or absence of this feature was not confirmed by the records review. Therefore, a Site Investigation was required to confirm the presence and/or absence of this feature. However, the OMNR has indicated that they have not developed criteria for

evaluating the significance of bat migratory stopover areas, and therefore no Site Investigation is required for this specific habitat.

Site Investigation Results:

Site Investigations revealed that this feature is not present in or within 120 metres of the project locations. Although woodlands are present within 120 metres of the project locations, the number of snags in all the woodland areas was low. In addition, no caves were observed during the Site Investigations.

4.1.6.1.7 Turtle Wintering Areas

Turtle wintering areas are normally the same area as their regular habitat. The water at these sites need to be deep enough not to freeze to the bottom during the winter months and must contain soft mud substrates. Over winter sites are those that typically contain permanent waterbodies, large wetlands, bogs and fens that contain adequate amounts of dissolved oxygen.

Records Review Results:

The Simcoe County Geo Maps and LIO indicate a number of wetland areas to exist within close proximity to the project location. In addition, the Ontario Herpetofaunal Summary Atlas identified a number of herptiles to exist within Simcoe County. A Site Investigation was required to confirm presence or absence of this feature.

Site Investigation Results:

Site Investigations confirmed that marsh and swamp communities were present within 120 metres of the LP 10 project location. These communities house permanent water features, however these features do experience some freezing in shallower areas during the winter as observed during the January Site Investigation, and did not appear to contain suitable habitat characteristics. In addition, during the August Site Investigation, no turtles were observed in either of these areas.

A dugout quarry pond is located north of the LP 9 project location. This pond was frozen solid during the January Site Investigation, but contained water during the August Site Investigation. No turtles were observed in the pond during any of the Site Investigations, nor was there suitable habitat for them to exist.

Therefore, no turtle wintering habitats are located in or within 120 metres of both project locations.

4.1.6.1.8 Reptile Hibernaculum

Reptile hibernacula is usually found in burrows, rock crevices and other natural locations below the frost line. Key areas are those that contain broken or fissured rock, which can provide access to subterranean sites below the frost line. Wetlands are also important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover.

Records Review Results:

The presence or absence of this feature was not confirmed by the records review. Therefore, a Site Investigation was required to confirm the presence and/or absence of this feature.

Site Investigation Results:

Site Investigations revealed that this feature may be present within 120 metres of the project locations. During the Site Investigations, it was confirmed that there are no burrows or rock crevices present in the project locations for snake hibernacula to occur, however the woodland located south of Story Road did contain an abundance of spaghnum moss, sedge hummocks, and fallen trees, which are known as suitable habitats. This woodland did fall within the 120 metre buffer zone of the LP 10 project location.

4.1.6.1.9 Colonial Nesting Bird Breeding Habitat (Bank and Cliff)

Colonial nesting bird breeding habitat near banks and cliffs consist of areas with exposed soil banks, are undisturbed or naturally eroding, and those which are not a licensed/permitted aggregate area. This does not include man-made structures such as bridges or buildings, or recently disturbed soil areas such as berms, embankments, soil and/or aggregate stockpiles.

Records Review Results:

The presence or absence of this feature was not confirmed by the records review. Therefore, a Site Investigation was required to confirm the presence and/or absence of this feature.

Site Investigation Results:

Site Investigations revealed that this feature is not present in or within 120 metres of the project locations. During the Site Investigations, it was confirmed that there were no banks or cliffs present at either project location or in those areas that extend 120 metres.

4.1.6.1.10 Colonial Nesting Breeding Bird Habitat (Trees/Shrubs)

Tree and shrub habitat for colonial nests can be found in live or dead standing trees in wetlands, lakes, island and peninsulas. Shrubs and occasionally emergent vegetation may also be used. Most nests in trees are eleven (11) to fifteen (15) metres from the ground near the top of the tree.

Records Review Results:

The presence or absence of this feature was not confirmed by the records review. Therefore, a Site Investigation was required to confirm the presence and/or absence of this feature.

Site Investigation Results:

Site Investigations revealed that this feature is not present in or within 120 metres of the LP 9 and LP 10 project locations. Although wetland communities with trees and shrubs do occur east of the LP 10 project location, as mentioned, the level of disturbance that surrounds the area would interfere with nesting. In addition, no nests, or signs of nesting were observed in the woodlands east of the LP 10 project location during the Site

Investigations. The Deciduous Swamp located south of Story Road, may serve as a tree nesting area for colonial nesting breeding birds, however, no signs of standing water or marshes were observed during the Site Investigation within the 120 metre buffer from the project locations. Therefore, this habitat was deemed absent in and within 120 metres of the LP 9 and LP 10 project locations.

4.1.6.1.11 Colonial Nesting Bird Breeding Habitat (Ground)

Colonial ground nesting birds, such as gulls and terns are typically located on islands or peninsulas associated with open water or in marshy areas.

Records Review Results:

The presence or absence of this feature was not confirmed by the records review. Therefore, a Site Investigation was required to confirm the presence and/or absence of this feature.

Site Investigation Results:

Site Investigations revealed that this feature is not present in or within 120 metres of the project locations. The LP9 and LP 10 project locations are not situated near a coastal zone with open water or marshy areas.

4.1.6.1.12 Migratory Butterfly Stopover Area

Migratory butterfly stopover areas are typically at a minimum of ten (10) hectares in size with a combination of field and forest habitat present, and located within five (5) kilometres of Lake Ontario and Lake Erie. This habitat typically provides an area for stopover during migration. They cannot be disturbed areas, and must contain fields or meadows with an abundance of nectar plants.

Records Review Results:

Record review results indicated that migratory butterfly stopover areas are not relevant to these project locations because they are not within five (5) kilometres of Lake Ontario. There is therefore no need to confirm the presence of this feature during a Site Investigation.

4.1.6.1.13 Landbird Migratory Stopover Area

Landbird migratory stopover areas are those that contain woodlands of five (5) hectares in size or greater and within five (5) kilometres of Lake Ontario. Woodlands that are less than two (2) kilometres from Lake Erie or Lake Ontario are more significant. These sites can contain a wide variety of habitats that consist of forests, grasslands, and wetland areas.

Records Review Results:

Record review results indicated that landbird migratory stopover areas are not relevant to these project locations because they are not within five (5) kilometres of Lake Ontario. There is therefore no need to confirm the presence of this feature during a Site Investigation.

4.1.6.2 Rare Vegetation Communities or Specialized Habitat

Rare or specialized habitats include rare vegetation communities or concentrations of rare plants. These specialized areas may also provide habitat to rare animal species. According to the Significant Wildlife Habitat Technical Guide (2000), the following definition of each was provided:

Rare vegetation communities include:

- Areas that contain a provincially rare vegetation communities or one that is rare within a planning area.

Specialized Habitats include:

- Areas that support wildlife species that have highly specific habitat requirements;
- Areas with high species and community diversity; and,
- Areas that provide habitat that greatly enhance species survival.

Habitat types that meet these definitions were considered during the Site Investigations and their occurrence within 120 metres of the LP 9 and LP 10 project location. A summary of results is presented in **Table 4-1** and **4-2** below.

Table 4-1: Rare Vegetation Communities

Habitat	Records Observation* Results	OMNR Records Review	Site Investigation Results
Cliff & Talus Slope	According to SOLRIS mapping no Cliff or Talus slopes were evident within 120 m of the project locations. Confirmation of absence will be carried through the Site Investigation.	No data from OMNR. Site Investigation required.	Not present in or within 120 m of both project location.
Sand Barren	According to SOLRIS mapping no sand barrens were evident within 120 m of the project locations. Confirmation of absence will be carried through the Site Investigation.	No data from OMNR. Site Investigation required.	Not present in or within 120 m of both project location.
Alvar	According to SOLRIS mapping no Alvars were evident within 120 m of the project locations. Confirmation of absence will be carried through the Site Investigation.	No data from OMNR. Site Investigation required.	Not present in or within 120 m of both project location.
Old Growth Forest	Woodlands exist within the subject property. Site Investigation required.	No data from OMNR. Site Investigation required.	Not present in or within 120 m of both project location.
Savannah	According to SOLRIS mapping no Savannahs were evident within 120 m of the project locations. Confirmation of absence will be carried through the Site Investigation.	No data from OMNR. Site Investigation required.	Not present in or within 120 m of both project location.

Habitat	Records Observation* Results	OMNR Records Review	Site Investigation Results
Tall Grass Prairie	According to SOLRIS mapping no Tall Grass Prairies were evident within 120 m of the project locations. Confirmation of absence will be carried through the Site Investigation.	No data from OMNR. Site Investigation required.	Not present in or within 120 m of both project location.
Other Rare Vegetation Communities	Unknown. Site Investigation required.	No data from OMNR. Site Investigation required.	Not present in or within 120 m of both project location.

***** *Note: Records Observation information was sourced from NHIC, aerial imagery, LIO, SOLRIS, NVCA, OMOP, SCOP and Simcoe County Geo-Maps.*

Table 4-2: Specialized Habitat for Wildlife

Habitat	Records Observation* Results	OMNR Records Review	Site Investigation Results
Waterfowl Nesting Area	Wetlands exist in or within 120 m of the project locations. Site Investigation required to confirm presence or absence of this habitat.	No data from OMNR. Site Investigation required.	Site Investigation confirmed absence of this habitat in or within 120 m of the project locations. The size of the wetland with open water is small (< 0.5 ha), and therefore would not be suitable habitat more than one (1) nesting pair.
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	There are no large lakes or ponds in or within 120 m of the project locations, nor areas of shorelines, and islands. Site Investigation required to confirm presence or absence of this habitat.	No data from OMNR. Site Investigation required.	Not present in or within 120 m of both project location.
Woodland Raptor Nesting Habitat	Large woodlands exist in or within 120 m of the project locations. Site Investigation required to confirm presence or absence of this habitat.	No data from OMNR. Site Investigation required.	Not present in or within 120 m of both project location. ** see section 4.1.6.1.5.
Turtle Nesting Areas	Unknown. Site Investigation required.	No data from OMNR. Site Investigation required.	Not present in or within 120 m of both project location.
Seep and Springs	Unknown. Site Investigation required.	No data from OMNR. Site Investigation required.	None observed.
Amphibian Breeding Habitat (Woodland)	Large woodlands exist in or within 120 m of the project locations. Site Investigation required to confirm presence or absence of this habitat.	No data from OMNR. Site Investigation required.	Amphibians were heard during the frog surveys completed. Habitat present within 120 m of project locations.
Amphibian Breeding Habitat (Wetland)	Wetlands exist in or within 120 m of the project locations. Site Investigation required to confirm presence or absence of this habitat	No data from OMNR. Site Investigation required.	Amphibians were heard during the frog surveys completed. Wetland not 120 m away from woodland, therefore the habitat would be considered woodland breeding.

***** *Note: Records Observation information was sourced from NHIC, aerial imagery, LIO, SOLRIS, NVCA, OMOP, SCOP and Simcoe County Geo-Maps.*

Site Investigations completed in January and August 2012 confirmed that none of the rare vegetation communities listed in **Table 4-1** are present in or within 120 metres of the project location. Although a woodland is present within the 120 metre buffer zone, the composition of the stand did not exhibit old growth forest characteristics. Two (2) specialized habitats were confirmed present (amphibian breeding habitat (woodland)) to occur within 120 metres of the LP 10 project location. A number of amphibians were observed during the August Site Investigation, in addition to the amphibian surveys conducted. The evaluation of this habitat will be conducted.

It is important to note, although the quarry pond located north of LP 9 is not characterized as a vegetative community, there were a number of amphibians observed in this habitat during the August Site Investigation, in addition to the amphibian surveys. The evaluation of this habitat will be conducted.

Full observations concerning the Amphibian Surveys can be found in Appendix C.

4.1.6.3 Animal Movement Corridors

Animal movement corridors are:

- Habitats that link two or more wildlife habitats that are critical to the maintenance of a population of a particular species or group of species; and,
- Habitats with a key ecological function to enable wildlife to move, with minimum mortality, between areas of significant wildlife habitat or core natural areas.

According to the Ecoregion 6E Criterion Schedule animal movement corridors to be considered for this project location include amphibian and deer movement corridors.

4.1.6.3.1 Amphibian Movement Corridors

Amphibian movement corridors may be present in all eco-sites that are associated with water. These corridors link breeding and summer habitats, and may be extremely important for local populations

Records Review Results:

The presence or absence of this feature was not confirmed by the records review. Therefore, a Site Investigation was required to confirm the presence and/or absence of this feature.

Site Investigation Results:

Site Investigations revealed that this feature is likely to be present within 120 metres of both the LP 9 and LP 10 project locations. An abundance of frogs were seen and/or heard during the August Site Investigation in addition to the surveys. The wetland and woodland areas contain appropriate breeding and summer habitat for frogs; both of which occur within the 120 metres of the LP 9 and LP 9 project locations. The dugout quarry pond serves as a breeding habitat for frogs as a number of frogs were observed metamorphosing during the August Site Investigation. This pond is located in close proximity to wooded areas.

4.1.6.3.2 Deer Movement Corridors

Deer movement corridors may be found in all forested ecosites. Once a deer winter congregation or yarding habitat is determined, these areas will generally have corridors that

deer use during fall migration and spring dispersion. For example, if the project location contains a Stratum II area, the potential for deer corridors is increased.

Records Review Results:

Both deer winter congregation areas and yarding habitats were inferred as absent in the areas 120 metres from and including the project location. No additional site investigation work for this habitat is required (**exp**, 2012).

4.1.6.4 Habitat for Species of Conservation Concern

Habitats for species of conservation concern include those species that are identified as special concern or rare. These habitats do not include those that pertain to threatened or endangered species that are protected by the *Endangered Species Act, 2007*. A summary of species of conservation concern habitats that may potentially exist on or within 120 metres of the project location is presented in **Table 4-3**.

Table 4-3: Habitat of Species of Conservation Concern

Habitat	Records Observation* Results	OMNR Records Review	Site Investigation Results
Marsh Bird Breeding Habitat	Wetlands exist in or within 120 m of the project locations. Site Investigation required to confirm presence or absence of this habitat.	No data from OMNR. Site Investigation required.	Shallow marsh present within 120 m of LP 10 project location. Characteristics of this habitat in connection with the 6E SWH Guide in addition to the size of the feature would indicate it is not suitable for breeding.
Woodland Area – Sensitive Bird Breeding Habitat	Large woodlands exist in or within 120 m of the project locations. Site Investigation required to confirm presence or absence of this habitat.	No data from OMNR. Site Investigation required.	Woodland north of project locations identified as shooting range. Woodland south of Story Road is approximately 30 ha in size. Therefore this area is a possible sensitive bird breeding habitat, however interior habitat of 200 m from the forest edge is well outside the 120 buffer from the project location.
Open Country Breeding Bird Habitat	Unknown. Site Investigation required.	No data from OMNR. Site Investigation required.	Not present in or within 120 m of both project locations.
Shrub/Early Successional Bird Breeding Habitat	Unknown. Site Investigation required.	No data from OMNR. Site Investigation required.	Not present in or within 120 m of project location. Shrub and thicket habitats are less than 10 ha.
Special Concern Species	Unknown. Site Investigation required.	No data from OMNR. Site Investigation required. Possible SC species include: snapping turtle, monarch, milksnake, golden-winged warbler, common nighthawk.	A Monarch butterfly was observed within 120 m of the project location during the August Site Investigation.
S1-S3, SH Species and Communities	Unknown. Site Investigation required.	No data from OMNR. Site Investigation required. However, species information within 1km of site is available.	None observed.

Habitat	Records Observation* Results	OMNR Records Review	Site Investigation Results
Terrestrial Crayfish	Unknown. Site Investigation required.	No data from OMNR. Site Investigation required.	None observed.

***** *Note: Records Observation information was sourced from NHIC, aerial imagery, LIO, SOLRIS, NVCA, OMOP, SCOP and Simcoe County Geo-Maps*.

A geographical search for significant or endangered species presence and associated habitat was conducted using the Ontario MNR NHIC (2011b) database. A search was conducted on the one (1) km^2 to two (2) km^2 area surrounding and including the LP 9 and LP 10 project locations. The search revealed no records of species.

A general list of Species at Risk in the Simcoe County Region was provided by OMNR, as presented in **Table 4-4**. The identification of the presence of these species and their habitats, along with those known according to the Ontario Herpetofaunal Summary Atlas and the Atlas of the Breeding Birds of Ontario was conducted during the Site Investigations.

None of the species listed in **Table 4-4** were observed in or within 120 metres of the project locations during the Site Investigations, with the exception of the Monarch butterfly; a species listed as special concern both provincially and nationally. The Monarch butterfly, although a species of conservation concern is often found in fields or parks. Due to the number of butterflies observed (1), and the habitat present, in addition to its location relative to Lakes, this area would not be considered a suitable habitat for this species of special concern.

Therefore, no habitats for species of conservation concern are in or within 120 metres of the project location.

Table 4-4: Species of Conservation Concern in Vicinity of the Project Locations

Type of Organism	Scientific Name	Common Name	NHIC	SARO	COSEWIC
Amphibians & Reptiles	*Clemmys guttata*	Spotted Turtle	S3	END	END
	Emydoidea blandingii	Blanding's Turtle	S3	THR	THR
	Pantherophis gloydi	Eastern Foxsnake (Georgian Bay Population)	S3	THR	END
	Sternotherus odoratus	Eastern Musk Turtle (Stinkpot)	S3	THR	THR
	Thamnophis sauritus	Eastern Ribbonsnake	S3	SC	SC
	Plestiodon fasciatus	Five-lined Skink (Georgian Bay Pop.)	S3	SC	SC
	Graptemys geographica	Northern Map Turtle	S3	SC	SC
	Chelydra serpentina	Snapping Turtle	S3	SC	SC
	Clemmys insculpta	Wood Turtle	S2	END	THR
	Heterodon platirhinos	Eastern Hognose Snake	S3	THR	THR
	Lampropeltis triangulum	Eastern Milk Snake	S3	SC	SC
	Pseudacris triseriata	Western Chorus Frog - Great Lakes / St. Lawrence - Canadian Shield Population	S3	NAR	THR
	Ambystoma jeffersonianum	Jefferson Salamander	S2	THR	END
	Sistrurus catenatus catenatus	Eastern Massasauga (Georg. Bay Pop.)		THR	THR

Type of Organism	Scientific Name	Common Name	NHIC	SARO	COSEWIC
Birds	*Chlidonias niger*	Bald Eagle	S3B	SC	NAR
	Dendroica cerulea	Canada Warbler	S3B	SC	END
	Chaetura pelagica	Cerulean Warbler	S4B, S4N	SC	THR
	Chordeiles minor	Common Nighthawk	S4B	SC	THR
	Vermivora chrysoptera	Golden-winged Warbler	S4B	SC	THR
	Ammodramus henslowii	Henslow's Sparrow	SHB	END	END
	Wilsonia citrina	Hooded Warbler	S3B	SC	THR
	Seiurus motacilla	Louisiana Waterthrush	S3B	SC	SC
	Contopus cooperi	Olive-sided Flycatcher	S4B	SC	THR
	Melanerpes erythrocephalus	Red-headed Woodpecker	S4B	SC	THR
	Asio flammeus	Short-eared Owl	S2N, S4B	SC	SC
	Coturnicops noveboracensis	Yellow Rail	S4B	SC	SC
	Wilsonia canadensis	Black Tern	S4B	SC	THR
	Rallus elegans	King Rail	S2B	END	END
Insects	*Danaus plexippus*	Monarch Butterfly	S2N, S4B	SC	SC
	Pieris virginiensis	West Virginia White	S3	SC	
	Somatochlora hineana	Hine's Emerald	S1	END	END
Fish	*Esox americanus vermiculatus*	Grass Pickerel	S3	SC	SC
	Acipenser fulvescens	Lake Sturgeon (Great Lakes - Upper St. Lawrence River population)	S2	THR	THR
	Ichthyomyzon fossor	Northern Brook Lamprey	S3	SC	SC
Plants	*Panax quinquefolius*	American Ginseng	S2	END	END
	Asplenium scolopendrium americanum	American Hart's-tongue Fern	S3	SC	SC
	Juglans cinerea	Butternut	S3?	END	END
	Platanthera leucophaea	Eastern Prairie-fringed Orchid	S2	END	END
	Isoetes engelmannii	Engelmann's Quillwort	S1	END	END
	Aristida basiramea	Forked Three-awned Grass	S2	END	END
	Cirsium hillii	Hill's Thistle	S3	THR	THR
	Chimaphila maculata	Spotted Wintergreen	S1	END	END

NHIC: Natural Heritage Information Centre (Ontario S-Rank); SARO: Species at Risk Ontario; COSEWIC: Committee on the Status of Endangered Wildlife in Canada; S1: Critically Imperiled (Extremely rare); S2: Imperiled (Very rare); S3: Vulnerable (Rare to Uncommon); S#B: Breeding: S#N: Staging areas non-breeding; SH: Historic – no records in past 20 years.

Chapter 5 – Summary

5 Summary

Based on the current project locations and those areas within 120 metres **Table 5-1** summarizes the results as they pertain to the natural heritage features that are known to exist and confirmed during the Site Investigation, as described in subsection 3 section 26 of the REA Regulation.

Table 5-1: Summary of Results after Site Investigation

REA Regulation	Natural Heritage Feature Existence as per Records Review (Yes/No/Unknown)	Description of Records Results	Site Investigation Results	Natural Heritage Feature Existence as per Site Investigation Results (Yes/No)
Is in or within 120 m of a provincial park or conservation reserve?	No	Ontario's Crown Land Use Policy Atlas, in addition to the OMNR records review, indicate that no provincial parks or conservation reserves are located at or within 120 m of the project locations.	Site Investigation not required.	No
Is the project located in a natural feature.	Yes	NHIC, LIO, SOP, SCOP and OMNR records indicate that natural features exist within 120 m of the project locations. Site Investigation required	Both project locations are in an open field.	No
Is the project area located within 50 m of an ANSI (earth science)	No	NHIC, OMOP, SCOP and OMNR records indicate that the project locations are not located within 50 m of an ANSI (earth science)	Site Investigation not required.	No
Is the project area located within 120 m of a natural feature that is not an ANSI				
a) ANSI (life science)	No	NHIC, OMOP, SCOP and OMNR records indicate that the project locations are not located within 120 m of an ANSI (life science)	Site Investigation not required	No

REA Regulation	Natural Heritage Feature Existence as per Records Review (Yes/No/Unknown)	Description of Records Results	Site Investigation Results	Natural Heritage Feature Existence as per Site Investigation Results (Yes/No)
b) Coastal wetland	No	NHIC, OMOP, SCOP and OMNR records indicate that the project locations are not located within 120 m of a coastal wetland	No coastal zone in area	No
c) Northern wetland	No	The project locations are not located north of Ecoregions 5E, 6E and 7E as identified in Figure 1 of the Provincial Policy Statement	No northern wetlands in area	No
d) Southern wetland	Yes	OMNR and NVCA records indicate that wetlands are located within 120 m of the project locations. Site investigation is required to verify and delineate this feature	Shallow marsh, Thicket Swamp, Mineral Thicket Swamp and Deciduous Swamp are located within 120 m of the LP 10 project location	Yes
e) Valleyland	Unknown	It is not known if valleyland exists within 120 m of the project locations. Site investigation is required	None found	No
f) Woodland	Yes	OMNR, Simcoe County Geo-Maps and SOLRIS indicate that woodlands are located within 120 m of the project locations. Site investigation is required to verify and delineate this feature	Woodlands characterized as Mixed Forest, Swamp and Cultural Plantations are located within 120 m of LP 9 and LP 10 project locations	Yes

REA Regulation	Natural Heritage Feature Existence as per Records Review (Yes/No/Unknown)	Description of Records Results	Site Investigation Results	Natural Heritage Feature Existence as per Site Investigation Results (Yes/No)
g) Wildlife habitat	Unknown	It is not known if wildlife habitat exists within 120 m of the project locations. Site investigation is required	No rare vegetation communities were observed during the Site Investigation to exist at or within 120 m of both project locations. Habitat for potential for Snake/Reptile Hibernacula, Amphibian breeding (woodland) was observed along with an Amphibian Movement Corridor	Yes

Natural features that are found to be within 120 metres of the project locations during the Site Investigation must undergo an Evaluation of Significance. **Table 5-2** presents the natural features that require an Evaluation of Significance.

Table 5-2: Summary of Natural Features Requiring Evaluation of Significance

Natural feature	Present in Project Locations	Present within 120 metres of Project Locations	Evaluation of Significance Required (Yes/No/Unknown)
Wetlands	No	Yes	Yes
Woodlands	No	Yes	Yes
Valleylands	No	No	No
Wildlife habitat			
a) Seasonal concentration areas	No	Yes – Snake/Reptile Hibernacula	Yes
b) Rare vegetation communities or specialized habitat	No	Yes – Amphibian Breeding (woodland)	Yes
c) Animal movement corridors	No	Yes – Amphibian Movement Corridor	Yes
d) Habitat of species of conservation concern	No	No	No

6 Closure

We trust this report is satisfactory for your purposes. We would be pleased to provide additional information, to clarify any questions that arise following the review of this report.

Sincerely,

exp Services Inc.

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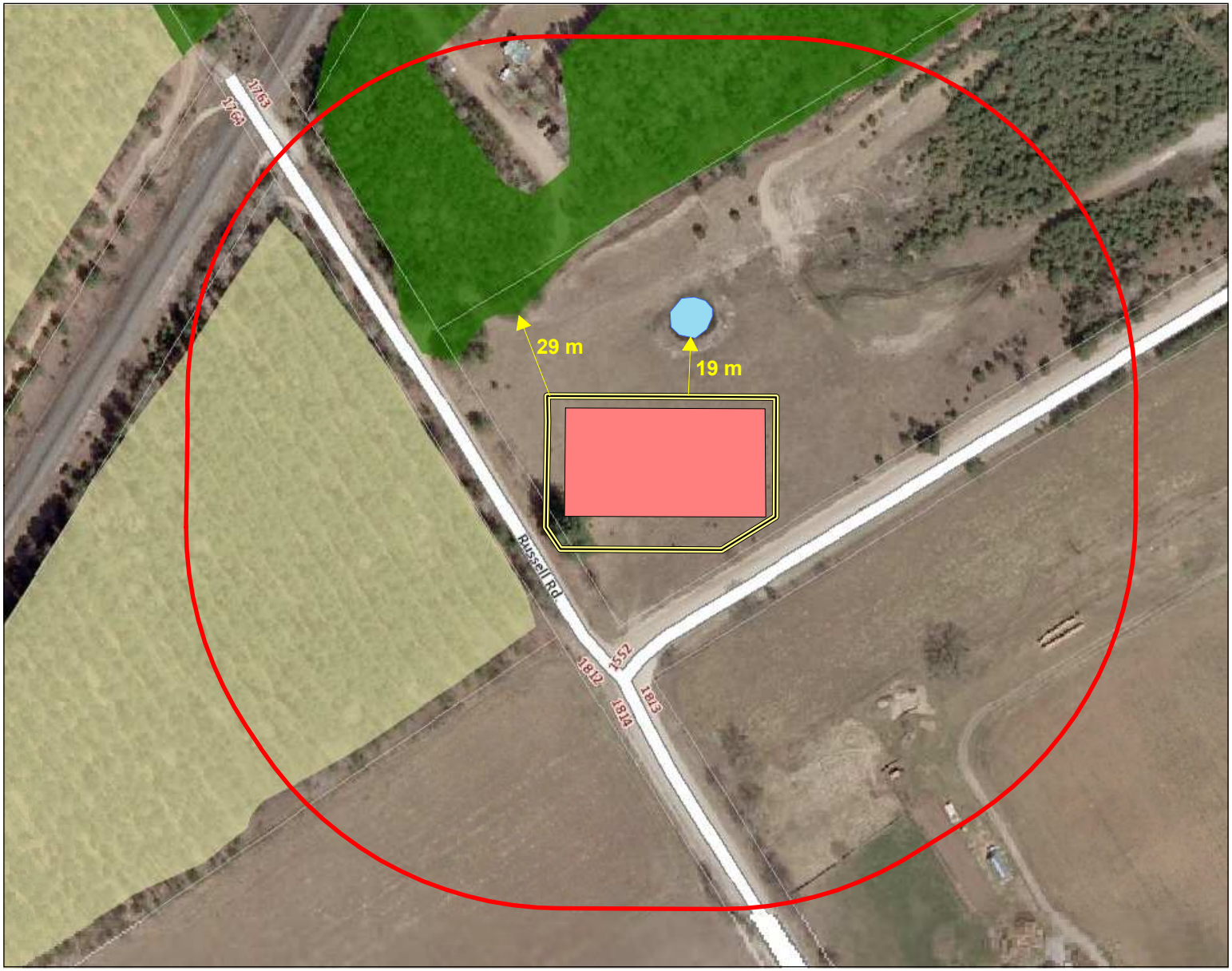
Figures



N

Legend

- Proposed Solar Panel
- Construction Limit
- 120 m Buffer
- Pond
- Forest
- Plantation

Source: County of Simcoe GIS Mapping, basd on 2008 Aerial Photography

0 12.5 25 50 75 100 125 Meters

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PROJECT TITLE:
FUTURE SOLAR DEVELOPMENTS INC. LP9
304 PHASE NATURAL HERITAGE STUDY
1572 STORY ROAD
MIDHURST, ONTARIO

DRAWING TITLE:
NATURAL HERITAGE
ASSESSMENT SITE MAP

PROJECT No.:	DWN:
WSL-00002250-00	EE
SCALE: AS NOTED	CHKD: DF
DATE: MAY 2012	FIG. No.: 1

N

Legend

- Proposed Solar Panel
- Construction Limit
- 120 m Buffer
- Pond
- MNR Unevaluated Wetland
- Forest
- Plantation

Source: County of Simcoe GIS Mapping, basd on 2008 Aerial Photography

0 10 20 40 60 80 100 Meters

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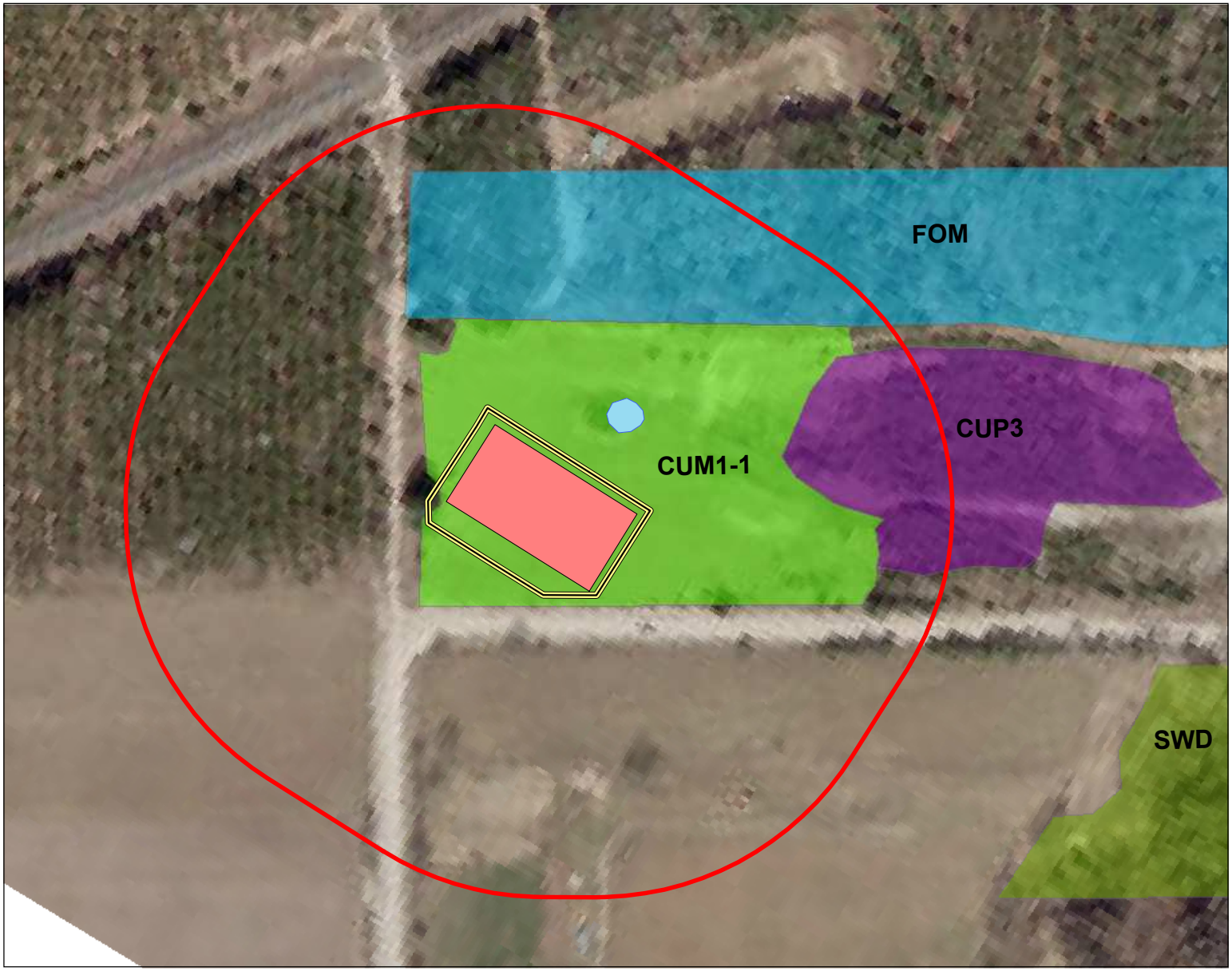
PROJECT TITLE:
FUTURE SOLAR DEVELOPMENTS INC. LP10
304 PHASE NATURAL HERITAGE STUDY
1572 STORY ROAD
MIDHURST, ONTARIO

DRAWING TITLE:
NATURAL HERITAGE
ASSESSMENT SITE MAP

PROJECT No.: WSL-00002250-00	DWN: EE
SCALE: AS NOTED	CHKD: DF
DATE: MAY 2012	FIG. No.: 2



Legend

- Proposed Solar Panel
- Construction Limit
- 120 m Buffer
- Dugout Pond
- Dry Moist Old Field Meadow Type
- Coniferous Plantation
- Mixed Forest
- Deciduous Swamp

Source: County of Simcoe GIS Mapping, basd on 2008 Aerial Photography

0 12.5 25 50 75 100 125 Meters

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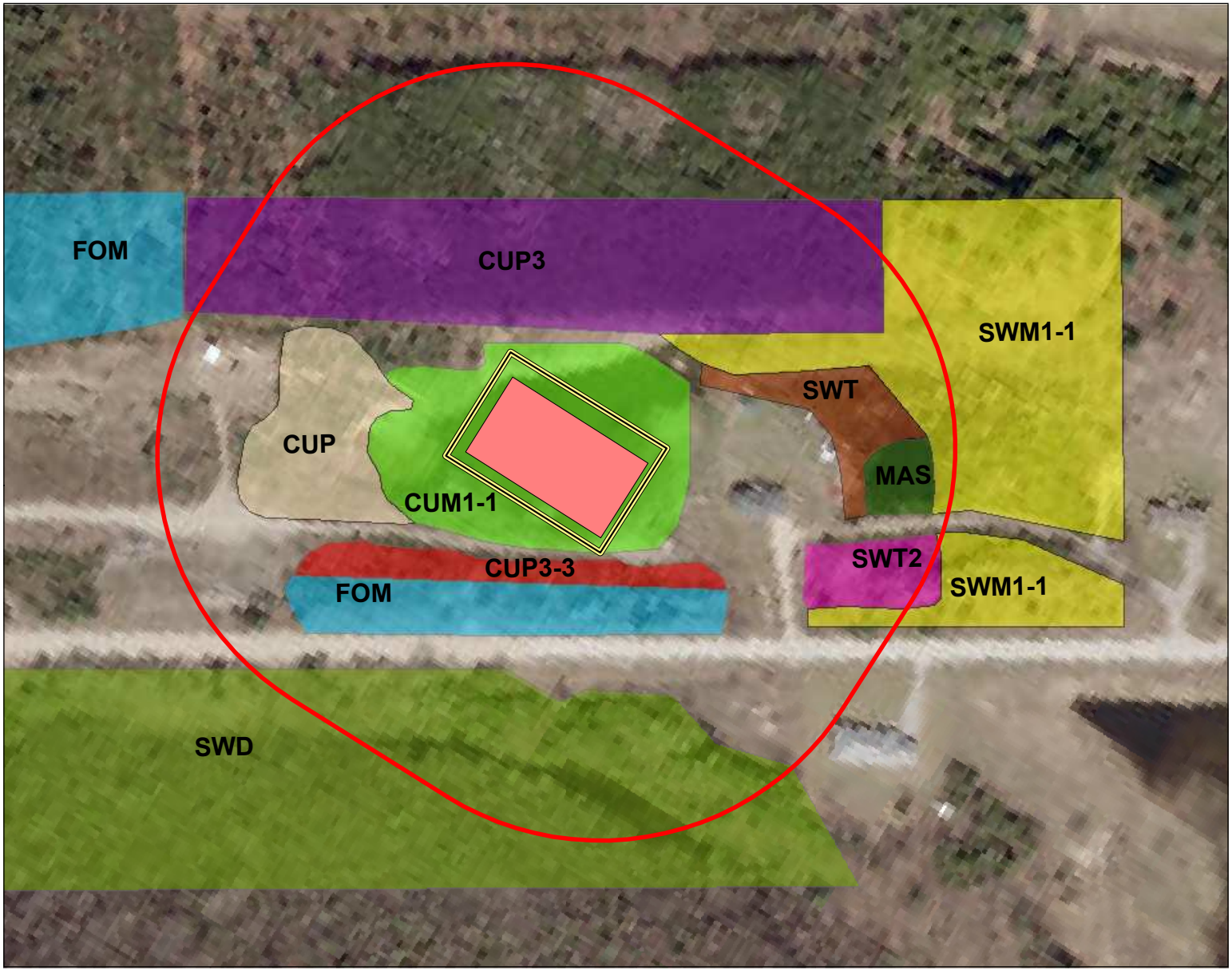
PROJECT TITLE:
FUTURE SOLAR DEVELOPMENTS INC. LP9
304 PHASE NATURAL HERITAGE STUDY
1572 STORY ROAD
MIDHURST, ONTARIO

DRAWING TITLE:
ECOLOGICAL LAND CLASSIFICATION

PROJECT No.: WSL-00002250-00	DWN: EE
SCALE: AS NOTED	CHKD: DF
DATE: SEPT 2012	FIG. No.: 3



N

Legend

- Proposed Solar Panel
- Construction Limit
- 120 m Buffer
- Cultural Plantation
- Mixed Forest
- Dry Moist Old Field Meadow Type
- Scotch Pine Coniferous Plantation Type
- Shallow Marsh
- Deciduous Swamp
- White Cedar - Hardwood Mineral Mixed Swamp Type
- Mineral Thicket Swamp Ecosite
- Thicket Swamp

Source: County of Simcoe GIS Mapping, basd on 2008 Aerial Photography

0 12.5 25 50 75 100 125 Meters

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PROJECT TITLE:
FUTURE SOLAR DEVELOPMENTS INC. LP10
304 PHASE NATURAL HERITAGE STUDY
1572 STORY ROAD
MIDHURST, ONTARIO

DRAWING TITLE:
ECOLOGICAL LAND CLASSIFICATION

PROJECT No.: WSL-00002250-00	DWN: EE
SCALE: AS NOTED	CHKD: DF
DATE: SEPT 2012	FIG. No.: 4