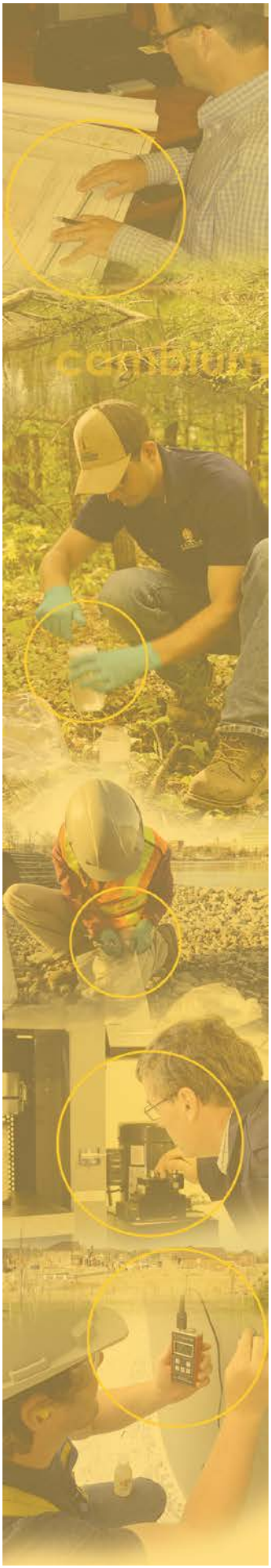

# Environmental Impact Study: Tecasy Ranch, Lot 10 & 11, Concession 3, Harvey, Municipality of Trent Lakes

Cambium Reference No.: 5154-001

2016-08-31

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# 1.0 INTRODUCTION

Cambium Inc. (Cambium) was retained by Mr. Don Middleton, Lands Manager for Tecasy Ranch, to conduct an Environmental Impact Study (EIS) to determine any potential adverse impacts to a Locally Significant Wetland and other unevaluated wetland features that could be expected to result from the construction of a mess hall, comfort station and 10 sleeping cabins at Tecasy Ranch. Tecasy Ranch is located on Lots 10 and 11, Concession 3, in the geographic Township of Harvey, Municipality of Trent Lakes (Site). The physical alterations of the Site, to allow for the construction of the noted amenities, will be limited to an existing cleared area located at the west end of Bolton's Road (municipally known as 38 Bolton's Road). There is an existing residence on the Site. The location of the Site is illustrated on Figure 1.

In much of southern and central Ontario, wetlands are protected by Conservation Authorities under their *Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulations*; however, the Municipality of Trent Lakes is not located within the jurisdiction of any Conservation Authority. Regardless of whether the Site is located within Conservation Authority jurisdiction, Cambium understands that the Municipality of Trent Lakes circulates EIS reports to Otonabee Region Conservation Authority (ORCA) and/or Kawartha Region Conservation Authority (KRCA) for review and comment. As such, the EIS and assessment of impacts has been conducted in accordance with Conservation Authority policies. The landowners are diligent in their desire to protect the natural landscape and ecological features of the Site; therefore, complying with wetland and natural heritage protection policies is of the upmost importance for all parties.

The EIS includes a species at risk (SAR) screening to determine if the Site is used as habitat by any at-risk species, as presented on the Species at Risk in Ontario (SARO) list. Species listed as endangered or threatened on the SARO list are protected under the provincial Endangered Species Act, 2007 (ESA). Section 9(1) of the ESA prohibits a person from killing, harming, harassing, capturing or taking a member of a species listed as endangered, threatened or extirpated on the SARO list. Section 10(1) of the ESA prohibits the damage or destruction of habitat of species listed as endangered or threatened on the SARO list. The Provincial Policy Statement (PPS, 2014) also protects special concern species through designation of their habitat as significant wildlife habitat (SWH). Species specific surveys were conducted for SAR reported to occur in the local area and an assessment of SWH within 120 m of the proposed development boundary has been made herein.

## 1.1 PROJECT DESCRIPTION

As noted above, the development proposal includes the construction of a mess hall, comfort station, and 10 4 person sleeping cabins. The mess hall and comfort station, with appropriate servicing (i.e. water and septic), are planned to be stationary, while the sleeping cabins are small and light enough to be relocated on an as needed basis. The Site is planned to be used for charity mountain biking events. The owners anticipate approximately 1

event per month during the snow free period, with a maximum attendance of 100 individuals at each event. There will be capacity for 40 people to spend the night at the property. Further to the mountain biking events, the owners will encourage the Site to be used on a not-for profit basis by school and community groups and academic institutions for training and passive nature based activities. Use of the on-site trail network will be limited to manual methods of transportation (i.e. biking, hiking/walking, possibly cross-country skiing); motorized use of the trails (i.e. ATVs) will be limited to maintenance activities only. There are no plans for further development of the Site at this time (i.e. additional trails or facilities).

## 1.2 SCOPE OF WORK

Cambium conducted a scoped site investigation to provide an evaluation of any reasonably anticipated ecological impacts, positive or negative, that may arise as a result of this development, to guide the planning decision making process. At the direction of the Municipality of Trent Lakes, the assessment was limited to the area that may be affected as a result of the physical alterations to the Site occurring from the construction of the noted amenities, and does not include a complete assessment of the property or the trail network. Specifically, Cambium assessed the ecological features and functions of the landscape within 120 m of the proposed development area, and has made an interpretation of potential for negative impacts on the natural features or ecological functions of the assessment area. The assessment area includes unevaluated wetland, Locally Significant Wetland, watercourse, and terrestrial features.

The EIS was conducted through the following three (3) tasks:

- Task 1 consisted of a detailed document review of existing and readily available information related to the subject property.
- Task 2 included detailed field surveys to assess ecological conditions and SAR presence/absence. Site visits occurred on: June 9, 14, 15, 19, 21, 22, and July 6, 2016. Data collected during the site visits was used to validate or revise any assumptions made in the previous task, and to add detailed site specific information as observations were made.
- Task 3 was the evaluation of the potential impacts of the ecological features within the assessment area, based on the information gathered through Tasks 1 and 2.

# 2.0 SITE DESCRIPTION

Information was gathered from provincial, municipal and private sources on land use, adjacent current and historical land use, site topography, natural heritage features and SAR.

## 2.1 LOCATION

The subject property is located approximately 4.5 kilometres (km) to the northwest of Burleigh Falls and 7 km to the northeast of Buckhorn. The Site is 1.1 km to the north of Lower Buckhorn Lake. The proposed development area is located at the municipally known address of 38 Bolton's Road. The Site is bordered by County Road 36 to the northeast, rural residential properties to the north and east, and rural lands in a natural state to the south and west.

The subject property is located within the Otonabee River watershed; however, as noted the Municipality is not within the jurisdiction of the Otonabee Region Conservation Authority. Several tributaries to Deer Bay Creek traverse the Site, with eventual discharge to Lower Buckhorn Lake.

The Site is within Ecoregions 5E and 6E.

## 2.2 NATURAL HERITAGE FEATURES

A review of available documents and mapping identified several natural heritage features associated with the Site. The regional area has abundant natural heritage features as a result of topographical influences and the abundance of surface water in this region of Ontario. Other provincially significant natural heritage features that occur in within five (5) kilometres of the Site are described below.

### *2.2.1 PROVINCIALLY SIGNIFICANT WETLAND (PSW)*

No PSW features exist on the Site. The nearest PSW is located approximately 1.2 km to the south of the Site, and is identified as the North Lovesick Lake Complex PSW. The Lower Buckhorn Lake Complex PSW is located approximately 4.7 km to the southwest of the Site.

### *2.2.2 OTHER WETLANDS*

The Deer Bay Creek Locally Significant Wetland (LSW) overlaps the Site, and is adjacent to the open space that is proposed to be developed. The tributaries to Deer Bay Creek are located within the LSW area. Further, mapping indicates that there is unevaluated wetland extending from several areas of the LSW, which if existing and connected should be considered part of the evaluated LSW.
Cambium delineated the wetland communities associated with the proposed development area as a component of the field studies. Further discussion of the LSW boundary is included in Section 4.4.1.

### *2.2.3 SIGNIFICANT WOODLAND*

Significant woodlands are identified by municipal authorities. A review of existing information suggests that the Municipality has not identified significant woodlands within their jurisdiction; therefore, there are no significant woodlands on or within 120 metres of the Site. An assessment of candidate significant woodland status is made in Section 4.2.

### *2.2.4 SIGNIFICANT VALLEYLAND*

Significant valleylands are identified by municipal authorities. A review of existing information suggests that the Municipality has not identified significant valleylands within their jurisdiction; therefore, there are no significant valleylands on or within 120 metres of the Site. No candidate significant valleylands are present in the assessment area.

### *2.2.5 SIGNIFICANT AREA OF NATURAL AND SCIENTIFIC INTEREST (ANSI)*

There are no provincially significant Life Science ANSIs on or within 120 metres of the Site, and there are no provincially significant Earth Science ANSIs on or within 50 metres of the Site.

A regionally significant Life Science ANSI is located approximately 500 m south of the property boundary and overlaps Wolf Island within Lower Buckhorn Lake.

### *2.2.6 SIGNIFICANT WILDLIFE HABITAT*

There are no significant wildlife habitat (SWH) areas overlapping the Site, as identified in County or Municipal Official Plans, land use schedules, or zoning by-laws. Provincial mapping indicates that there is a Deer Wintering Area (Stratum 2) on the opposite side of County Road 36. Candidate SWH is discussed in Section 4.3. There are no confirmed SWH areas overlapping the Site.

### *2.2.7 FISH HABITAT*

There is fish habitat present in the tributary to Deer Bay Creek that traverses the Site. At the closest point, the fish bearing watercourse is approximately 35 m from the physical development area.

Mitigation measures to ensure the adequate protection of fish and aquatic habitat are included in Section 5.0.

### *2.2.8 SPECIES AT RISK*

The Committee on the Status of Species at Risk in Ontario (COSSARO) is an independent body which undertakes the assessment of species to determine the level of risk to individual species and populations. COSSARO classifies species into several categories depending on the level of risk that individuals or populations are exposed to. Species are classified into one of five categories if they are determined to be at risk. These

categories, in declining order from the most at risk are: extinct, extirpated, endangered, threatened, and special concern (Ministry of Natural Resources and Forestry, 2014). All species classified as endangered or threatened receive legal protection under the Endangered Species Act (2007) and the Species at Risk Act (2002).

The MNRF was contacted directly to obtain records of SAR or their habitats that may be present at, or in the vicinity of the Site. Direct correspondence with the MNRF (Appendix A) revealed that there are nine (9) records of SAR species reported within the immediate area of the Site and 11 records within five kilometers (5 km) of the Site, as outlined below:

Within 1 km of the Site:

- Butternut (Endangered), Blanding's Turtle (Threatened), Eastern Hog-nosed Snake (Threatened), Barn Swallow (Threatened), Snapping Turtle (Special Concern), Eastern Ribbonsnake (Special Concern), Common Five-lined Skink (Special Concern), Eastern Whip-poor-will (Threatened) and Eastern Wood Pewee (Special Concern)

Within 5 km of the Site:

- Wood Turtle (Endangered), Eastern Musk Turtle (Special Concern), Northern Map Turtle (Special Concern), Canada Warbler (Special Concern), Cerulean Warbler (Threatened), Common Nighthawk (Special Concern), Bobolink (Threatened), Eastern Meadowlark (Threatened), Wood Thrush (Special Concern), Least Bittern (Threatened), and American Ginseng (Endangered)

Species and habitat descriptions for the above noted SAR are provided below. A summary of the potential for each species to occur within or adjacent to the assessment area based on an interpretation of aerial imagery is provided in Table 1. A detailed assessment of potential impacts to SAR is included in Section 4.1.

**Butternut (*Juglans cinerea*) - Endangered**

The butternut is designated as endangered by COSSARO and is tracked by the NHIC as a species at risk. The tree is federally regulated by the Species at Risk Act (2002). Butternut belongs to the walnut family and produces edible nuts which are a preferred food source for wildlife. The range of butternut trees is south of the Canadian Shield on soils derived from calcium rich limestone bedrock. Butternut trees, which at one time were much more common to the south extending to the northern aspect of zone 6E, have been declining due to factors including forest loss and disease. Butternut trees suffer from a highly transmissible fungal disease called butternut canker. Butternut canker is causing very rapid decline in this tree species across its native range. The fungal disease is easily transmitted by wind and is very difficult to prevent. Trees often die within a few years of infection by butternut canker (Ministry of Natural Resource and Forestry, 2014).

**Blanding's Turtle (*Emydoidea blandingii*) – Threatened**

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).

**Eastern Hog-Nosed Snake (*Heterodon platirhinos*) – Threatened**

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).

**Barn Swallow (*Hirundo rustica*) - Threatened**

The barn swallow is a threatened species, 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).

**Snapping Turtle (*Chelydra serpentina*) – Special Concern**

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 (Ministry of Natural Resources and Forestry, 2014).

**Eastern Ribbon Snake (*Thamnophis sauritus sauritus*) - Special Concern**

The eastern ribbonsnake is a small, slender snake, with colouration similar to a gartersnake; however, the ribbonsnake has a small white crescent shaped marking ahead of each eye. The ribbonsake prefers wetland habitats where its prey species, frogs and small fish, are abundant. Wetland destruction and degradation as well as shoreline development are causes for the decline of populations of the ribbonsnake (Ministry of Natural Resources and Forestry, 2014).

**Common Five-lined Skink (*Plestiodon fasciatus*) - Special Concern**

The common five-lined skink has two (2) distinct populations in Ontario. The population that has the potential to occur in the vicinity of the Site is referred to as the southern shield population. The southern shield population of this species prefers rocky habitats that include open areas for basking (Ministry of Natural Resources and Forestry, 2014).

**Eastern Whip-poor-will (*Caprimulgus vociferus*) – Threatened**

Once widespread throughout the central Great Lakes region, distribution of the Eastern Whip-poor-will in this area is now fragmented. Although there is uncertainty about the causes of the population decline, the main threat is likely habitat loss and fragmentation. Additional threats may include car mortality and food supply changes related to pesticides and climate change. The Eastern Whip-poor-will is usually found in areas with a mix of open and forested areas, such as patchy forests with clearings, forests that are regenerating after major disturbances, savannahs, open woodlands or openings in more mature forests. Breeding habitat is dependent on forest structure rather than composition, although common tree associations are pine and oak, and it nests directly on the forest floor. Its distinctive call can be heard at dusk or dawn during the breeding season, and Whip-poor-wills heard singing between mid-May and mid-July are likely local breeders (Committee on the Status of Endangered Wildlife in Canada, 2009).

**Eastern Wood-Pewee (*Contopus virens)* - Special Concern**

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).

**Wood Turtle (*Glyptemys insculpta*) – Endangered**

Wood Turtles are endangered in Ontario as a result of habitat loss and fragmentation, road mortality, pet collecting, and subsidized predators such as raccoons and skunks. In general, Wood Turtles are confined to

areas with rivers and streams that have moderate current, hard sand or sandy gravel substrates, and diverse terrestrial habitats, ranging from agricultural fields to forested areas. Wooded areas are an essential habitat component, and the species uses aquatic habitats for hibernation and mating. Nesting occurs in areas with sandy soil and abundant light (Ontario Ministry of Natural Resources, 2010).

**Eastern Musk Turtle (*Sternotherus odoratus*) – Special Concern**

The eastern musk turtle is a small freshwater turtle with a highly arched shell and a dull black-brown body. These turtles are found primarily in slow moving water bodies with abundant emergent vegetation and mucky bottoms along the southern edge of the Canadian Shield. Wetland drainage and shoreline development are among the most significant contributors to the decline in the population of this species (Ministry of Natural Resources and Forestry, 2014).

**Northern Map Turtle (*Graptemys geographica)* - Special Concern**

The northern map turtle is a medium sized turtle with a carapace marked by concentric rings that resemble contour lines on a map. The range of this turtle includes larger lakes and rivers that contain an abundance of their primary prey species; molluscs. Shoreline development, water pollution and the spread of the zebra mussel are notable reasons for the decline in populations of this species (Ministry of Natural Resources and Forestry, 2014).

**Canada Warbler (*Wilsonia canadensis*) – Special Concern**

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).

**Cerulean Warbler (*Dendroica cerulea*) – Threatened**

Cerulean Warbler is a small wood-warbler that breeds in a few areas in southern Ontario. A general continental decline of this species has been observed, possibly greater than that of any other wood-warbler. The Cerulean Warbler requires relatively large tracts of forest, and as such, the main threat to this species is habitat loss due to forest degradation and fragmentation. In Ontario, the Cerulean Warbler nests in older, second-growth deciduous forests. During breeding season, it is found in relatively large tracts of mature deciduous forests that feature large, tall trees and an open understorey. The species is considered area-sensitive and have demonstrated edge

effects up to 340 metres in the forest, with abundance positively correlated to the distance from the edge. Trees that leaf late (Bitternut Hickory; oaks) provide singing posts in its Ontario range (Environment Canada, 2011).

**Eastern Meadowlark (*Sturnella magna*) – Threatened**

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).

**Bobolink (*Dolichonyx oryzivorus*) – Threatened**

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).

**Common Nighthawk (*Chordeiles minor*) – Special Concern**

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.

**Wood Thrush (*Hylocichla mustelina)* - Special Concern**

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).

**Least Bittern (*Ixobrychus exilis*) – Threatened**

The least bittern prefers marshes and swamps dominated by emergent vegetation, preferably cattails, interspersed with patches of woody vegetation and open water. The smallest member of the heron family, least bitterns nest in marshes south of the Precambrian Shield in Ontario. Due to the location of the nests close to the water surface, least bittern nests are susceptible to damage as a result of wakes cast by recreational boats (Government of Canada, 2015).

**American Ginseng (*Panax quinquefolius*) - Endangered**

American ginseng is a perennial plant that grows up to 60 centimetres in height. The leaves typically have five leaflets arranged in a whorl at the end of the leaf stem. The root looks like a gnarly parsnip. The flowers are inconspicuous green-white in colour, but the berries are bright red and arranged in a cluster. In Ontario, American ginseng typically grows in rich, moist, and mature deciduous woods dominated by sugar maple, white ash, and American basswood (Ministry of Natural Resources and Forestry, 2014).

Table 1 provides a brief assessment of the species that may occur within 200 m of the development area, based on habitat conditions as interpreted through aerial imagery. For those species that were interpreted to have suitable habitat present within 200 m of the development area, further investigation of habitat suitability was conducted through the field studies program. Species with no suitable habitat within 200 m were excluded from further assessment.

***Table 1. Summary of Habitat Suitability for SAR within 200 m of Development Area***

| Species | Suitable Habitat Present (Y/S/N)* | Location and Proximity to Development Area | Seasonal Study Completed? |
|---|---|---|---|
| Butternut | Y | Within forested areas bordering development area | Y |
| Blanding's Turtle | Y | Possible nesting habitat adjacent to development area (i.e. forested areas; roadsides). | N |
| Eastern Hog-nosed Snake | Y | Dry upland areas adjacent to wetland and watercourse within 100 m of development area. | N |
| Barn Swallow | Y | Several outbuildings occurring within development area were identified to contain suitable habitat. Some active nests were observed. | Y |
| Snapping Turtle | Y | Generally suitable habitat in watercourse and wetland within 100 m of development area. | N |
| Eastern Ribbonsnake | Y | Generally suitable habitat within and adjacent to wetlands within 200 m of development area. | N |

| Species | Suitable Habitat Present (Y/S/N)* | Location and Proximity to Development Area | Seasonal Study Completed? |
|---|---|---|---|
| Common Five-Lined Skink | N | No suitable habitat within 200 m | N |
| Eastern Whip-poor-will | Y | Generally suitable forested areas around perimeter of development area. Prime habitat located >200 m from development area. | Y |
| Eastern Wood Pewee | Y | Within deciduous and mixed forest areas bordering the development area | Y |
| Wood Turtle | N | No suitable habitat within 200 m | N |
| Eastern Musk Turtle | Y | Generally suitable habitat in watercourse and wetland within 200 m of development area. | N |
| Northern Map Turtle | N | No suitable habitat present within 200 m of development area. | N/A |
| Canada Warbler | Y | Suitable habitat present in forested and wooded wetland areas to the west of the development area. | Y |
| Cerulean Warbler | N | Area sensitive species. Due to configuration of woodland edge, no suitable interior habitat within 200 m of development area. | Y |
| Common Nighthawk | Y | Generally suitable habitat present in open areas within 200 m of development area. | Y |
| Bobolink | N | Agricultural fields occupying development area are plowed and unsuitable habitat. No other habitat within 200 m. | N |
| Eastern Meadowlark | N | Agricultural fields occupying development area are plowed and unsuitable habitat. No other habitat within 200 m. | N |
| Wood Thrush | Y | Wooded areas within 200 m of development area. | Y |
| Least Bittern | N | No suitable habitat within 200 m of development area. | N |
| American Ginseng | N | Preferred forest type not present within 200 m of development area. | N |

## 3.0 FIELD OBSERVATIONS

The Site was visited by Cambium staff as outlined in Table 2. The purpose of the Site visits was to verify information acquired through existing documentation and to gather additional site specific information. Specifically, Cambium confirmed the boundaries of the wetlands adjacent to the proposed development area, observed the physical and ecological relationship between the development area and the wetland, made observations of flora and fauna, and assessed the Site for the presence of SAR and their habitat. Representative photos of the Site are included in Appendix B.

***Table 2. Summary of Field Investigations Completed***

| Date | Time On Site | Weather Conditions | Field Staff | Investigations Completed | Protocol |
|---|---|---|---|---|---|
| 9-Jun-16 | 12:00 PM | Calm, Sunny. 18C | AZC | Site Reconnaissance | N/A |
| 14-Jun-16 | 7:30 AM | Sunny, Clear. 11C | NSR | Breeding Bird Survey | OBBA |
| 15-Jun-16 | 9:55 PM | Calm, Clear. 15C | AZC, LES | Whip-poor-will Survey; Amphibian Survey | MNRF Protocol; MMP |
| 19-Jun-16 | 10:00 PM | Calm, Clear. 26C | LES, MC | Whip-poor-will Survey; Amphibian Survey | MNRF Protocol; MMP |
| 21-Jun-16 | 7:15 AM | Sunny. 20C | NSR | Breeding Bird Survey | OBBA |
| 22-Jun-16 | 10:30 PM | Calm, Clear. 20C | LES, EE | Whip-poor-will Survey; Amphibian Survey | MNRF Protocol; MMP |
| 6-Jul-16 | 7:15 AM | Calm, Sunny. 30C | AZC | Vegetation Inventory | SELC, OWES |

*Note: OBBA – Ontario Breeding Bird Atlas Protocol*
*MNRF Protocol – Survey Protocol for Eastern Whip-poor-will (Caprimulgus vociferus) in Ontario, August 2013*
*SELC – Ecological Land Classification System for Southern Ontario (Lee et al, 1998)*
*OWES – Ontario Wetland Evaluation System for Southern Ontario, Third Edition (2014)*

### 3.1 TOPOGRAPHY AND DRAINAGE

Two (2) tributaries to Deer Bay Creek are located within the Deer Bay Creek LSW immediately adjacent to the development area. At its nearest point, the larger of the two (2) tributaries abuts the cleared area of the Site at the southwest corner, immediately to the west of the existing residence. In this area, the watercourse takes a sharp turn to the west, away from the development area. This watercourse flows through a large culvert beneath an established trail referred to as Porcupine Path. At this location, the water depth varied between 0.3 and 0.6 m over the course of the field visits. The width of the watercourse was documented to be approximately 2.5 m at bankfull width. Several species of minnows were observed in the creek at this location, confirming that it is a fish bearing watercourse.

The smaller of the two (2) tributaries is located just north of the development area, and flows into the larger watercourse described above. This tributary is reported to be intermittent in nature, and largely influenced by the

presence of a beaver dam on the opposite side of County Road 36. Narrower and shallower, with a maximum bankfull width of approximately 1.25 m, this watercourse flows through wetland and forested areas prior to discharge to the larger tributary.

Topographically, the assessment area of the Site is generally level; however, rolling upland features are present within the forested areas to the west and northwest of the larger tributary. As evidenced by the historical agricultural fields occupying the development area, this part of the Site has few irregular rock features, and sufficient overburden material to support intentional revegetation.

The broader area of the property, outside of the assessment area, is incredibly diverse in topographical features, containing knobs and hollows, rock outcrops and escarpments, talus features and possibly some cave features. None of these features is present within 120 m of the proposed development area.

## 3.2 LOCALLY SIGNIFICANT WETLAND

The Deer Bay Creek LSW abuts the open area containing the proposed development area, on the west side. Cambium staff completed a wetland boundary delineation as a component of the work program, and has refined the LSW boundary to reflect the addition of connected, previously unevaluated, wetland features. The redefined wetland boundary is illustrated on Figure 3. Note that the delineation of the wetland boundary was limited to the features within 120 m of the development area.

## 3.3 VEGETATION CLASSIFICATION

In total, seven (7) distinct vegetation communities exist within the assessment area. The vegetation communities on the property were initially classified through aerial photograph interpretation and were confirmed through the vegetation inventory conducted on July 6, 2016, as well as incidental observations obtained on other Site visits. The Ecological Land Classification (SELC) System for Southern Ontario (Lee, 1998) was used to classify the vegetation communities on the property, which are described in detail in the following sections. Definitions of vegetation types are derived from the SELC for Southern Ontario First Approximation Field Guide (Lee, 1998) and the revised 2008 tables.

A complete vegetation species list is included as Appendix C. An illustration of the location of the vegetation communities is included as Figure 4.

### *3.3.1 WETLAND VEGETATION CLASSIFICATION*

Four (4) wetland vegetation communities exist within the assessment area, as described below. No alteration to the wetland areas is proposed. The extent of the wetland boundary within the assessment area is delineated on Figure 3.

**Deciduous Swamp Ecosite Type**

Deciduous swamp communities are characterized by greater than twenty-five percent (25%) canopy cover of hydrophytic tree and shrub species where greater than seventy-five percent (75%) deciduous species are present. These areas are subject to variable flooding regimes, but typically have standing water or evidence of vernal pooling over greater than twenty percent (20%) of the ground surface. Further classification of deciduous swamp vegetation communities is made based on species composition, and substrate type.

Black Ash Mineral Deciduous Swamp type (SWD2-1)

A mineral swamp vegetation type is present along the banks of the two (2) tributaries, and extends to the edge of the forested area adjacent to the development area. The species composition of this community is generally consistent, with dominant species including black ash (*Fraxinus nigra*), white elm (*Ulmus americana*), and Freeman's maple (*Acer x freemanii*). Understory and groundcover species included: speckled alder (*Alnus incana*), red raspberry (*Rubus idaeus*), common blackberry (*Rubus allegheniensis*), marsh fern (*Thelypteris palustris*), sensitive fern (*Onoclea sensibilis*), swamp milkweed (*Asclepias incarnata*), and meadowsweet (*Filipendula ulmaria*). According to the vegetation type description in the SELC manual (Lee, 1998), these communities occupy areas where flooding duration is short, and substrate is aerated by early to mid-summer, which is consistent with the observations made by Cambium in 2016.

**Mixed Swamp Ecosite Type**

Mixed swamp communities are characterized by greater than twenty-five percent (25%) canopy cover of hydrophytic tree and shrub species where greater than seventy-five percent (75%) of both coniferous and deciduous species must be present. These areas are subject to variable flooding regimes, but typically have standing water or evidence of vernal pooling over greater than twenty percent (20%) of the ground surface. Further classification of mixed swamp vegetation communities is made based on species composition, and substrate type.

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

There are two (2) occurrences of this vegetation type within the assessment area, occupying transitional zones between wetland had terrestrial habitats. These areas are anticipated to be seasonally saturated, but dry by early to mid-summer. Both areas are dominated by a combination of eastern white cedar (*Thuja occidentalis*), black ash, trembling aspen (*Populus tremuloides*) and white birch (*Betula papyrifera*). The understory is sparsely vegetated with sensitive fern, riverbank grape (*Vitis riparia*), and marsh bedstraw (*Galium palustre*).

**Thicket Swamp Ecosite Type**

Thicket swamp communities are characterized by the presence of hydrophytic shrub species over twenty-five percent (25%) or greater of the ground surface, with tree species present over less than twenty-five percent (25%)

of the surface area. These communities have variable flooding regimes with water depths ranging up to two (2) metres. Thicket swamp communities are classified based on substrate type and the most dominant shrub species present; though it is common for thicket swamps to support more than one shrub species within the thicket community. Ground cover is highly dependent on typical water depths.

Alder Mineral Thicket Swamp type (SWT2-1)

Two (2) alder thicket swamp areas exist in the assessment area: one (1) to the northeast and one (1) to the southwest of the development area. Generally consistent in composition, these areas support less than 10% cover of trees greater than 10 m height, with species including: Manitoba maple (*Acer negundo*), white birch, red maple, and white elm. Speckled alder (*Alnus incana*) dominates these areas, with lesser percentages of meadow willow (*Salix petiolaris*) and Bebb's willow (*Salix bebbiana*). Herbaceous species include: cyperus-like sedge (*Carex pseudocyperus*), reed canary grass (*Phalaris arundinacea*), royal fern (*Osmunda regalis*), spotted joe-pye weed (*Eutrochium maculatum*), and boneset (*Eupatorium peroliatum*).

**Meadow Marsh Ecosite Type**

Meadow marsh vegetation communities are subject to variable flooding regimes, with water depths reaching up to two (2) metres. Flooding is typically seasonal with moist to dry conditions predominating during the dry months of summer. Substrate types vary from bedrock to organic. Grasses and sedges usually dominate these communities with colonial species present in areas with rich soils and ideal growing conditions.

Broad-leaved Sedge Mineral Meadow Marsh type (MAM2-6)

A small patch of sedge meadow is present within the deciduous swamp to the west of the proposed development area. The meadow appears to be the result of a slight depression in topography, which has led to increased moisture within this area. The meadow is dominated by two (2) species of sedge (*Carex diandra* and *Carex utriculata*) with sporadic occurrences of boneset and spotted joe-pye weed. The periphery of the meadow is occupied by the black ash deciduous swamp type; however, and increased percentage of coniferous species such as white spruce (*Picea glauca*) and balsam fir is present immediately along the edge of the meadow.

### *3.3.2 TERRESTRIAL VEGETATION CLASSIFICATION*

The following four (4) distinct terrestrial vegetation communities were identified on the Site in 2016.

**Deciduous Forest Ecosite Type**

Deciduous Forest communities display tree canopy cover greater than sixty percent (60%), with deciduous species dominating greater than seventy five percent (75%) of trees present. These communities are common to all substrate types and site conditions, and vary in canopy closure from dense to patchy in nature.

Fresh-Moist Sugar Maple – Yellow Birch Deciduous Forest type (FOD6-3)

The sugar maple yellow birch deciduous forest is present on the upland fringe of the wetland area, to the north and east of the confluence of the two (2) tributaries. This area is dominated by red maple (*Acer rubrum*), yellow birch (*Betula alleghaniensis*) and white birch. At the moist end of the spectrum, this community has black ash (*Fraxinus nigra*) and balsam fir (*Abies balsamifera*) present in the understory. Groundcover includes white baneberry (*Actea pachypoda*), white-grained mountain rice (*Oryzopsis asperfolia*), tall meadowrue (*Thalictrum pubescens*) and sensitive fern with saplings of oak and ash.

**Mixed Forest Ecosite Type**

Mixed forest communities are characterized by tree cover of greater than 60%, with coniferous and deciduous species each making up 25% or greater of the total canopy cover. These communities succeed on a variety of substrates, and exist in multiple species combinations. Two (2) types of mixed forest exist within the assessment area.

Fresh White Cedar – Hardwood Mixed Forest type (FOM7-2)

A small pocket of upland mixed forest exists within the deciduous forest adjacent to the development area, due to a slight rise in topography. The mixed forest is dominated by eastern white cedar, red maple, and white birch, with several mature white pines (*Pinus strobus*). Understory vegetation was sparse and included chokecherry (*Prunus virginiana*), broad-leaved goldenrod (*Solidago flexicaulis*), and poplar saplings.

Dry White Pine – Oak Mixed Forest type (FOM2-1)

On the west side of the creek, immediately to the west of the existing residence, the topography changes substantially and is dominated by a rocky, rolling landscape. The upland forest present in this area is dominated by a dry community of white pine, red oak (*Quercus rubra*), and red maple. Exposed rock is visible in several areas, with richer vegetation present in the hollows between the outcrops.

**Cultural Meadow Ecosite Type**

A cultural meadow is described as a community on mineral soil substrates of at least fifteen (15) cm in depth, with tree and shrub cover of less than or equal to twenty-five percent (25%). Importantly, they are defined as “open communities originating from, or maintained by, anthropogenic or culturally based disturbances; often having a large proportion of introduced species” (Lee et. al., 1998). As is common with culturally influenced communities species composition is primarily composed of non-native species, escaped cultivars and early successional species.

Fresh Old Field Meadow type (CUM1-1)

The open, historically cultivated areas occupying and surrounding the proposed development area are classified as cultural meadow, and are dominated by introduced species. The majority of this area has been plowed in the last year, and at the time of the Site visits in 2016 were dominated by patchy low vegetation planted earlier in the

current season (i.e. red clover and grasses), or naturally regenerating after the most recent plowing. A treed hedgerow is present, bisecting the field in the approximate area of the proposed development. The hedgerow will be maintained; however, regular maintenance will be completed to ensure no risk to human health and safety (i.e. dead or broken limbs, standing dead trees, etc.). Species present in the meadow included red clover (*Trifolium pratense*), oxeye daisy (*Leucanthemum vulgare*), tall buttercup (*Ranunculus acris*), Canada goldenrod (*Solidago canadensis*), meadow timothy (*Phleum pratense*), wild carrot (*Daucus carota*), and English plantain (*Plantago lanceolata*). Small sections of perennial hay were present adjacent to the house and outbuildings. The vegetation in these areas was taller and more densely vegetated than the field areas; however, the area was not large enough to support the use of the area by grassland bird species (i.e. less than 1 acre total of potentially suitable habitat).

Within the proposed development area, soil was observed to be well drained, and consisted primarily of sands. Toward the north, west and northeast sections of the field, increased soil moisture was evident in the cleared areas immediately bordering the wetland communities.

## 3.4 FAUNA

### *3.4.1 MAMMALS*

The property is used by an abundance of regional wildlife including bear, deer, coyote, fox, small mammals (i.e. skunk, squirrels, etc.) and furbearing mammals. The Lands Manager for the property actively monitors wildlife use of the Site through tracks, trail cameras, and general observation. To encourage wildlife use of the Site, several locations on the property are actively managed to attract wildlife. Food plots are planted in two (2) locations, one of which is within 120 m of the proposed development area. Food plots are annually seeded with: 50% double cut red clover, 20% grains, 15% common timothy, 5% snow peas, and 5% purple top turnip. The location of the proximal food plot is illustrated on Figure 5. The second food plot is located approximately 400 m to the south of the proposed development area.

The development is limited to the open area of the Site formerly used for agriculture, and apart from minor maintenance of the hedgerow bisecting the development Site no vegetation removal is planned. Mammals certainly use the property and the vegetated corridors along the wetland for travel. Natural travel corridors provided by the wetland features and adjacent vegetated upland areas will be maintained. Further, many mammals are anticipated to use portions of the Site for food, breeding and shelter, and these areas will be unaffected by the proposed development. Due to the areal extent of the property, the diverse habitat available, and the significant tracts of undisturbed forest and wetland within the Site boundaries and surrounding area, continued habitation of the Site by regional wildlife is expected.

Attracting wildlife to developed areas should be avoided so that they do not become habituated. Trail users should be encouraged to follow a strict "pack in, pack out" rule, and garbage collection points should not be located along trails. Garbage should be collected in a designated location at the proposed development site, and kept contained when outdoors. Regular transfer of waste to a designated waste management facility should occur, to discourage interaction between wildlife and domestic waste.

### *3.4.2 AMPHIBIANS AND REPTILES*

The local area is prime habitat for amphibians and reptiles, with suitable habitat for all regionally occurring species present on the Site. Within the assessment area (i.e. 120 m of the proposed development site), there is suitable amphibian breeding and resident habitat, and suitable nesting habitat for several turtle species. Suitable habitat is found throughout the LSW for breeding, shelter and forage for these species. Suitable habitat certainly exists within the surrounding forest, which is rich with vernal pools in the wetland sections of the property.

Cambium completed amphibian surveys concurrent with the whip-poor-will surveys conducted in June, 2016. Due to the timing of contract award, Cambium was not able to conduct any amphibian surveys earlier in the spring, as is recommended by the Marsh Monitoring Program protocol. The results of the amphibian surveys are detailed in Table 3, below:

***Table 3. Amphibian Survey Results***

| Date | Time On Site | Weather Conditions | Species documented | Protocol |
|---|---|---|---|---|
| 15-Jun-16 | 9:55 PM | Calm, Clear. 15C | grey treefrog, green frog | MMP |
| 19-Jun-16 | 10:00 PM | Calm, Clear. 26C | grey treefrog, leopard frog | MMP |
| 22-Jun-16 | 10:30 PM | Calm, Clear. 20C | green frog, bull frog, leopard frog | MMP |
| 06-Jul-16 | 9:15 AM | Sunny. 27C | green frog, leopard frog, pickerel frog | incidental observations |

*Note: MMP = Marsh Monitoring Program Protocol*

Targeted surveys for reptiles were not completed, due to the historically disturbed nature of the proposed development area. It is possible that some turtles may nest in peripheral areas within 120 m of the development site due to the sandy soils present. Cambium staff visited the Site on numerous occasions in May through early July, 2016, which is the prime nesting period for turtles in this region of Ontario. No evidence of nests or nest predation was observed within the assessment area. The Lands Manager indicated the turtles are known to nest near the wetland area at the northwest extent of the assessment area (proximal to breeding bird monitoring station #2) and on the embankments of County Road 36; however no evidence of nesting was observed by Cambium staff in 2016. These potential nesting areas are outside of any potential influence of the proposed works, and are therefore expected to be unaffected by the development proposal.

To protect amphibian and reptile species during sensitive periods (i.e. migration for nesting and hibernation), trail users should be made aware of the potential presence of these species crossing trails during the months of April to July, and mid-September to early November. If encountered on trails, wildlife should be left to move out of harm's way, and should not be handled.

Amphibian and reptile species will be sufficiently protected from potential negative impacts if the recommendations outlined herein and reiterated in Section 5.0 are adhered to.

### *3.4.3 AVIFAUNA*

Cambium completed a breeding bird inventory of the Site, specifically within the areas that could be reasonably anticipated to be impacted by the development, using the Breeding Bird Atlas of Ontario (the Atlas) point count methodology. The point count was conducted during the peak of the breeding season, on June 14 and 21, 2016, on calm mornings with no fog or precipitation within five (5) hours of dawn, as specified by the Atlas. Monitoring locations were pre-determined based on habitat characteristics, and observations (visual and auditory) were recorded for a five (5) minute period. Twenty-four species were documented in total for the property including incidental observations made on previous and subsequent site visits. A single at risk species, barn swallow (*Hirundo rustica*), was identified in the proposed development area, and active nests were observed in the outbuilding closest to the development area. The building, which is newer in construction and was formerly used to house horses, is planned to be maintained on the Site. No grassland SAR (i.e. bobolink or eastern meadowlark) were documented on the Site, and suitable breeding habitat for these species does not exist within the proposed development area. An avifauna list and complete breeding bird survey observations are included as Appendix D. OBBA occurrence data is included in

Targeted surveys for whip-poor-will were completed during the approved period surrounding the full moon in June, 2016, with survey dates ranging from June 15 to June 22. On all site visits the moon was illuminated and conditions were calm and clear. While the MNRF prefers that the surveys be split between the May and June full moon events, approval was received from the MNRF to conduct all surveys during the same lunar cycle (see Appendix A). No whip-poor-will were seen or heard during the targeted surveys completed in 2016.

The subject property is used by an abundance of bird species that prefer a wide range of habitat types including forest interior, forest edge, wetland and open meadow. The proposed development of the Site will not significantly impact species reliant on these habitats for several reasons. The only habitat that is proposed to be directly altered by the development is the open meadow/agricultural area where the buildings and parking area will be situated. Suitable meadow habitat will continue to exist immediately surrounding the development area following the completion of the development, and no at risk grassland bird species were identified on the Site. Species observed within the portion of the Site proposed for development included generalist species and species

adapted to human presence or structures. None of these species are considered to be affected by the proposed development, provided that the structure containing the barn swallow habitat is maintained in its current state.

Secondly, use of forest edge and forest interior will not be altered as a result of the proposed development. Forest edge species are generalists, and will not be impacted by slight changes to their surroundings. The proposed development will be located a minimum of 30 m from the forest/wetland edge, decreasing the potential for affects to species using the edge areas. Forest interior species, which are more sensitive to development, prefer nesting habitat of greater than 100 metres inside of the forest edge, and some sensitive species require nesting habitat greater than 200 metres within the forest edge. Existing conditions in respect to the availability of interior forest habitat will not change as a result of the development.

Based on the assessment of the property, the proposed development of the property is not expected to have a significant impact on local bird populations.

### *3.4.4 FISH*

Fish habitat is present in the tributary to Deer Bay Creek, which traverses the Site. A direct inventory of fish was not completed as a component of the EIS due to the recognition that a minimum 30 m vegetated development setback from the creek would be maintained. Water levels in the watercourse varied over the course of the work program, and were likely highly influenced by the very dry and hot conditions experienced through the month of June. In early June, the watercourse was observed to be flowing, with minnow species observed at the culvert beneath the trail crossing nearest to the proposed development. Water depth was documented to be approximately 0.6 m in early June and the width of the watercourse was estimated to be 2.5 m at bankfull width. In July, water elevation at the culvert crossing had decreased to 0.3 m, and portions of the creek were observed to be dry upstream of the culvert location, and turbid still waters were observed downstream. No fish were observed in the creek in July.

Mitigation measures to protect fish and fish habitat are included in Section 5.0.

# 4.0 EVALUATION OF PROPOSED DEVELOPMENT

Due to the presence of unevaluated wetland and a LSW adjacent to the proposed development area, as well as SAR records for the local area, an EIS was requested by the Municipality to ensure that the proposed development will not cause negative impacts to the natural environment. An evaluation of the potential ecological effects of the development proposal is included in the following sections. All aspects of the development are proposed to be greater than 30 m from the wetland boundary.

## 4.1 SPECIES AT RISK

Species listed as endangered or threatened on the SARO list are protected under the provincial Endangered Species Act, 2007 (ESA). Section 9(1) of the ESA prohibits a person from killing, harming, harassing, capturing or taking a member of a species listed as endangered, threatened or extirpated on the SARO list. Section 10(1) of the ESA prohibits the damage or destruction of habitat of species listed as endangered or threatened on the SARO list. The PPS also protects special concern species through designation of their habitat as significant wildlife habitat (SWH).

To address potential SAR occurrence based on suitable habitat present in the vicinity of the proposed development, specific investigation into the presence of the following species was undertaken:

***Table 4. Summary of Inspection for SAR Occurrence***

| Species | Suitable Habitat Present (Y/S/N)* | Location and Proximity to Development Area | Species Present (Y/N) |
|---|---|---|---|
| Butternut | Y | Within forested areas bordering development area | N |
| Barn Swallow | Y | Several outbuildings occurring within development area were identified to contain suitable habitat. Some active nests were observed. | Y |
| Eastern Whip-poor-will | Y | Generally suitable forested areas around perimeter of development area. Prime habitat located >200 m from development area. | N |
| Eastern Wood Pewee | Y | Within deciduous and mixed forest areas bordering the development area | N |
| Canada Warbler | Y | Suitable habitat present in forested and wooded wetland areas to the west of the development area. | N |
| Common Nighthawk | Y | Generally suitable habitat present in open areas within 200 m of development area. | N |

| Species | Suitable Habitat Present (Y/S/N)* | Location and Proximity to Development Area | Species Present (Y/N) |
|---|---|---|---|
| Wood Thrush | Y | Wooded areas within 200 m of development area. | N |

While bobolink, eastern meadowlark, and cerulean warbler are not included in the list above, these species would have been detected during the breeding bird surveys conducted, if present.

The only SAR documented on the Site was barn swallow, with active nests in the horse shelter nearest to the proposed development area. Several swallows were observed to be foraging over the open area of the Site. All of the outbuildings on the Site were inspected for barn swallow nests, and no additional nesting locations were found. Four (4) of the outbuildings are planned to be removed during the development process. Due to the lack of barn swallow nests within these structures, their removal will not result in a contravention of the ESA, if the structures are removed prior to the start of the breeding season in 2017 (i.e. May 1). In the event that the structures are not removed until after that time, an additional inspection by a qualified biologist is advised to ensure that the structures are not being used by barn swallows in subsequent breeding seasons.

While no additional SAR were identified on the Site in 2016, any species that are subsequently identified on the Site should be reported to the MNRF.

## 4.2 CANDIDATE SIGNIFICANT WOODLAND STATUS

In the absence of a comprehensive study by the planning authority, the *Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005 Second Edition* (NHRM; (Ministry of Natural Resources, 2010)) provides the criteria by which woodland is evaluated for provincial significance. The NHRM is the Province of Ontario's guidance document regarding natural heritage features, including significant woodlands. Under Section 7.0, the NHRM outlines the process and criteria by which a treed area is assessed and may be classified as *candidate significant woodland*. Significant woodlands are designated by planning authorities; therefore, following the classification of woodland as *candidate significant woodland*, the planning authority should consider the official designation of these woodlands as significant.

The Provincial Policy Statement (PPS; 2014) specifies that woodlands be delineated using the Forestry Act definition or the Ecological Land Classification (SELC) system definition for "forest"; Cambium used SELC to delineate and classify the woodlands within the assessment area. Forest communities are those with greater than 60 percent (%) tree cover.

The NHRM identifies four (4) main criteria for assessing woodlands for significance, with additional specific criteria under each; woodland size, ecological functions, uncommon characteristics, and economic and social functional values. Cambium used the information collected through the background review and the field

investigations to evaluate the forest communities within the assessment area for significance. The NHRM recommends that a treed area meeting any one (1) of the recommended criteria be deemed candidate significant woodland.

Cambium identified three (3) forest communities within the assessment area:

- Fresh-Moist Sugar Maple – Yellow Birch Deciduous Forest (FOD6-3)
- Fresh White Cedar – Hardwood Mixed Forest type (FOM7-2)
- Dry White Pine – Oak Mixed Forest type (FOM2-1)

The table below provides a summary of the interpretation of significant woodland status for each of the three (3) communities:

***Table 5. Summary of Candidate Significant Woodland Status***

| Community | Candidate Significant Woodland Criteria | | | |
|---|---|---|---|---|
| | **Woodland Size (ha)** | **Ecological Functions** | **Uncommon Characteristics** | **Economic and Social Values** |
| FOD6-3 | - (0.55) | X | - | - |
| FOM7-2 | - (0.13) | - | - | - |
| FOM2-1 | - (0.10) | X | - | - |

*Note: "X" indicates that criteria is met*
*"-" indicates that criteria is not met*

The evaluation provided above is a preliminary interpretation of woodland status within the assessment area; however, a comprehensive assessment cannot be made at this time due to extension of the forest communities outside of the assessment area. Based on the above evaluation, communities FOD6-3 and FOM2-1 meet minimum criteria for candidate significant woodland designation, based on the assumption that the minimum size criteria for all contiguous wooded areas on the Site (combined 50 ha) would be met. Designation of a small portion of the Site that is not inclusive of entire forest communities does not meet the intent of significant woodland designation under the PPS. If undertaken, designation of significant woodland on the Site should be inclusive of all significant wooded areas and not limited to those areas within the currently assessed area related to the proposed development. In the event that the municipal planning authority is interested in applying (candidate) significant woodland designation to the forested areas of the Site, Cambium advises that a thorough assessment of the entire Site area be completed. Due to the lack of planned disturbance to the forested areas of the Site, Cambium does not consider a thorough evaluation of significant woodland status for the entire property to be warranted.

## 4.3 CANDIDATE SIGNIFICANT WILDLIFE HABITAT STATUS

The proposed development area is located at the southerly limit of Ecodistrict 5E-11, therefore the Significant Wildlife Habitat Criteria Schedules for Ecoregion 5E (Ontario Ministry of Natural Resources and Forestry, January

2015) apply to the proposed works. A portion of the southwest extent of the Site is located in Ecodistrict 6E-9; therefore, the Ecoregion 6E SWH Criteria Schedules are also considered to be relevant to the Site.

Table 6 summarizes the evaluation of candidate SWH that was completed for the Site, based on the vegetation communities present, as classified according to the SELC (Lee, 1998). The SELC was used as the basis for the evaluation of SWH in the absence of an approved version of the Ecological Land classification Field Manual – Great Lakes-St. Lawrence Region, which is currently only available in Operational Draft form (Ministry of Natural Resources and Forestry, 2009). Due to the proximity of the development area to the Ecoregion 5E/6E boundary, and the consistency of Site characteristics with lands in the north region of Ecoregion 6E, the use of the SELC is considered to be appropriate.

All possible candidate SWH types were investigated, if suitable vegetation communities were determined to be present. For the most part, candidate SWH does not exist within the assessment area. Habitat conditions indicate that there may be candidate SWH for Amphibian Breeding (Woodland), associated with the alder thicket and adjacent upland mixed and deciduous forest communities. A complete interpretation of whether this area would meet the criteria for SWH could not be made in 2016, due to the date of contract award for the EIS, which was after the early spring amphibian breeding period. Cambium did conduct amphibian surveys in mid-June, and identified several species of frogs present within the wetland and adjacent wooded areas. No direct assessment of salamander breeding activity was possible due to the time of year. Further field study in April and May would be required to make a definitive assessment of Amphibian Breeding (Woodland) status; however, considering that the development proposal is limited to an existing cleared area greater than 30 m from the boundary of the wetland, potential impacts to amphibian breeding behaviour is low. There will be no physical alteration to the natural areas of the Site; therefore, Cambium does not consider further investigation into candidate SWH to be necessary, as related to the current development proposal.

***Table 6. Candidate Significant Wildlife Habitat Assessment***

| Candidate SWH | Relevant Vegetation Types | Habitat Description | Associated Species | Overlapped by Development Proposal | Within 120 m of Development Proposal | Relevant Evaluation Criteria Determining Status | Candidate Significant |
|---|---|---|---|---|---|---|---|
| Bat Maternity Colonies | FOM, FOD, SWD, SWM | Tree cavities, vegetation and often buildings (buildings not considered SWH). Mature deciduous and mixed forest stands with >10/ha wildlife trees >25 cm DBH. | Big Brown Bat, Silver-haired Bat | N | N | Forested areas within 120 m of development area did not have a sufficient number of large diameter wildlife trees. | N |
| Reptile Hibernaculum | FOD, FOM | Burrows, rock crevices and other natural or naturalized locations below frost line. Rock piles or slopes, old stone fences, abandoned crumbling foundations. Areas of broken or fissured rock. Conifer or shrub swamps/swales, poor fens, depressions in bedrock with accumulations of sphagnum moss or sedge hummock ground cover. | Eastern Gartersnake, Northern Watersnake, Northern Red-bellied Snake, Northern Brownsnake, Smooth Green Snake, Northern Ring-necked Snake, Milksnake, Eastern Ribbonsnake, Five-lined Skink (Southern Shield Population) | N | N | No habitat meeting habitat description present within assessment area. | N |
| Bald Eagle and Osprey Nesting, Foraging and Perching Habitat | FOM, FOD, SWD, SWM | Nesting areas are associated with waterbodies along forested shorelines, islands, or on structures over water. | Osprey, Bald Eagle | N | N | No habitat meeting habitat description present within assessment area. | N |
| Woodland Raptor Nesting Habitat | FOM, FOD, SWD, SWM | Natural or conifer plantation woodland/forest stands >30 ha with > 10 ha interior habitat. Interior habitat determined with 200 m buffer from forest edge. Stick nests found in mid-aged to mature forest stands in tops or crotches of trees. | Northern Goshawk, Cooper's Hawk, Sharp-shinned Hawk, Red-shouldered Hawk, Barred Owl, Broad-winged Hawk | N | N | No interior habitat occurring within assessment area. | N |

| Candidate SWH | Relevant Vegetation Types | Habitat Description | Associated Species | Overlapped by Development Proposal | Within 120 m of Development Proposal | Relevant Evaluation Criteria Determining Status | Candidate Significant |
|---|---|---|---|---|---|---|---|
| Seeps and Springs | FOD, FOM | Any forested area within the headwaters of a stream/river system. | Wild Turkey, Ruffed Grouse, Spruce Grouse, White-tailed Deer, Salamander spp. | N | N | No seeps or springs were observed in the assessment area. | N |
| Amphibian Breeding Habitat (Woodland) | FOM, FOD, SWD, SWM | Wetland, pond or woodland pool of >500m2 within or adjacent to wooded areas. Permanent ponds or those containing water until mid-July are preferred. | Eastern Newt, Blue-spotted Salamander, Spotted Salamander, Gray Treefrog, Spring Peeper, Western Chorus Frog, Wood Frog | N | Y | Sufficient wetland habitat within alder swamp thicket adjacent to the mixed and deciduous forest areas. Early spring studies would be required to determine use by salamander and listed frog species. | P |
| Area-Sensitive Bird Breeding Habitat | FOM, FOD, SWD, SWM | Large mature (>60 years) forest stands or woodlots > 30 ha. Interior forest habitat of >200 m from forest edge. | Yellow-bellied Sapsucker, Red-breasted Nuthatch, Veery, Blue-headed Vireo, Black-throated Green Warbler, Black-throated Blue Warbler, Blackburnian Warbler, Ovenbird, Scarlet Tanager, Winter Wren, Cerulean Warbler, Canada Warbler | N | N | No interior habitat occurring within assessment area. | N |
| Turtle Wintering Area | SWD, SWM, SWT | Typically in same general area as core habitat. Free water beneath ice. Soft mud substrate. Permanent water bodies, large wetlands, bogs, fens with adequate DO. | Midland Painted Turtle, Snapping Turtle, Northern Map Turtle | N | N | No habitat meeting habitat description present within assessment area. | N |

| Candidate SWH | Relevant Vegetation Types | Habitat Description | Associated Species | Overlapped by Development Proposal | Within 120 m of Development Proposal | Relevant Evaluation Criteria Determining Status | Candidate Significant |
|---|---|---|---|---|---|---|---|
| Amphibian Breeding Habitat (Wetland) | SWD, SWM | Wetland ecosites >500m$^2$ isolated from woodland ecosites with high species diversity. Presence of shrubs and logs may increase significance for some species. Permanent water with abundant vegetation for Bullfrogs. | American Toad, Spotted Salamander, Four-toed Salamander, Blue-spotted Salamander, Gray Treefrog, Western Chorus Frog, Northern Leopard Frog, Pickerel Frog, Green Frog, Mink Frog, Bullfrog | N | N | No habitat meeting habitat description present within assessment area. | N |
| Marsh Breeding Bird Habitat - Green Heron | SWD, SWM, SWT, CUM | Wetlands with shallow water and emergent vegetation. Habitat is at water's edge sheltered by shrubs and trees, or may be a considerable distance from water. | Green Heron | N | N | No habitat meeting habitat description present within assessment area. | N |
| Marsh Breeding Bird Habitat | MAM | Wetlands with shallow water and emergent vegetation. | American Bittern, Virginia Rail, Sora, Common Moorhen, American Coot, Pied-billed Grebe, Marsh Wren, Sedge Wren, Common Loon, Sandhill Crane, Trumpeter Swan, Black Tern, Yellow Rail | N | N | Meadow marsh present within assessment area is of insufficient area to support breeding of the associated species. | N |
| Open Country Bird Breeding Habitat (CUM1&2) | CUM | Large grasslands and cultural fields and meadows >30 ha. Cultural areas not being actively used for farming. Habitat established for 5 years or more. | Upland Sandpiper, Grasshopper Sparrow, Vesper Sparrow, Northern Harrier, Savannah Sparrow, Short-eared Owl | N | N | No habitat meeting habitat description present within assessment area. | N |

| Candidate SWH | Relevant Vegetation Types | Habitat Description | Associated Species | Overlapped by Development Proposal | Within 120 m of Development Proposal | Relevant Evaluation Criteria Determining Status | Candidate Significant |
|---|---|---|---|---|---|---|---|
| Waterfowl Stopover and Staging Areas (Terrestrial) | CUM | Fields with sheet water during spring (mid-March to May). Fields flooding during spring snow-melt and run-off provide important invertebrate foraging habitat for migrating waterfowl. | American Black Duck, Wood Duck, Green-winged Teal, Blue-winged Teal, Mallard, Northern Pintail, Northern Shoveler, American Wigeon, Gadwall | N | N | No habitat meeting habitat description present within assessment area. | N |

*Note: P = Possible – further field study would be required to make a definitive assessment*

## 4.4 WATER RESOURCES

### *4.4.1 LOCALLY SIGNIFICANT WETLAND*

Cambium completed a wetland delineation within the assessment area, and recommends that the newly delineated wetland areas be added to the existing locally significant wetland. While the newly identified wetland is a different wetland type than the currently mapped LSW, the wetland areas are hydrologically connected and should be classified as one unit. The redefined wetland boundary within the assessment area is illustrated on Figure 3.

A development setback of 30 m has been applied to the redefined wetland boundary. The proposed development area presented on Figure 3 through Figure 6 was derived from the conceptual development plan prepared by the client's planner, EcoVue Consulting Services Inc. Based on Cambium's assessment of the natural heritage features on and surrounding the proposed development area, all previously cleared (i.e. Cultural Meadow (CUM)) land located outside of the 30 m development setback is considered to be suitable for building. The conceptual development plan can be altered according to client needs, provided that all aspects of the physical development remain outside of the 30 m development setback identified on Figure 6.

### *4.4.2 FLOOD ATTENUATION*

The proposed development does not involve cut and fill within any portion of the Site that would contribute to flood attenuation. Minor grading may be required to prepare the footprint locations of the parking area, mess hall and comfort stations. Otherwise, the existing natural grade of the Site will be maintained.

Runoff from the Site is expected to increase with the addition of impermeable surface (i.e. building roofs) and compacted surfaces with reduced infiltration capacity (i.e. laneways and parking areas). Measures to increase infiltration of run-off from these surfaces should be encouraged. Measures may include the use of grassed swales and rain gardens along parking areas and laneways to capture and store run-off and facilitate infiltration. Eavestrough downspouts should be directed to grassed or vegetated areas to allow for infiltration of the run-off into the ground.

The parking area is proposed to be located 30 m from the wetland boundary, in the southwest portion of the development area. The topography in this area slopes moderately toward the wetland and watercourse. The 30 m setback area is currently vegetated; however, Cambium recommends that vegetation be enhanced in this area to slow runoff from the parking area toward the wetland and watercourse. Three (3) rows of shrubs should be planted perpendicular to the slope toward the wetland to intercept drainage from the parking area, in the location illustrated on Figure 6. The first row of plantings should be positioned 5 m from the anticipated drainage point from the parking area, and should extend approximately 3 m past the anticipated flow path on each end. The

three (3) rows of plantings should be offset from one another by 10 m. Existing vegetation in the area should remain intact and uncut. Species composition for the plantings should include:

- Row 1 (nearest to parking area): common elderberry (*Sambucus canadensis*), chokecherry (*Prunus virginiana*), highbush cranberry (*Viburnum trilobum*), purple-flowering raspberry (*Rubus odoratus*)
- Row 2: wild red raspberry (*Rubus idaeus*), black raspberry (*Rubus occidentalis*), nannyberry (*Viburnum lentago*)
- Row 3 (nearest to wetland): wild raisin (*Vibernum cassinoides*), red-osier dogwood (*Cornus stolonifera*), meadowsweet (*Spirea latifolia*)

The species recommended above are native to the local/regional area and provide value for wildlife, and have been selected for moisture tolerance. Plantings should be spaced 1 m apart, on centre. These recommendations to reduce run-off are reiterated in Section 5.0.

### *4.4.3 WATER QUALITY*

The proposed development is outside of any municipally serviced area; therefore, the installation of a septic system to manage wastewater generated on the property is mandatory. Septic systems are able to contribute significant concentrations of nutrients to surface and groundwater, dependant on a number of variables. High soil permeability increases the ability of nutrients to be transported away from the septic bed. Bacteria within the soil naturally break down and convert nutrients to other forms which are used by plants or become bound to soil particles. Sufficient distance between septic beds and receiving surface water bodies reduces the transport of nutrients to the aquatic environment. The septic system is proposed to be located greater than 30 m from the wetland/watercourse, which is sufficient to protect the ecology of the area.

These recommendations to protect water quality are reiterated in Section 5.0.

## 4.5 MITIGATION OF ANTHROPOGENIC INFLUENCES

Increases in development and human use of natural areas increase the likelihood of impacts to local ecology in a number of ways. Certain natural areas are more sensitive than others to anthropogenic pressures associated with development; dependant on area size, fragmentation and existing environmental stressors.

### *4.5.1 EROSION POTENTIAL*

Due to existing vegetation cover and the minimal ground disturbance that will be required to accomplish the development plan, the potential for erosion at the Site is minimal. General best management practices (BMPs) for erosion protection should be employed to ensure that pathways for erosion are not created. The following BMPs should be implemented during the development process:

- Existing vegetation should remain intact.

- Ground disturbance should be minimized, and be completed sequentially to limit the duration of exposed soils.
- Revegetation of exposed soil should occur as quickly as possible if seasonal conditions allow (i.e. April through September; outside of this period straw mulch should be spread over exposed soils to prevent erosion.
- Strawbales (rectangular) should be kept on hand and be staked into place downgradient of any erosion generating activity (i.e. grading, fill placement).
- Any observed overland drainage channels originating from the development area, that may or may not have arisen as a result of erosion, should pass through a strawbale check dam or silt fence prior to discharge to any surface water body.
- Recommendations to reduce run-off from parking area, as outlined in Section 4.4.2, should be implemented concurrently with parking lot construction, or at the earliest opportunity during the nearest growing season.

It is essential that these BMPs be adhered to until the area has been successfully revegetated. Sedimentation as a result of erosion can have severe impacts on fish habitat and spawning areas, water temperature, nutrient contributions and water clarity.

### *4.5.2 ARTIFICIAL LIGHTING*

Artificial lighting can have an impact on nocturnal movement of wildlife. To minimize impacts to wildlife it is recommended that outdoor lights be operated on timers, rather than by motion detection, to limit impacts on the nocturnal movement of animals. Outdoor lighting should be directed at the ground rather than into the wetland or wooded area. Bulb wattage should be as low as practical while meeting the needs of the tenant and intent of the lighting.

### *4.5.3 INVASIVE SPECIES*

Invasive species are becoming problematic throughout Ontario and have the ability to adversely impact our natural landscapes. Invasive species tend to spread rapidly and out compete indigenous species, resulting in the displacement of indigenous species from their ecological niche. Typically, invasive species do not have a natural predator, parasite or disease in their new environment, so populations are able to increase without significant limitation.

The species that are the most common to the area that could potentially impact this property include; dog-strangling vine (*Cynanchum rossicum*), garlic mustard (*Alliaria petiolata*), and European buckthorn (*Rhamnus*

*cathartica*). The following actions are recommended to ensure that the property does not become adversely impacted by invasive species:

1. Revegetate with species native to the local area.
2. Request fill and compost from reputable sources that are conscious of the potential for the spread of invasive species via these media.
3. Get to know the most common invasive species in the area. Brush off or clean any shoes, boots and equipment that have come into contact with invasive species before returning to the property. Request that trail users arrive with clean footwear and bicycle tires.
4. Immediately eradicate invasive species if they are observed on the property. Do not compost invasive species.
5. Do not dispose of lawn or garden clippings in the forest to avoid species introductions.
6. Use existing trails. This practice will reduce human contact with invasive species thereby reducing the potential for seeds and vegetative matter to be transported to other locations where invasive species may then become established.

Roads and trails act as conduits for the spread of invasive species and as such the spread of these species is difficult to control. Due to the planned use of the trails on the property for a variety of pursuits, it would be beneficial to provide some educational materials or signage to trail users regarding invasive species control.

## 4.6 POTENTIAL ENCOUNTERS WITH FAUNA

Vegetation clearing on the Site is not proposed; however, tree removal for maintenance purposes should occur outside the breeding bird season, which extends from April 15 to July 31 in the area (as detailed in correspondence from MNRF, included in Appendix A). Where feasible, tree/limb removal should take place outside this period. If nests are discovered they should be left undisturbed until young have fledged or the nest is determined to be unsuccessful. Nesting birds are protected under the Migratory Birds Convention Act (1994).

During any future construction activities at the Site, the area should be checked for turtles and snakes. If any individuals are encountered, they should be photographed and allowed time to move out of harm's way. Observations should be reported to the MNRF immediately. While the Site does not provide ideal habitat for turtle species, workers should be aware of the nesting season for turtles which is May 15 to August 15 (as detailed in correspondence from MNRF, included in Appendix A).

## 5.0 RECOMMENDATIONS

The following recommendations are applied to the proposed development at Tecasy Ranch:

1. Vegetation surrounding the proposed building envelope should remain intact.
2. Prior to any physical development of the Site, locations of all structures and associated infrastructure should be staked in the field, and confirmed to be 30 m or greater from the wetland boundary.
3. The 30 m development setback should be allowed to naturally regenerate or be planted with native vegetation species, which should be maintained in a natural state (i.e. minimal maintenance and/or mowing).
4. An enhanced vegetation buffer should be implemented between the parking area and the wetland/watercourse as described in Section 4.4.2.
5. BMP for erosion protection outlined in Section 4.5.1 should be adhered to.
6. All machinery and construction materials should remain outside of the 30 m setback from the wetland at all times.
7. All Planning requirements of the Municipality of Trent Lakes must be met.
8. Recommendations to reduce the likelihood of the spread of invasive species outlined in Section 4.5.3 should be adhered to.
9. Though not identified in the field inventories any subsequently identified species at risk discovered on the property will be left undisturbed as dictated by the Endangered Species Act, 2007.

## 6.0 CLOSING

In conclusion, potential negative impacts to the ecological function of the Deer Bay Creek LSW are expected to be minimal provided that the recommendations outlined in Section 5.0 are adhered to. The information presented demonstrates that the proposed development will not adversely affect the ecological integrity or function of the natural heritage features on and adjacent to the proposed development area.

Respectfully submitted by:

**Cambium Inc.**

Andrea Coppins, B.E.S. Hons., Dipl.
Project Coordinator

*\\vmapp\projects\5100 to 5199\5154-001 Don Middleton - EIS and SAR - Tecasy Ranch\Deliverables\REPORT - EIS\Final\2016-09-08 RPT EIS Tecasy Ranch.docx*

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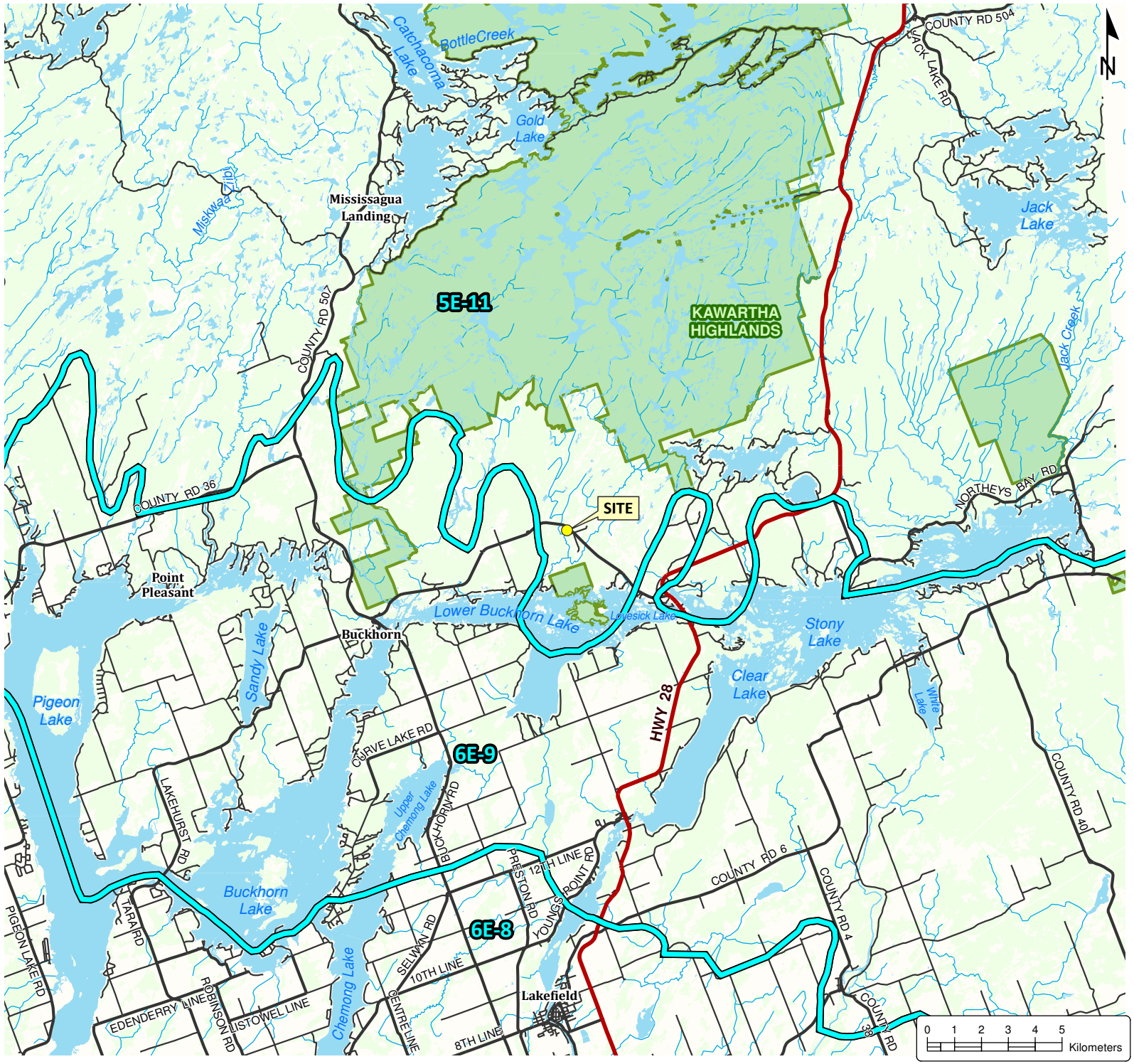
# Appended Figures




# ENVIRONMENTAL IMPACT STUDY

DON MIDDLETON

Lot10 and 11, Concession 3 Harvey, Municipality of Trent Lakes

**LEGEND**

- Highway
- Major Road
- Minor Road
- Watercourse
- Water Area
- Provincial Park
- Wooded Area
- Ecodistrict

MNRF DISTRICT: Peterborough
CONSERVATION AUTHORITY: N/A

**Notes:**
- Base mapping features are © Queen's Printer of Ontario, 2015 (this does not constitute an endorsement by the Ministry of Natural Resources or the Ontario Government).
- Distances on this plan are in metres and can be converted to feet by dividing by 0.3048.
- Cambium Inc. makes every effort to ensure this map is free from errors but cannot be held responsible for any damages due to error or omissions. This map should not be used for navigation or legal purposes. It is intended for general reference use only.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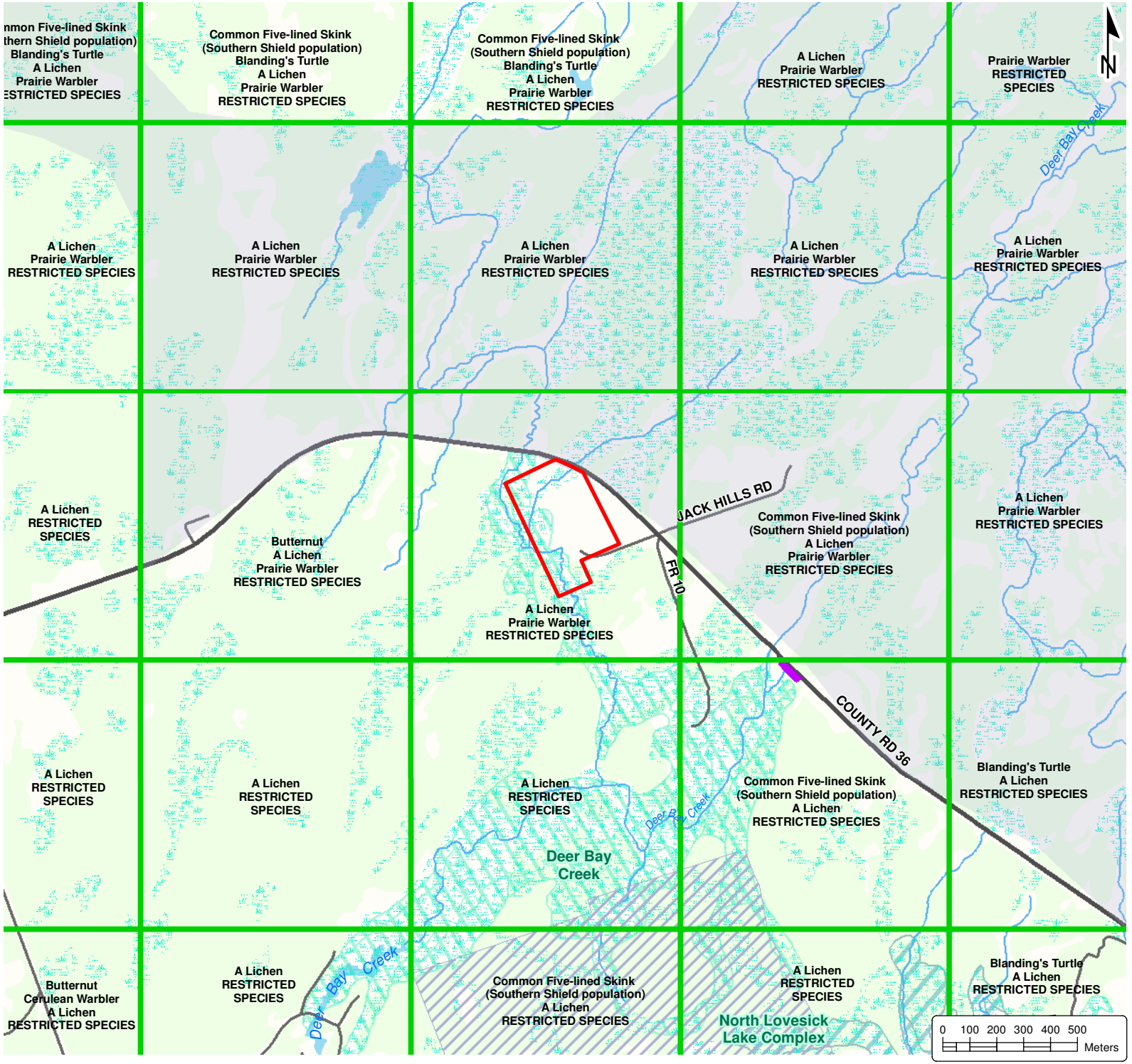
www.cambium-inc.com


## REGIONAL LOCATION PLAN

| | |
|---|---|
| Project No.: 5154-001 | Date: August 2016 |
| Scale: 1:200,000 | Rev.: |
| Created by: TLC | Projection: NAD 1983 UTM Zone 17N |
| Checked by: AZC | Figure: 1 |

O:\GIS\project_MXDs\5100-5199\5154-001 Don Middleton - EIS and SAR - Tecasy Ranch\2016-08-25 FIG 1 - Regional Location Plan.mxd




# ENVIRONMENTAL IMPACT STUDY

DON MIDDLETON

Lot 10 and 11, Concession 3 Harvey, Municipality of Trent Lakes

## LEGEND

- Major Road
- Minor Road
- Watercourse, Permanent
- Watercourse, Intermittent
- Assessment Area
- Natural Heritage Species
- ANSI, Earth Science
- ANSI, Life Science
- Deer Wintering Area (Stratum 2)
- Wetland Area
- Evaluated Wetalnds - Other
- Provincially Significant Wetlands
- Water Area
- Wooded Area

**Notes:**
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## NATURAL HERITAGE FEATURES

| | | | |
|---|---|---|---|
| Project No.: 5154-001 | | Date: August 2016 | Rev.: |
| Scale: 1:20,000 | | Projection: NAD 1983 UTM Zone 17N | |
| Created by: TLC | Checked by: AZC | Figure: 2 | |

O:\GIS\project_MXDs\5100-5199\5154-001 Don Middleton - EIS and SAR - Tecasy Ranch\2016-08-25 FIG 2 - Natural Heritage Features.mxd


# ENVIRONMENTAL IMPACT STUDY

DON MIDDLETON

Lots 10 and 11, Concession 3 Harvey, Municipality of Trent Lakes

**LEGEND**

- Proposed Development Area
- Assessment Area
- Wetland Area

**Notes:**

- The newly delineated wetland boundary has been tied in with the wetland boundary outside of the assessment area. The wetland boundary within the assessment area, as illustrated on this figure, has been confirmed by Cambium Inc.
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## WETLAND BOUNDARY DELINEATION

| | | | |
|---|---|---|---|
| Project No.: | 5154-001 | Date: | August 2016 |
| | | Rev.: | |
| Scale: | 1:3,000 | Projection: | NAD 1983 UTM Zone 17N |
| Created by: | TLC | Checked by: | AZC |
| Figure: | 3 | | |

O:\GIS\project_MXDs\5100-5199\5154-001 Don Middleton - EIS and SAR - Tecasy Ranch\2016-08-25 FIG 3 - Wetland Boundary Delineation.mxd


# ENVIRONMENTAL IMPACT STUDY

DON MIDDLETON

Lot 10 and 11, Concession 3 Harvey, Municipality of Trent Lakes

## LEGEND

- Proposed Development Area
- Assessment Area

**Vegetation Communities:**

- Mixed Forest (FOM2-1)
- Mixed Forest (FOM7-2)
- Deciduous FOrest (FOD6-3)
- Cultural Meadow (CUM1-1)
- Deciduous Swamp (SWD2-1)
- Thicket Swamp (SWT2-1)
- Mixed Swamp (SWM1-1)
- Meadow Marsh (MAM2-6)

**Notes:**

- The newly delineated wetland boundary has been tied in with the unevaluated wetland boundary outside of the assessment area. The wetland boundary within the assessment area, as illustrated on this figure, has been confirmed by Cambium Inc.
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- Distances on this plan are in metres and can be converted to feet by dividing by 0.3048.
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## VEGETATION COMMUNITIES

| | | | |
|---|---|---|---|
| Project No.: 5154-001 | | Date: August 2016 | Rev.: |
| Scale: 1:2,800 | | Projection: NAD 1983 UTM Zone 17N | |
| Created by: TLC | Checked by: AZC | Figure: 4 | |

O:\GIS\project_MXDs\5100-5199\5154-001 Don Middleton - EIS and SAR - Tecasy Ranch\2016-08-25 FIG 4 - Vegetation Communities.mxd


# ENVIRONMENTAL IMPACT STUDY

DON MIDDLETON

Lot 10 and 11, Concession 3 Harvey, Municipality of Trent Lakes

**LEGEND**

- Breeding Bird Survey Station
- Whip-poor-will Amphibian Station
- Wildlife Feeding Plot
- Proposed Development Area
- Assessment Area

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## WILDLIFE MONITORING LOCATIONS

| | | | |
|---|---|---|---|
| Project No.: 5154-001 | | Date: August 2016<br>Rev.: | |
| Scale: 1:2,500 | | Projection: NAD 1983 UTM Zone 17N | |
| Created by: TLC | Checked by: AZC | Figure: | 5 |

O:\GIS\project_MXDs\5100-5199\5154-001 Don Middleton - EIS and SAR - Tecasy Ranch\2016-08-25 FIG 5 - Wildlife Monitoring Locations.mxd


| | |
|---|---|
| Row 1 (nearest to parking area): | common elderberry (*Sambucus canadensis*), chokecherry (*Prunus virginiana*), highbush cranberry (*Viburnum trilobum*), purple-flowering raspberry (*Rubus odoratus*) |
| Row 2: | wild red raspberry (*Rubus idaeus*), black raspberry (*Rubus occidentalis*), nannyberry (*Viburnum lentago*) |
| Row 3 (nearest to wetland): | wild raisin (*Vibernum cassinoides*), red-osier dogwood (*Cornus stolonifera*), meadowsweet (*Spirea latifolia*) |
| Installlation: | Rows to be 25 m in length, with shrubs planted on 1 m centres.<br>Rows oriented perpendicular to the prevailing slope.<br>Use a variety of species (26 plants total per row).<br>Species selection based on wildlife value and moisture requirements. |

O:\GIS\project_MXDs\5100-5199\5154-001 Don Middleton - EIS and SAR - Tecasy Ranch\2016-08-25 FIG 6 - Setbacks and Protective Measures.mxd

# ENVIRONMENTAL IMPACT STUDY

DON MIDDLETON

Lot 10 and 11, Concession 3 Harvey, Municipality of Trent Lakes

**LEGEND**

- Row 1
- Row 2
- Row 3
- 30m Wetland Setback
- Assessment Area
- Proposed Development Area
- Wetlands

**Notes:**
- Base mapping features are © Queen's Printer of Ontario, 2015 (this does not constitute an endorsement by the Ministry of Natural Resources or the Ontario Government).
- Distances on this plan are in metres and can be converted to feet by dividing by 0.3048.
- Cambium Inc. makes every effort to ensure this map is free from errors but cannot be held responsible for any damages due to error or omissions. This map should not be used for navigation or legal purposes. It is intended for general reference use only.

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## DEVELOPMENT SETBACKS AND PROTECTIVE MEASURES

| | | | |
|---|---|---|---|
| Project No.: | 5154-001 | Date: | August 2016 |
| | | Rev.: | |
| Scale: | 1:2,500 | Projection: | NAD 1983 UTM Zone 17N |
| Created by: | TLC | Checked by: | AZC |
| Figure: | 6 | | |

# Appendix A
# Correspondence

## Andrea Coppins

**From:** Spang, Elizabeth (MNRF) <Elizabeth.Spang@ontario.ca>
**Sent:** Friday, March 04, 2016 2:50 PM
**To:** 'Kari Stevenson'
**Subject:** RE: SAR Flag - Cruise ZBA; MNRF file 16-HARV-PET-INF-2156
**Attachments:** Blanding's Turtle Survey Protocol May 6 2012.pdf; Survey Protocol for WPW August 23 2013 draft.pdf

Hi Kari,

Apologies for the delay. We recommend a species at risk assessment be completed for this development. The property appears to contain species at risk habitat based on our information. We suggest targeted surveys for these species in particular: Blanding's Turtle, Eastern Hog-nosed Snake, Common Five-lined Skink, Eastern Whip-poor-will, Barn Swallow, Butternut, and American Ginseng (if forested areas contain mature sugar maple stands). Survey protocols for Blanding's Turtle and Whip-poor-will are attached. Below is a complete SAR screening that you can provide to the proponent. We would be happy to review the SAR assessment when it is complete and provide advice on how to avoid impacts if any SAR or their habitat are confirmed on site. Don't hesitate to contact me if you have any questions.

### Species at Risk

A review of our best available information indicates that there are occurrences of Butternut (Endangered), Blanding's Turtle (Threatened), Eastern Hog-nosed Snake (Threatened), Barn Swallow (Threatened), Snapping Turtle (Special Concern), Eastern Ribbonsnake (Special Concern), Common Five-lined Skink (Special Concern), Eastern Whip-poor-will (Threatened) and Eastern Wood Pewee (Special Concern) in the immediate (1 km) area of the subject property. Our information also indicates that there are occurrences of Wood Turtle (Endangered), Eastern Musk Turtle (Special Concern), Northern Map Turtle (Special Concern), Canada Warbler (Special Concern), Cerulean Warbler (Threatened), Common Nighthawk (Special Concern), Bobolink (Threatened), Eastern Meadowlark (Threatened), Milksnake (Special Concern), Wood Thrush (Special Concern), Least Bittern (Threatened), and American Ginseng (Endangered) within the general area the subject property (5 km). Although no other threatened or endangered species or their habitat have been documented in the area of the proposed project, these features may be present and this list should not be considered complete.

Species listed as endangered or threatened on the Species at Risk in Ontario (SARO) list are protected under the Endangered Species Act, 2007 (ESA). Section 9(1) of the ESA prohibits a person from killing, harming, harassing, capturing or taking a member of a species listed as endangered, threatened or extirpated on the SARO list. Section 10(1) of the ESA prohibits the damage or destruction of habitat of a species listed as endangered or threatened on the SARO list.

**At this time it's recommended that a site assessment be conducted at the appropriate time of year to confirm the presence of species at risk or their habitat.** The focus of the site assessment can include a review of the information about known occurrences provided by MNRF above along with other information sources such as species distributions and habitat requirements as well as field visits using MNRF approved protocols during the appropriate seasons by a qualified professional. Due to the species that are potentially present at this site, the following recommendations should help prevent adverse impacts:

Birds
Workers must be vigilant and check work areas for the presence of breeding birds and nests containing eggs and/or young. If breeding birds and/or nests are encountered, works should not continue in the location of the nest until after July 31 (or as soon as it has been determined that that the young have left the nest). Please note that the breeding bird season in the subject area extends from April 15th to July 31. Therefore, activities which may cause adverse impacts to a species or habitat should commence after July 31 whenever possible.

Butternut
If a Butternut tree(s) is identified and is to be removed, trimmed or is in close proximity to the application of herbicides, a Butternut Health Assessment should be conducted by an individual trained and certified by MNRF as a Butternut Health Assessor (BHA) under the Butternut Health Assessment in Ontario protocol. All Butternut Health Assessments must be submitted to the MNRF District office for a 30 day review period before proceeding. Depending on the results of the assessment, you may have different options for how to proceed. Please see the following online factsheet (http://www.ontario.ca/environment-and-energy/butternut-trees-your-property) for more information. Please note that the ideal time of year to properly identify Butternut (and to distinguish between Butternut and Butternut Hybrids) is between the leaf on and leaf off period (approximately June to August). Workers should report any Butternut observations (including photographs and coordinates) to the Peterborough District office immediately upon discovery. For those Butternut that are not proposed for removal, a protective buffer of a 25 metre radius from the stem of each Butternut is required to prevent root disturbance. In this buffer area, activities that would remove or significantly compact the roots and soil, and cause direct harm to the Butternut are not permitted. Removal of other vegetation and careful logging practices within this radius are permitted.

Turtles
Workers must be vigilant and check work areas for the presence of turtles. If turtles are encountered, work must be temporarily suspended until the animal is out of harm's way. Workers should report any observations (including photographs and coordinates) to the Peterborough District Office immediately at (705) 755-2001. Please note that the turtle nesting season in the subject area extends from May 15 to Aug 15. Therefore, activities which may cause adverse impacts to a species or habitat should commence after Aug 15 whenever possible.

It is highly recommended that landowners and on-site workers familiarize themselves with information found at the following links:
MNRF Species at Risk website: www.ontario.ca/speciesatrisk

If an impact to a Species at Risk or its habitat cannot be avoided, a person(s) should contact MNRF to discuss options, including applying for an authorization under the ESA. In situations where an activity is not registered with or authorized by the MNRF, a person(s) must comply with the ESA by modifying proposed activities to avoid impacts to Species at Risk and habitat protected under the ESA.

During on-site activities, should any species at risk or their habitat be potentially impacted, MNRF should be contacted immediately and operations should be modified to avoid any negative impacts to species at risk or their habitat until further discussions with MNRF can occur regarding opportunities for mitigation. If any species at risk are found, the Peterborough District MNRF office should be contacted at 705-755-2001. If possible, pictures of the species at risk and coordinates for the location where it was observed should be provided to MNRF.

Best regards,

**Liz Spang, M.Pl**

District Planner
Peterborough District
Ontario Ministry of Natural Resources and Forestry
300 Water Street, 1st Floor South
Peterborough, ON K9J 8M5
Tel: (705) 755-3360
Fax: (705) 755-3125
Email: Elizabeth.Spang@ontario.ca

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**From:** Kari Stevenson [mailto:KStevenson@trentlakes.ca]
**Sent:** February-09-16 3:24 PM
**To:** Spang, Elizabeth (MNRF)
**Subject:** FW: SAR Flag - Cruise ZBA

Please see the attached.
Thank you,

Kari

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**From:** Kari Stevenson
**Sent:** Tuesday, February 09, 2016 1:37 PM
**To:** 'Wozniak, Kristen (MNRF)' <Kristen.Wozniak@ontario.ca>
**Cc:** Jessie Clark <JClark@trentlakes.ca>; 'Chris Jones' <chris_mplanningservices@rogers.com>
**Subject:** SAR Flag - Cruise ZBA

Good afternoon Kristen:

We are reviewing a submission for a zoning by-law amendment and a SAR flag popped up on my GIS buffer.

Could you please provide correspondence as to whether any species at risk or their habitat are situated on the subject lands, and if so, whether a Species at Risk Assessment would be required to assess potential development or site alteration.

I am attaching the applications for your reference.

Thank you,
Kari

Kari Stevenson
Planning Technician

kstevenson@trentlakes.ca
Tel: 705-738-3800 x 234
Fax: 705-738-3801
Toll Free: 800-374-4009

# Appendix B
# Site Photographs

***Photo 1 Location of proposed mess hall, comfort station and parking area, July 2016***

***Photo 2 Field immediately to the west of the development area, July 2016***

***Photo 3 Building containing active barn swallow nests which will remain in place, July 2016***

***Photo 4 Main watercourse channel with dry sections, July 2016***

***Photo 5 Black Ash Mineral Deciduous Swamp type (SWD2-1), July 2016***

***Photo 6 Alder Mineral Thicket Swamp type (SWT2-1), July 2016***

***Photo 7 Broad-leaved Sedge Mineral Meadow Marsh type (MAM2-6), July 2016***

***Photo 8 Sugar Maple – Yellow Birch Deciduous Forest type (FOD6-3), July 2016***

***Photo 9 White Cedar – Hardwood Mixed Forest type (FOM7-2), July 2016***

***Photo 10 Dry White Pine – Oak Mixed Forest type (FOM2-1), July 2016***

***Photo 11 Typical example of existing trail on the property, July 2016***

***Photo 12 Sparsely vegetated Cultural Meadow (CUM1-1) to the north of the development area, July 2016***

# Appendix C
# Vegetation Species List

**APPENDIX C: Vegetation Species List**

| Family | Common name | Scientific name | S Rank |
|---|---|---|---|
| Aceraceae | Manitoba maple | *Acer negundo* | S5 |
| Aceraceae | red maple | *Acer rubrum* | S5 |
| Aceraceae | (Acer rubrum X Acer saccharinum) | *Acer x freemanii* | S4? |
| Apiaceae | wild carrot | *Daucus carota* | SNA |
| Araliaceae | wild sarsaparilla | *Aralia nudicaulis* | S5 |
| Asclepiadaceae | swamp milkweed | *Asclepias incarnata* | S5 |
| Asteraceae | Philadelphia fleabane | *Erigeron philadelphicus* | S5 |
| Asteraceae | common boneset | *Eupatorium perfoliatum* | S5 |
| Asteraceae | large-leaf wood-aster | *Eurybia macrophylla* | S5 |
| Asteraceae | spotted joe-pye weed | *Eutrochium maculatum var. maculatum* | S5 |
| Asteraceae | oxeye daisy | *Leucanthemum vulgare* | SNA |
| Asteraceae | Canada goldenrod | *Solidago canadensis var. canadensis* | S5 |
| Asteraceae | broad-leaved goldenrod | *Solidago flexicaulis* | S5 |
| Balsaminaceae | spotted jewel-weed | *Impatiens capensis* | S5 |
| Betulaceae | speckled alder | *Alnus incana* | S5 |
| Betulaceae | yellow birch | *Betula alleghaniensis* | S5 |
| Betulaceae | paper birch | *Betula papyrifera* | S5 |
| Betulaceae | eastern hop-hornbeam | *Ostrya virginiana* | S5 |
| Caprifoliaceae | tartarian honeysuckle | *Lonicera tatarica* | SNA |
| Caprifoliaceae | common elderberry | *Sambucus canadensis* | S5 |
| Caprifoliaceae | maple-leaf viburnum | *Viburnum acerifolium* | S5 |
| Caryophyllaceae | bladder campion | *Silene vulgaris* | SNA |
| Cupressaceae | eastern white cedar | *Thuja occidentalis* | S5 |
| Cyperaceae | lesser panicled sedge | *Carex diandra* | S5 |
| Cyperaceae | cyperus-like sedge | *Carex pseudocyperus* | S5 |
| Cyperaceae | bladder sedge | *Carex utriculata* | S5 |
| Dennstaedtiaceae | bracken fern | *Pteridium aquilinum* | S5 |
| Dryopteridaceae | marginal wood-fern | *Dryopteris marginalis* | S5 |
| Dryopteridaceae | sensitive fern | *Onoclea sensibilis* | S5 |
| Fabaceae | white sweet clover | *Melilotus albus* | SNA |
| Fabaceae | red clover | *Trifolium pratense* | SNA |
| Fabaceae | tufted vetch | *Vicia cracca* | SNA |
| Fagaceae | northern red oak | *Quercus rubra* | S5 |
| Liliaceae | Canada mayflower | *Maianthemum canadense* | S5 |
| Liliaceae | white trillium | *Trillium grandiflorum* | S5 |
| Oleaceae | black ash | *Fraxinus nigra* | S5? |
| Osmundaceae | royal fern | *Osmunda regalis* | S5 |
| Pinaceae | balsam fir | *Abies balsamea* | S5 |
| Pinaceae | white spruce | *Picea glauca* | S5 |
| Pinaceae | eastern white pine | *Pinus strobus* | S5 |
| Plantaginaceae | English plantain | *Plantago lanceolata* | SNA |
| Poaceae | Canada blue-joint | *Calamagrostis canadensis* | S5 |
| Poaceae | orchard grass | *Dactylis glomerata* | SNA |
| Poaceae | tufted hairgrass | *Deschampsia cespitosa ssp. cespitosa* | S4S5 |
| Poaceae | panic grass | *Dichanthelium columbianum* | S4 |
| Poaceae | white-grained mountain-ricegrass | *Oryzopsis asperifolia* | S5 |
| Poaceae | reed canary grass | *Phalaris arundinacea* | S5 |
| Poaceae | meadow timothy | *Phleum pratense* | SNA |
| Poaceae | Kentucky bluegrass | *Poa pratensis ssp. pratensis* | S5 |
| Polypodiaceae | rock polypody | *Polypodium virginianum* | S5 |
| Ranunculaceae | white baneberry | *Actaea pachypoda* | S5 |
| Ranunculaceae | ground virgin's-bower | *Clematis recta* | SNA |
| Ranunculaceae | tall butter-cup | *Ranunculus acris* | SNA |
| Ranunculaceae | tall meadow-rue | *Thalictrum pubescens* | S5 |
| Rosaceae | meadowsweet | *Filipendula ulmaria* | SNA |
| Rosaceae | choke cherry | *Prunus virginiana* | S5 |
| Rosaceae | Allegheny blackberry | *Rubus allegheniensis* | S5 |
| Rosaceae | wild red raspberry | *Rubus idaeus ssp. strigosus* | S5 |
| Rubiaceae | marsh bedstraw | *Galium palustre* | S5 |
| Salicaceae | balsam poplar | *Populus balsamifera* | S5 |
| Salicaceae | large-tooth aspen | *Populus grandidentata* | S5 |
| Salicaceae | trembling aspen | *Populus tremuloides* | S5 |
| Salicaceae | Bebb's willow | *Salix bebbiana* | S5 |
| Salicaceae | meadow willow | *Salix petiolaris* | S5 |
| Thelypteridaceae | marsh fern | *Thelypteris palustris* | S5 |
| Ulmaceae | American elm | *Ulmus americana* | S5 |
| Vitaceae | Virginia creeper | *Parthenocissus inserta* | S5 |

*Note:*
*SARO = Species at Risk in Ontario*
*NAR = Not at risk*
*S5 = Secure*
*S4 = Apparently Secure*
*SNA = Not Applicable (typically introduced species)*

# Appendix D
# Avifauna Observations

**APPENDIX D. Avifauna List**

| Family | Common name | Scientific name | S Rank | COSEWIC | SARO |
|---|---|---|---|---|---|
| Columbidae | Mourning Dove | *Zenaida macroura* | S5 | - | - |
| Corvidae | Blue Jay | *Cyanocitta cristata* | S5 | - | - |
| Corvidae | American Crow | *Corvus brachyrhynchos* | S5B | - | - |
| Emberizidae | Song Sparrow | *Melospiza melodia* | S5B | - | - |
| Emberizidae | White-throated Sparrow | *Zonotrichia albicollis* | S5B | - | - |
| Emberizidae | Savannah Sparrow | *Passerculus sandwichensis* | S4B | - | - |
| Fringillidae | American Goldfinch | *Carduelis tristis* | S5B | - | - |
| Hirundinidae | Barn Swallow | *Hirundo rustica* | S4B | THR | THR |
| Icteridae | Red-winged Blackbird | *Agelaius phoeniceus* | S4 | - | - |
| Paridae | Black-capped Chickadee | *Poecile atricapillus* | S5 | - | - |
| Parulidae | Common Yellowthroat | *Geothlypis trichas* | S5B | - | - |
| Parulidae | Chestnut-sided Warbler | *Setophaga pensylvanica* | S5B | - | - |
| Parulidae | Yellow Warbler | *Setophaga petechia* | S5B | - | - |
| Picidae | Hairy Woodpecker | *Picoides villosus* | S5 | - | - |
| Sittidae | White-breasted Nuthatch | *Sitta carolinensis* | S5 | - | - |
| Sturnidae | European Starling | *Sturnus vulgaris* | SNA | - | - |
| Troglodytidae | House Wren | *Troglodytes aedon* | S5B | - | - |
| Turdidae | American Robin | *Turdus migratorius* | S5B | - | - |
| Turdidae | Veery | *Catharus fuscescens* | S4B | - | - |
| Tyrannidae | Eastern Phoebe | *Sayornis phoebe* | S5B | - | - |
| Vireonidae | Red-eyed Vireo | *Vireo olivaceus* | S5B | - | - |
| Vireonidae | Warbling Vireo | *Vireo gilvus* | S5B | - | - |
| | | | | | |
| | | | | | |

*Note:*

*SARO = Species at Risk in Ontario*

*NAR = Not at risk*

*S5 = Secure*

*S4 = Apparently Secure*

*SNA = Not Applicable (typically introduced species)*

# Appendix E

# OBBA Occurrence Data

CAMBIUM

**Ontario Breeding Bird Atlas Records - Squares 17QK13 and 17QK14**

| Species | Max Breeding Evidence | Highest Breeding Category | Square |
|---|---|---|---|
| Canada Goose | FY | CONF | 17QK13 |
| Wood Duck | P | PROB | 17QK13 |
| Mallard | FY | CONF | 17QK13 |
| Blue-winged Teal | H | POSS | 17QK13 |
| Ruffed Grouse | S | POSS | 17QK13 |
| Common Loon | D | PROB | 17QK13 |
| Pied-billed Grebe | S | POSS | 17QK13 |
| Turkey Vulture | H | POSS | 17QK13 |
| Osprey | CF | CONF | 17QK13 |
| Northern Harrier | H | POSS | 17QK13 |
| Northern Goshawk | H | POSS | 17QK13 |
| Red-shouldered Hawk | D | PROB | 17QK13 |
| Broad-winged Hawk | H | POSS | 17QK13 |
| Red-tailed Hawk | D | PROB | 17QK13 |
| American Kestrel | H | POSS | 17QK13 |
| Common Gallinule | S | POSS | 17QK13 |
| Killdeer | FY | CONF | 17QK13 |
| Rock Pigeon | P | PROB | 17QK13 |
| Upland Sandpiper | T | PROB | 17QK13 |
| Common Snipe | S | POSS | 17QK13 |
| American Woodcock | S | POSS | 17QK13 |
| Mourning Dove | P | PROB | 17QK13 |
| Black/Yellow-billed Cuckoo | S | POSS | 17QK13 |
| Black-billed Cuckoo | P | PROB | 17QK13 |
| Great Horned Owl | S | POSS | 17QK13 |
| Barred Owl | S | POSS | 17QK13 |
| Whip-poor-will | S | POSS | 17QK13 |
| Ruby-throated Hummingbird | FY | CONF | 17QK13 |
| Belted Kingfisher | FY | CONF | 17QK13 |
| Yellow-bellied Sapsucker | FY | CONF | 17QK13 |
| Downy Woodpecker | T | PROB | 17QK13 |
| Hairy Woodpecker | T | PROB | 17QK13 |
| Northern Flicker | NY | CONF | 17QK13 |
| Pileated Woodpecker | NY | CONF | 17QK13 |
| Eastern Wood-Pewee | T | PROB | 17QK13 |
| Alder Flycatcher | T | PROB | 17QK13 |
| *Least Flycatcher* | *S* | POSS | 17QK13 |
| Eastern Phoebe | *CF* | CONF | 17QK13 |
| Great Crested Flycatcher | *FY* | CONF | 17QK13 |
| Eastern Kingbird | *CF* | CONF | 17QK13 |
| Yellow-throated Vireo | S | POSS | 17QK13 |

| Species | Max Breeding Evidence | Highest Breeding Category | Square |
|---|---|---|---|
| Warbling Vireo | CF | CONF | 17QK13 |
| Red-eyed Vireo | FY | CONF | 17QK13 |
| Blue Jay | FY | CONF | 17QK13 |
| American Crow | CF | CONF | 17QK13 |
| Common Raven | P | PROB | 17QK13 |
| Purple Martin | AE | CONF | 17QK13 |
| Tree Swallow | V | PROB | 17QK13 |
| Northern Rough-winged Swallov | H | POSS | 17QK13 |
| Bank Swallow | AE | CONF | 17QK13 |
| Cliff Swallow | H | POSS | 17QK13 |
| Barn Swallow | AE | CONF | 17QK13 |
| Black-capped Chickadee | AE | CONF | 17QK13 |
| Red-breasted Nuthatch | P | PROB | 17QK13 |
| White-breasted Nuthatch | CF | CONF | 17QK13 |
| House Wren | AE | CONF | 17QK13 |
| Winter Wren | A | PROB | 17QK13 |
| Marsh Wren | T | PROB | 17QK13 |
| Eastern Bluebird | CF | CONF | 17QK13 |
| Veery | CF | CONF | 17QK13 |
| Swainson's Thrush | CF | CONF | 17QK13 |
| Hermit Thrush | T | PROB | 17QK13 |
| Wood Thrush | S | POSS | 17QK13 |
| American Robin | NY | CONF | 17QK13 |
| Gray Catbird | FY | CONF | 17QK13 |
| Brown Thrasher | CF | CONF | 17QK13 |
| European Starling | CF | CONF | 17QK13 |
| Cedar Waxwing | P | PROB | 17QK13 |
| Golden-winged Warbler | P | PROB | 17QK13 |
| Blue-winged/Golden-winged Wa | S | POSS | 17QK13 |
| Brewster's Warbler (hybrid) | T | PROB | 17QK13 |
| Nashville Warbler | NB | CONF | 17QK13 |
| Yellow Warbler | FY | CONF | 17QK13 |
| Chestnut-sided Warbler | S | POSS | 17QK13 |
| Magnolia Warbler | S | POSS | 17QK13 |
| Black-throated Blue Warbler | A | PROB | 17QK13 |
| Yellow-rumped Warbler | A | PROB | 17QK13 |
| Black-throated Green Warbler | S | POSS | 17QK13 |
| Blackburnian Warbler | H | POSS | 17QK13 |
| Pine Warbler | S | POSS | 17QK13 |
| Black-and-white Warbler | P | PROB | 17QK13 |
| American Redstart | P | PROB | 17QK13 |
| Ovenbird | S | POSS | 17QK13 |

| Species | Max Breeding Evidence | Highest Breeding Category | Square |
|---|---|---|---|
| Northern Waterthrush | DD | CONF | 17QK13 |
| Mourning Warbler | S | POSS | 17QK13 |
| Common Yellowthroat | S | POSS | 17QK13 |
| Canada Warbler | S | POSS | 17QK13 |
| Chipping Sparrow | CF | CONF | 17QK13 |
| Clay-colored Sparrow | T | PROB | 17QK13 |
| Field Sparrow | A | PROB | 17QK13 |
| Vesper Sparrow | S | POSS | 17QK13 |
| Savannah Sparrow | CF | CONF | 17QK13 |
| Song Sparrow | CF | CONF | 17QK13 |
| Swamp Sparrow | A | PROB | 17QK13 |
| White-throated Sparrow | A | PROB | 17QK13 |
| Dark-eyed Junco | H | POSS | 17QK13 |
| Scarlet Tanager | S | POSS | 17QK13 |
| Northern Cardinal | S | POSS | 17QK13 |
| Rose-breasted Grosbeak | P | PROB | 17QK13 |
| Indigo Bunting | A | PROB | 17QK13 |
| Bobolink | CF | CONF | 17QK13 |
| Red-winged Blackbird | CF | CONF | 17QK13 |
| Eastern Meadowlark | CF | CONF | 17QK13 |
| Common Grackle | CF | CONF | 17QK13 |
| Brown-headed Cowbird | FY | CONF | 17QK13 |
| Baltimore Oriole | FY | CONF | 17QK13 |
| Purple Finch | P | PROB | 17QK13 |
| House Finch | P | PROB | 17QK13 |
| American Goldfinch | P | PROB | 17QK13 |
| Evening Grosbeak | P | PROB | 17QK13 |
| Wood Duck | P | PROB | 17QK14 |
| Mallard | P | PROB | 17QK14 |
| Ruffed Grouse | FY | CONF | 17QK14 |
| Common Loon | P | PROB | 17QK14 |
| Great Blue Heron | H | POSS | 17QK14 |
| Turkey Vulture | H | POSS | 17QK14 |
| Northern Goshawk | H | POSS | 17QK14 |
| Red-shouldered Hawk | H | POSS | 17QK14 |
| Broad-winged Hawk | FY | CONF | 17QK14 |
| Red-tailed Hawk | CF | CONF | 17QK14 |
| American Kestrel | H | POSS | 17QK14 |
| Killdeer | P | PROB | 17QK14 |
| Rock Pigeon | AE | CONF | 17QK14 |
| Mourning Dove | P | PROB | 17QK14 |
| Black/Yellow-billed Cuckoo | S | POSS | 17QK14 |

| Species | Max Breeding Evidence | Highest Breeding Category | Square |
|---|---|---|---|
| Black-billed Cuckoo | S | POSS | 17QK14 |
| Common Nighthawk | P | PROB | 17QK14 |
| Whip-poor-will | S | POSS | 17QK14 |
| Ruby-throated Hummingbird | H | POSS | 17QK14 |
| Belted Kingfisher | H | POSS | 17QK14 |
| Yellow-bellied Sapsucker | D | PROB | 17QK14 |
| Downy Woodpecker | H | POSS | 17QK14 |
| Hairy Woodpecker | NY | CONF | 17QK14 |
| Northern Flicker | P | PROB | 17QK14 |
| Pileated Woodpecker | S | POSS | 17QK14 |
| Eastern Wood-Pewee | S | POSS | 17QK14 |
| Yellow-bellied Flycatcher | H | POSS | 17QK14 |
| Least Flycatcher | S | POSS | 17QK14 |
| Eastern Phoebe | NU | CONF | 17QK14 |
| Great Crested Flycatcher | S | POSS | 17QK14 |
| Eastern Kingbird | CF | CONF | 17QK14 |
| Yellow-throated Vireo | S | POSS | 17QK14 |
| Warbling Vireo | P | PROB | 17QK14 |
| Red-eyed Vireo | CF | CONF | 17QK14 |
| Gray Jay | H | POSS | 17QK14 |
| Blue Jay | CF | CONF | 17QK14 |
| American Crow | CF | CONF | 17QK14 |
| Common Raven | S | POSS | 17QK14 |
| Tree Swallow | H | POSS | 17QK14 |
| Barn Swallow | FY | CONF | 17QK14 |
| Black-capped Chickadee | CF | CONF | 17QK14 |
| Red-breasted Nuthatch | S | POSS | 17QK14 |
| White-breasted Nuthatch | S | POSS | 17QK14 |
| House Wren | H | POSS | 17QK14 |
| Winter Wren | S | POSS | 17QK14 |
| Eastern Bluebird | CF | CONF | 17QK14 |
| Veery | S | POSS | 17QK14 |
| Hermit Thrush | S | POSS | 17QK14 |
| Wood Thrush | S | POSS | 17QK14 |
| American Robin | FY | CONF | 17QK14 |
| Gray Catbird | S | POSS | 17QK14 |
| Brown Thrasher | NY | CONF | 17QK14 |
| European Starling | CF | CONF | 17QK14 |
| Cedar Waxwing | P | PROB | 17QK14 |
| Blue-winged Warbler | S | POSS | 17QK14 |
| Golden-winged Warbler | CF | CONF | 17QK14 |
| Blue-winged/Golden-winged Wa | S | POSS | 17QK14 |

| Species | Max Breeding Evidence | Highest Breeding Category | Square |
|---|---|---|---|
| Brewster's Warbler (hybrid) | H | POSS | 17QK14 |
| Nashville Warbler | H | POSS | 17QK14 |
| Yellow Warbler | CF | CONF | 17QK14 |
| Chestnut-sided Warbler | CF | CONF | 17QK14 |
| Magnolia Warbler | S | POSS | 17QK14 |
| Black-throated Blue Warbler | S | POSS | 17QK14 |
| Yellow-rumped Warbler | S | POSS | 17QK14 |
| Black-throated Green Warbler | S | POSS | 17QK14 |
| Pine Warbler | S | POSS | 17QK14 |
| Cerulean Warbler | S | POSS | 17QK14 |
| Black-and-white Warbler | S | POSS | 17QK14 |
| American Redstart | P | PROB | 17QK14 |
| Ovenbird | S | POSS | 17QK14 |
| Northern Waterthrush | S | POSS | 17QK14 |
| Mourning Warbler | S | POSS | 17QK14 |
| Common Yellowthroat | P | PROB | 17QK14 |
| Eastern Towhee | P | PROB | 17QK14 |
| Chipping Sparrow | D | PROB | 17QK14 |
| Field Sparrow | A | PROB | 17QK14 |
| Savannah Sparrow | CF | CONF | 17QK14 |
| Song Sparrow | FY | CONF | 17QK14 |
| Swamp Sparrow | S | POSS | 17QK14 |
| White-throated Sparrow | S | POSS | 17QK14 |
| Scarlet Tanager | S | POSS | 17QK14 |
| Rose-breasted Grosbeak | P | PROB | 17QK14 |
| Indigo Bunting | P | PROB | 17QK14 |
| Bobolink | S | POSS | 17QK14 |
| Red-winged Blackbird | FY | CONF | 17QK14 |
| Eastern Meadowlark | CF | CONF | 17QK14 |
| Common Grackle | FY | CONF | 17QK14 |
| Brown-headed Cowbird | FY | CONF | 17QK14 |
| Baltimore Oriole | AE | CONF | 17QK14 |
| Purple Finch | T | PROB | 17QK14 |
| Pine Siskin | H | POSS | 17QK14 |
| American Goldfinch | P | PROB | 17QK14 |
| Evening Grosbeak | S | POSS | 17QK14 |