



Michalski Nielsen

ASSOCIATES LIMITED

July 13, 2023

Anthony Usher, RPP
Anthony Usher Planning Consultant
63 Deloraine Avenue
Toronto, Ontario M5M 2A8

Re: Environmental Impact Study in Support of the Subdivision of a Commercial Property owned by LRC Campbell Ltd., with Access from 5065 County Road 21, Haliburton, Ontario; Our File 1320

Dear Tony:

Thank you for asking Michalski Nielsen Associates Limited to undertake an Environmental Impact Study (EIS) to assess the feasibility of subdividing a commercial property located in the Village of Haliburton, Municipality of Dysart et al, County of Haliburton, per the plan included in **Appendix A**.

The subject property, shown in **Figure 1**, is accessed from a driveway located off the Curry Chevrolet Buick GMC dealership, located at 5065 County Road 21. These lands were earlier severed from the lands on which the dealership is situated (identified as other lands owned by applicant on **Figure 1**). The subject property is 3.67 ha in size and is bisected by an existing driveway, which extends north to Mallard Road. The property includes substantial areas which have been disturbed through past stripping and regrading, by mowing, and by their use as storage areas. However the property also include some forested lands. Further, some of the previously disturbed areas are showing a degree of re-naturalization, and are characterized as cultural meadow and thicket. Additionally, these lands are bisected by a small drainage course, flowing west to east, with some surrounding meadow marsh in an area of previous clearing and regrading; much of that drainage course has been altered by past grading works and/or ditching.

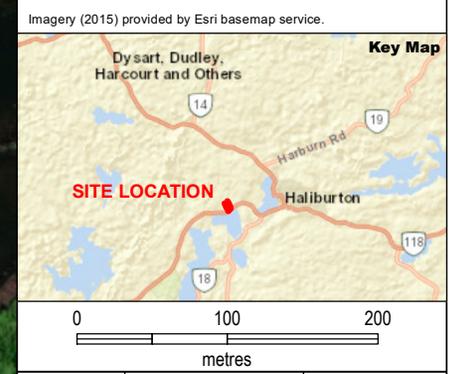
Per the plan included in **Appendix A**, the intention is to subdivide the property to create five commercial lots, ranging from 0.47 ha to 0.82 ha in size, with the existing driveway and a small area of the property adjacent to that driveway, plus a mutual driveway along the south boundary shared with the dealership property, collectively having an area of 0.60 ha (Block A on the plan), to be a common element created by condominium description.

The purpose of the present report is to assess the feasibility of this proposed subdivision and condominium description, from a natural environment perspective, and, on the assumption that this plan is feasible, to recommend measures to mitigate any potential impacts on the natural environment and water quality.

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- LEGEND:
- Subject Site
 - Other Lands Owned by Applicant



	PROJECT NO.	1603351	REVISION:	1-2
	DATE:	Apr 25, 2023	SCALE:	1:5000
	DRAWN:	CV	DATUM:	NAD 1983
	CHECKED:	RM	PROJECTION:	UTM zone 17

CLIENT:

Michalski Nielsen
ASSOCIATES LIMITED

PREPARED BY:

Palmer™

PROJECT: Campbell Site EIS

Site Location

Figure 1

Michalski Nielsen Associates Limited has been assisted in this work by the firm Palmer, with whom we regularly collaborate. In the pages which follow we describe our background review and project methodology, describe existing site conditions, and provide our conclusions and recommendations regarding this proposed development.

1.0 Background Review and Methods

A variety of relevant background material was reviewed to provide a context for field investigations and to identify any environmental designations and policy requirements. This review included the following sources of information:

- Natural Heritage Information Centre (NHIC) Make-A-Map application, which includes the NHIC's species records database;
- Ontario Reptile and Amphibian Atlas (ORAA);
- Land Information Ontario (LIO) features (Wetland, Woodland, Wildlife Values);
- Aerial photography and topographic mapping;
- County of Haliburton Official Plan and associated schedules;
- Municipality of Dysart et al Official Plan; and
- County of Haliburton GIS Mapping.

Field investigations were carried out on five occasions in 2020, with a subsequent visit undertaken in 2022, as summarized in **Table 1**. Additional details on survey methodologies are provided in the subsequent subsections.

Table 1. Field Investigations Summary

Date	Field Investigation(s)
May 5, 2020	Ecological Land Classification, Amphibian Survey
May 20, 2020	Ecological Land Classification, Aquatic Habitat Conditions, Amphibian Survey
May 27, 2020	Ecological Land Classification, Aquatic Habitat Conditions
June 8, 2020	Ecological Land Classification, Breeding Bird Survey, Amphibian Survey
June 24, 2020	Ecological Land Classification, Breeding Bird Survey
April 18, 2022	Aquatic Habitat Conditions

1.1 Surface Water Features

An unnamed drainage course bisects the subject property from west to east. Conditions within that drainage course were assessed during site visits. This included: walking the watercourse from upstream to downstream of this property; assessing its connections to areas of potential fish habitat upstream and downstream, including whether there are barriers within the system to fish movement; and examining its physical and flow characteristics through the subject property. This information allowed us to determine its value as fish habitat, as well as its conveyance functions. The follow-up visit completed in 2022 was undertaken to assess conditions during the spring freshet period, when flows would be at their maximum.

1.2 Vegetation and Flora

Terrestrial ecologists completed field surveys on several occasions in May and June, 2020 to document existing vegetation communities, natural features, and general site conditions. The site is comprised of several anthropogenically influenced habitats which are described in the Ecological Land Classification for Southern Ontario (Lee *et al.*, 1996). Forested vegetation communities were mapped and described based on their best fit to community classifications within the standard systems provided in the Ecosites of Ontario - Great Lakes to St. Lawrence (Banton *et al.*, 2009). The identification of vegetation communities using a hybrid of manuals assisted in the assessment of wildlife habitat opportunities.

Botanical surveys were completed by traversing the site and recording species observed in the representative vegetation communities. Local plant rarity status for the Haliburton Region and Ecodistrict 5E-8, and regional status for Ecoregion 5E, were based on the status lists by Crins (2004a and 2004b). Provincial plant status was based on the *Provincially Rare Flora of Ontario* (Oldham and Brinker, 2009) and the Natural Heritage Information Centre (NHIC, 2018).

1.3 Wildlife

1.3.1 Amphibian Surveys

Amphibian surveys were conducted in accordance with Bird Studies Canada protocol, to determine breeding amphibian use within the subject property and surrounding wetlands. Due to the small size of the site, it was possible to survey the area in its entirety. Species were identified by call, and an abundance code for each species heard calling was assessed in accordance with the Amphibian Monitoring protocol, as follows:

- Code 0: No calls heard.
- Code 1: Calls not overlapping or simultaneous, number of individual frogs can be counted.
- Code 2: Calls overlapping or simultaneous, number of individuals can still be distinguished, number of individual frogs cannot be counted, but a reliable estimate of numbers can be made based on location and call voices.

- Code 3: Full chorus, calls simultaneous and overlapping, numbers of calling males cannot be reasonably counted or estimated.

1.3.2 *Breeding Birds*

Breeding bird surveys were conducted at the property on June 8 and June 24, 2020 to document the presence of bird species and their breeding within the following habitats in the study area: (i) the northwest Dry to Fresh Coarse Mixedwood; (ii) northern Dry to Fresh Coarse Mixedwood; (iii), Cultural Thicket/Meadow; (iv) northeastern Dry to Fresh Coarse Mixedwood; (v) adjacent pond; and (vi) flyovers and adjacent areas. Surveys were carried out between 05:30 a.m. and 10:00 a.m. to coincide with the dawn chorus, and surveys were conducted in general accordance with Breeding Bird Atlas protocols (Bird Studies Canada, 2001).

1.3.3 *Incidental Wildlife Observations*

Incidental observations of wildlife were recorded during all visits to the subject property. Recorded wildlife observations included direct and indirect evidence. Direct evidence included visual or auditory observations of species. Evidence considered “indirect” included observation of tracks, scat, and browse.

1.3.4 *Species at Risk*

Prior to fieldwork, existing Species at Risk (SAR) records were queried through consultation with the online NHIC database. A general screening for potential SAR habitat opportunities was completed for the subject property. Habitat opportunities for SAR on the site were then assessed by comparing habitat preferences of species deemed to have potential to occur against current site conditions.

1.3.5 *Significant Wildlife Habitat*

Site conditions were compared against potential Significant Wildlife Habitat (SWH), using *The Significant Wildlife Habitat Criterion Schedules for Ecoregion 5E* (MNR 2015) for guidance.

2.0 Existing Conditions

2.1 Physical Character of the Subject Lands

The subject lands generally slope from west to east. Much of the subject property has a subdued topography, with such areas generally corresponding to lands which have been cleared and altered in the past. Elevations in these areas typically range from 335 metres above sea level (masl) down to 330 masl, where the drainage course outlets the property. Naturally forested lands towards the edges of the property tend to have a more rugged terrain. This includes a hilly area within the mixed forest community in the northwest corner of the property, where topography grades from 346 masl at the very northwest corner of the property down to 335 masl at this community’s south boundary with the cultural meadow. It also includes a knoll within the mixed forest community in the eastern portion of the property, where elevations grade from 341 masl down to 334 masl. Bedrock exposure is more common within these areas of moderately steep topography, although it remains very limited.

2.2 Aquatic Features

An area of drainage crosses the subject property, originating as flow outletting from an upgradient beaver pond. There is a well-established ATV trail below the beaver dam, with the beaver dam outletting diffusely over top of that trail (**Photograph 1**), and the drainage then dispersing quite broadly into the woods below it (**Photographs 2 and 3**). It continues to flow diffusely through these woods, with no channelization, until entering the subject lands. It is only as a consequence of past earthworks on the subject lands that this drainage becomes more concentrated, moving slowly through a shallow marsh wetland (MAS2-1) in the west portion of the property (**Photograph 4**, with this small wetland further described below), then as ditched flow in vicinity of the existing driveway. It is culverted beneath the driveway that bisects the property, from where it flows as steeply ditched drainage towards the east (**Photograph 5**), before outletting into a large wetland that occurs east of the property, adjacent to Mallard Road and Industrial Park Road (**Figures 1 and 2**). The average depth of water in the downgradient and defined ditched portion of this drainage feature during spring field investigations was <0.10 m, with an average wetted width of only 0.25 m. Spring flows were visually estimated to be only 0.5 L/s, and conditions indicate that this drainage feature is very intermittent, although leakage through the upgradient beaver dam may sustain minor flows into the summer. No fish were observed within this drainage feature and none would be expected to occur considering its shallow nature and isolation from other potential fish-bearing waterbodies. Although it is possible that the occasional minnow may be washed through the upgradient beaver dam, there is insufficient flow, channel depth and habitat complexity within the drainage course below that dam to provide any fish habitat, even on a very seasonal basis. Accordingly, the role of this watercourse is limited to a conveyance function, with it having importance in cleanly transporting flows through the subject property, and with those flows contributing to the maintenance of the downgradient wetland. That role has been compromised to a degree by past land use activities on this property, including clearing and regrading activities.

The drainage feature passes through a small wetland inclusion within the subject property which simply occurs as the result of past site alterations (**Photographs 4, 6 and 7**). Earth stripping, fill placement and boulder piles have altered the natural drainage pattern and created this small wetland inclusion. It does not contain sufficient standing water to function as amphibian habitat, even for early breeding amphibians, and is not large enough to provide any other natural heritage values.

The diffuse drainage through the subject lands does not meet the definition of a “Water Body” under the Municipality of Dysart et al’s Official Plan, which requires that waterbodies ordinarily be protected by a 30 m buffer. In this regard, the Official Plan relies on Section 2.191 of the Zoning By-law, which describes a waterbody as follows:

2.191 WATER BODY: A lake, pond, river, stream, or any other area which is permanently covered by water. A water body does not include a human-made drainage or irrigation channel, lands that are seasonally covered by water, lands which may be subject to intermittent flooding, or a human-made recreational pond, without an inlet or outlet waterbody.



Photograph 1. Upgradient origin of drainage course, from a pond with beaver dam, has been bisected by a trail, illustrating typically very low flows out of pond (April 18, 2022).



Photograph 2. Downgradient of beaver pond and trail, flows disperse through woodland, with no channelization (April 18, 2022).



Photograph 3. View of diffuse nature of flows through woodland upgradient of subject lands (April 18, 2022).



Photograph 4. Drainage becomes more concentrated within proposed Lot 2 on subject lands, strictly as a consequence of past earthworks, but remains very intermittent (April 18, 2022).



Photograph 5. Drainage outlets through a culvert beneath the existing driveway on the property, then flows as a ditch downgradient of these lands (April 18, 2022).



Photograph 6. Drainage feature within Shallow Marsh community (May 21, 2020).



- LEGEND:
- Subject Site
 - Other Lands Owned by Applicant
 - Ecological Land Classification (ELC)
 - Drainage Feature
 - Eastern Wood-pewee Location

ELC DESCRIPTION:

ANT: Anthropogenic
 CUM1: Mineral Upland Cultural Meadow
 CUT1-5: Mineral Upland Raspberry Cultural Thicket
 MAS2-1: Cattail Mineral Shallow Marsh
 G059T: Dry to Fresh, Coarse: Mixedwood
 G055TI: Dry to Fresh, Coarse: Aspen – Birch Hardwood

Imagery (2015) provided by Esri basemap service.

metres

PROJECT NO.	1603351	REVISION:	2-2
DATE:	Apr 28, 2023	SCALE:	1:2300
DRAWN:	CV/SM	DATUM:	NAD 1983
CHECKED:	RM	PROJECTION:	UTM zone 17

CLIENT:

Michalski Nielsen

ASSOCIATES LIMITED

PREPARED BY:

PROJECT: Campbell Site EIS

Existing Environmental Conditions

Figure 2



Photograph 7. Drainage feature within Shallow Marsh community (May 21, 2020).



Photograph 8. Summer conditions in human-made pond adjacent to the subject property (June 8, 2020).

The drainage through the subject lands does not have permanent flows and does not contain areas permanently covered by water, and therefore does not meet this definition and is not subject to any associated buffer requirements. That said,, it is important to ensure that drainage through the subject property is conveyed cleanly in a manner which protects, and where feasible enhances, existing water quality. This is important in recognition that this drainage is conveyed to a downgradient wetland, and then ultimately to Grass Lake.

A human-made and isolated pond occurs on the dealership lands just south of the subject property, as shown on **Figure 2**. It is shallow (approximately 1 m depth by June) and has a narrow riparian area containing wetland plants that include Broad-leaf Cattail (*Typha latifolia*) and Meadow Willow (*Salix petiolaris*), with significant in-water cover by algae growth (**Photograph 8**). The pond is surrounded by landscaped areas and lawn.

Adjacent Wetlands

During site investigations, two adjacent wetland areas that are identified in both provincial mapping and the County of Haliburton's GIS mapping were inspected to determine their function and connectivity to the drainage feature on the subject property.

West of the subject property is a beaver pond wetland that features shallow floating and submerged aquatic vegetation. A beaver dam holds back the water level in this wetland (**Photograph 1**). As previously noted, the drainage course flowing across the subject lands outlets from that pond. The beaver dam has been in place for several years, with the trail constructed across it having been used by ATVs and other off-road vehicles.

The drainage course which traverses the subject property drains into a larger cattail (*Typha* spp.) dominated Shallow Marsh along Mallard Road, which subsequently drains south into Grass Lake, via culverts under Mallard Road and County Road 21 (**Figures 1 and 2**).

Neither of these wetlands are very pristine environments, and neither are large enough or complex enough to provide great habitat for wildlife, although both do have local wildlife values. The first of these is located approximately 80 m upgradient of the subject property, with no concerns that any land use within the subject property could impact on it. The second is located about 120 m downgradient of the subject property, so land use changes must have consideration for its water quality, as well as the water quality of downgradient Grass Lake. That said, this wetland is located adjacent to two fairly busy roads and a number of commercial and industrial uses, with some of those adjacent uses appearing to have encroached into its boundaries.

Both of the aforementioned wetlands are reasonably accurately shown on the Ducks Unlimited (DU) wetland layer in the County of Haliburton's GIS mapping. They are also identified in mapping available through MNRF's "Make-A-Map: Natural Heritage Areas" website, with reasonable agreement between these two mapping sources on their boundaries.

There are two other smaller areas identified as wetland in proximity of the subject lands in the County's DU wetland layer that don't appear on MNRFS mapping, and which are also not apparent on aerial photography. One of these is shown to be east of the property, just west of Mallard Road and the large cattail wetland on the far side of that road. The other is shown to be centered on the driveway through the Your Independent Grocer property, to the southeast. Both of these areas were examined in the field, and **neither contains any wetland**. As our office has noted in many previous reports we have produced within the Municipality of Dysart et al, the MNRFS wetland mapping layer, while missing some wetlands, otherwise tends to be accurate; the DU wetland layer is generally not very accurate, and we have very often seen areas which are clearly not wetland but which are identified as such in that mapping.

Although the two wetlands that occur upstream and downstream of the subject property have not been evaluated, it is our opinion that if they were evaluated it would be very unlikely that they would be determined to be provincially significant.

2.3 Vegetation and Flora

The subject property is located north of an existing car dealership and service centre. The vegetation communities on the property include cultural meadow and thicket, both of which have been created by past land uses, upland deciduous and mixed forest, and a small area of wetland associated with the drainage feature. These communities and their boundaries are illustrated on **Figure 2** with vegetation community descriptions provided below. **Appendix B** includes a full list of plant species recorded.

2.3.1 Terrestrial System

Forest

Dry to Fresh, Coarse: Mixedwood (G059Tt): This community accounts for most of the forested areas of the subject property (**Figure 2**) and is representative of a common forest composition in the Haliburton Region. The canopy and subcanopy provide 80% cover (**Photograph 9**). The canopy is dominated by Sugar Maple (*Acer saccharum*) and occasional Largetooth Aspen (*Populus grandidentata*). The subcanopy is composed of Sugar Maple, Red Oak (*Quercus rubrum*), White Pine (*Pinus strobus*), White Spruce (*Picea glauca*), Ironwood (*Ostrya virginiana*) Balsam Fir (*Abies balsamifera*) and American Beech (*Fagus grandifolia*), with small amounts of White Birch (*Betula papyrifera*). The ground layer is dominated by Bracken Fern (*Pteridium aquilinum*), Yellow Trout Lily (*Erythronium americanum*), Intermediate Wood Fern (*Dryopteris intermedia*), Marginal Wood Fern (*Dryopteris marginalis*), Wild Sarsaparilla (*Aralia nudicaulis*), Canada Mayflower (*Maianthemum canadense*), Long-stalked Sedge (*Carex pedunculata*) and Northern Starflower (*Lysimachia borealis*).

Dry to Fresh, Coarse: Aspen – Birch Hardwood (G055Tl): This forest type only occurs in one location, bounded on both sides by the G059Tt forest. It is representative of a young regenerating forest from previous clearing (**Photograph 10**). It contains densely growing Trembling Aspen (*Populus tremuloides*), Largetooth Aspen and White Birch (*Betula papyrifera*). The groundcover is sparse as the densely growing



Photograph 9. Typical conditions of G059Tt mixed forest (June 8, 2020).



Photograph 10. Typical conditions of G055Tl forest (June 8, 2020).

canopy trees occupy most of the forest floor and block out sunlight, and is limited to some Canada Mayflower and Wild Sarsaparilla.

Cultural

Mineral Upland Cultural Meadow (CUM1): This cultural community occurs in areas where previously cleared lands have had an opportunity for some regeneration. These areas were previously stripped and have shallow or no soil over a gravelly sub-soil. They are primarily occupied by non-native vegetation species adapted to poor soil conditions and regenerating meadows (**Photograph 11**). This includes Viper's Bugloss (*Echium vulgare*), Common Dandelion (*Taraxacum officinale*), Spotted Knapweed (*Centaurea stoebe*), Red Clover (*Trifolium pratense*), English Plantain (*Plantago lanceolata*) and Common Mullein (*Verbascum thapsus*).

Mineral Upland Raspberry Cultural Thicket (CUT1-5): This community type occurs in one location on the property and is also the result of historic clearing. It contains a dense growth of Red Raspberry (*Rubus idaeus* spp. *idaeus*).

2.3.2 *Wetland System*

Marsh

Mineral Cattail Shallow Marsh (MAS2-1): A single, small wetland inclusion occurs only as a result of human disturbance impacting localized drainage (**Photographs 6 and 7**). Due to its small size and anthropogenic influence, it has low vascular plant diversity, limited to Broad-leaf Cattail, Bebb's Willow (*Salix bebbiana*), Meadow Willow, Red-osier Dogwood (*Cornus sericea*), White Meadowsweet (*Spiraea alba*), Three-leaf Goldthread (*Coptis trifolia*), Crested Wood Fern (*Dryopteris cristata*) and Sensitive Fern (*Onoclea sensibilis*). Its presence is simply a consequence of the lands which would have originally contained intermittent drainage having been stripped, and with the drainage having been concentrated within this area in consequence.

2.3.3 *Flora*

A total of 65 species of vascular plants were observed during field surveys on the subject property (**Appendix B**). Of these, 48 (74%) are confirmed as native to Ontario. This represents a fairly high degree of non-native or invasive species (26%), primarily due to the anthropogenic influence and limit of natural habitats. While wetland is present, the diversity within this community is low as it is not a naturally occurring wetland with a suite of native species, nor does it have any physical diversity.

All of the native species have S-Ranks of S5 or S4, indicating they are common and secure, or apparently secure, in the province. No plant species were found that are considered regionally rare in Ecoregion 5E (Crins, 2004). Nor were any other provincially or nationally rare species recorded. A review of the NHIC database did not identify any significant flora in proximity of the subject property.



Photograph 11. Mineral Cultural Upland Meadow resulting from historical clearing (June 8, 2020).

2.4 Wildlife

2.4.1 *Amphibian Surveys*

Breeding amphibian surveys were conducted targeting potentially suitable habitats on and adjacent to the subject property. Potential breeding amphibian habitat on the property is limited to the drainage feature and associated pooling water within the artificially created wetland, and was able to be surveyed in its entirety. The results of survey are provided in **Table 2**.

Table 2. Breeding Amphibians Results from the subject property (2020)

Breeding Amphibian Surveys	Results
May 5 th , 2020	None within subject property. Spring Peeper (code 3) west of site in adjacent beaver pond.
May 19 th , 2020	None within subject property, American Toad (code 1) west of site in adjacent beaver pond.
June 8 th , 2020	Bull Frogs and Green frogs heard in other areas of Haliburton this evening.

***Note:**

The calling codes are designated according to the Amphibian Road Call Counts (Gartshore *et al.* 2004).

They are as follows:

- 1 - Individuals of one species can be counted, calls are not overlapping; second number denotes number of individuals.
- 2 - Calls of one species are overlapping; second number denotes estimated number of individuals.
- 3 - Full chorus of one species, calls continuous and overlapping, individuals not distinguishable

No breeding amphibians were detected calling from the drainage course/wetland within the subject property, or from the man-made pond on the adjacent lands to the south. This indicates that these two units have limited function and do not provide habitat for breeding amphibians. The small MAS2-1 wetland did not contain any standing water beyond mid-May, which also essentially eliminates the potential for successful breeding in this area.

2.4.2 *Breeding Birds*

Breeding birds were documented within five vegetation communities in the study area, as well as flyovers and adjacent areas. A total of 26 bird species were documented on the property, as summarized in **Appendix C**. Most of the birds recorded on the property are considered common. The most frequently observed species found on the property included birds characteristic of woodland and disturbed areas, such as American Robin (*Turdus migratorius*), American Goldfinch (*Carduelis tristis*), and Song Sparrow (*Melospiza melodia*).

Two species considered Species at Risk were observed during the surveys. One Eastern Wood-pewee (*Contopus virens*) (Special Concern) was heard singing within the northwestern Dry to Fresh Coarse Mixedwood (G059Tt) forest during the first round of surveys only. The lack of Eastern Wood-pewee presence during the second survey indicates only a Possible breeding status on the subject property. Several

Barn Swallows (*Hiundo rustica*) were observed flying overhead through the subject property during the first round of surveys. No nesting was observed, nor does this property contain structures providing such nesting opportunities.

Area-sensitive bird species were recorded from the property and while not rare, such species are associated with higher quality habitats and generally require large areas of contiguous habitat for breeding and foraging. The specific habitat requirements vary by species. The following area-sensitive species were observed on the subject property:

- White-breasted Nuthatch (*Sitta carolinensis*);
- Veery (*Catharus fuscescens*);
- Black-and-white Warbler (*Mniotilta varia*);
- American Redstart (*Setophaga ruticilla*); and
- Ovenbird (*Seiurus aurocapillus*).

White-breasted Nuthatch nests in natural cavities in trees with >30 cm diameter at breast height (DBH) in mature, broad-leafed woodland, orchards, or shade trees in suburban and rural areas. This species needs at least 10 ha or more of contiguous forest and tolerates mixed forest (OMNR, 2000). One White-breasted Nuthatch was heard calling in the northern Dry to Fresh Coarse Mixedwood forest during the first round of surveys, and another was heard from the northwest Dry to Fresh Coarse Mixedwood forest during the second survey. This suggests a Possible breeding status for this species on the subject property.

Veery prefer cool, moist, mixed or deciduous young or disturbed forest with bushy undergrowth and ferns. It requires at least 10 ha of forest habitat and is sensitive to habitat fragmentation. This species also utilizes forest edges, wooded swamps, damp ravines, and open woods with dense undergrowth of ferns or shrubs. (OMNR, 2000). Only one individual was heard singing from the northwest Dry to Fresh Coarse Mixedwood forest during the first round of surveys, suggesting a Possible breeding status on the subject property.

Black-and-white Warbler utilize large, mature stands of deciduous or mixed forests, cedar swamps or bogs, and riparian habitat, requiring an excess of 100 ha of contiguous forest (OMNR, 2000). Four Black-and-white Warbler were heard singing during the first survey within the northwest and eastern Dry to Fresh Coarse Mixedwood forests, as well as the Cultural Thicket/Meadow area. None were observed again during the second round of surveys, thus only resulting in a Possible breeding status on the subject property.

American Redstart require >100 ha of deciduous or mixed forest habitat and nests with a closed canopy of either tall shrubs, dense trees, or woodland edges (OMNR, 2000). One American Redstart was heard singing, during the first round of surveys only, within the northwestern Dry to Fresh Coarse Mixedwood forest. Its territorial behaviour suggests Probable breeding status on the property. This single occurrence suggests a Possible breeding status for this species on the subject property.

Ovenbird require >70 ha of continuous undisturbed, open, mature deciduous or mixed forest habitat with a closed canopy, little ground vegetation, and an abundance of fallen leaves, logs or rocks (OMNR, 2000). One Ovenbird was heard singing during the first round of surveys in the northwestern Dry to Fresh Coarse Mixedwood forest. This single occurrence suggests a Possible breeding status for this species on the subject property.

No other SAR birds or area-sensitive birds were recorded on the subject property.

2.4.3 *Incidental Wildlife Observations*

Incidental observations of the following wildlife species were made during the 2020 field investigations:

- Mammals
 - Eastern Grey Squirrel (*Sciurus carolinensis*) - observed throughout forested areas on property.
 - White-tailed Deer (*Odocoileus virginianus*) – tracks were commonly observed through the property and a single deer was observed in the north end of the property on the May 5th survey.
 - Eastern Chipmunk (*Tamias striatus*) – observed throughout the forested areas of the property during all field visits.
 - Coyote (*Canis latrans*) – tracks and scat observed on the gravel access road and in the Cultural Meadow during the May 5th survey.
- Birds
 - Raven (*Corvus corax*) – observed in small groups in taller White Pine within the forested areas on the subject property during the May 5th and May 20th surveys.

2.4.4 *Species at Risk*

Appendix D provides a screening of SAR that were considered to have potential to use the subject property. The list of potential species is based on a review of the NHIC database, other background sources, and our professional experience, including considerable past work in this area. A total of seven SAR were screened. The summary provided in **Appendix D** includes the current status of each species, whether general habitat or regulated habitat protection applies under Section 10 of the provincial *ESA*, their habitat requirements, and whether any of their habitat needs are met within the subject property. Where potential habitat occurs, mitigation measures are recommended.

The following SAR either occur or have the potential to occur on the subject property.

Birds

- Eastern Wood-pewee (*Contopus virens*) – Special Concern (one individual observed)

Mammals

- Eastern Small-footed Myotis (*Myotis leibii*) - Endangered
- Little Brown Myotis (*Myotis lucifugus*) - Endangered
- Northern Myotis (*Myotis septentrionalis*) - Endangered

The location of the single Eastern Wood-pewee observation is shown on **Figure 2**. This species is not protected under the *ESA*, and therefore “General Habitat Protection” does not apply. It is a species which is well represented locally. Avoidance of any vegetation clearing during the breeding bird season (May 1st – August 1st) will protect against any potential impacts to individuals of this species.

Maternity roosting bats may be present during the active roosting seasons within the G059Tt forest, however due to its intermediate age and lack of large mature (snag) trees, habitat opportunities within the property are limited. To avoid potential harm to any individual bats which may use trees on the property for roosting, a more restrictive timing window for vegetation clearing, May 1 to September 30, is appropriate.

To address both bird and bat requirements, we have recommended a restriction against tree removals between May 1 and September 30.

2.4.5 Significant Wildlife Habitat

SWH can be difficult to appropriately determine at the site-specific level, as the assessment must incorporate information from a wide geographic area and consider other factors such as regional resource patterns and landscape effects. To help in more site level assessments, the MNRF has developed the *Significant Wildlife Habitat Criteria Schedules For Ecoregion 5E* (MNRF 2015). The planning authorities have the responsibility to identify Significant Wildlife Habitat. With the exception of wintering deer yards, which can be, and often are, considered SWH, the detailed identification and designation of SWH has not been completed in the County of Haliburton. A review of potential SWH is provided in **Appendix E**.

SWH has four principal components, as described in the *Significant Wildlife Habitat Technical Guide* (OMNR 2000). These are:

- a) Habitats of Seasonal Concentrations of Animals;
- b) Rare Vegetation Communities or Specialized Habitat for Wildlife;
- c) Habitats for Species of Conservation Concern; and

d) Animal Movement Corridors,

Criteria for the identification of these features are also provided in the *Significant Wildlife Habitat Criteria Schedules for Ecoregion 5E* (MNR 2015). These criteria were used to provide an assessment and screening for wildlife habitat within the study area for potential SWH within and immediately adjacent to the subject lands, as detailed in **Appendix E**.

A discussion of the SWH components and Candidate SWH that were identified as having the potential to occur within the subject property is provided in the paragraphs following:

Habitats of Seasonal Concentrations of Animals

Some species of animals gather together from geographically wide areas at certain times of year. This could be to hibernate or to bask (e.g., some reptiles), over-winter (e.g., deer yards) or breed (e.g., amphibians). Maintenance of the habitat features that result in these concentrations can be critical in sustaining local or sometimes even regional populations of wildlife.

As indicated in LIO data, the subject property is not within “Stratum 1 or 2 Deer Wintering Habitat”. The property is identified in LIO as being within a very large area of “Early Moose Wintering Habitat”, however the subject property does not contain potential moose habitat due to its anthropogenic nature and the fragmentation of habitat. This large polygon of LIO-identified moose habitat is likely driven by the presence of vast natural forest and wetland to the north, connecting to Algonquin Provincial Park.

Rare Vegetation Communities or Specialized Habitat for Wildlife

Rare vegetation communities apply to the maintenance of biodiversity and of rare plant communities (rather than individual rare species). Specialized habitat conditions can include those for species of breeding birds that are associated with large blocks of habitat such as larger grassland areas, which can be considered area sensitive habitat.

The *Significant Wildlife Habitat Criteria Schedules For Ecoregion 5E* identifies several vegetation community types that may qualify as rare vegetation communities for SWH designation. Examples of these include beach, sand dunes, Atlantic Coastal marsh, cliffs, talus slopes, sand or rock barrens and savannah. Many of the identified rare communities, such as alvars and tall grass prairies, are not represented in the Haliburton area. While the subject property contains forest, these communities were not identified as old growth. There are also no rare forest types such as naturalized White Oak or Red Spruce dominated forests.

Habitats of Species of Conservation Concern

This category is potentially complex and includes species that may be locally rare or in decline, but that have not reached the level of rarity that is normally associated with Endangered or Threatened designations. The Significant Wildlife Habitat Technical Guide (OMNR 2000) suggests that the highest priority for protection be provided to habitats of the rarest species (on a scale of global through to local municipality); and that habitats that support large populations of a species of concern should be considered significant.

An additional eight criteria under the Species of Concern category are found in Appendix Q (OMNR 2000), with 28 guidelines within these criteria. The determination of SWH under this category (and under other categories) is a comparative process that must extend across the jurisdiction of the planning authority to be considered definitive.

The *Significant Wildlife Habitat Criteria Schedules For Ecoregion 5E* identifies four categories consisting of Marsh Bird Breeding Habitat, Open Country Bird Breeding Habitat, Shrub/Early Successional Bird Breeding Habitat, and Special Concern and Rare Wildlife Species. No habitat suitable for significant marsh, open country, or shrub/early successional bird breeding was identified on the subject property. One Special Concern species, Eastern Wood Pewee, was recorded during one of the two 2020 breeding bird surveys. While potential habitat for Eastern Wood Pewee may be provided within the subject property, it is our opinion that multiple breeding pairs of Special Concern SAR are required to warrant Confirmed SWH. Impacts to individuals of this species can be mitigated by the application of timing window restrictions that limit removal of vegetation during the breeding bird season.

Animal Movement Corridors

Landscape connectivity (often referred to as “wildlife corridors”) is recognized as an important part of natural heritage planning, and a wide range of benefits has been attributed to the maintenance or re-connection of the natural landscape. Corridors allow animals to move between areas of high habitat importance. Conservation of distinct habitat types to protect species is not effective unless the corridors between them are also protected. In general, the Haliburton landscape supports large areas of contiguous forest and wetland habitat and is largely conducive to movement of wildlife. Areas of habitat fragmentation that effect wildlife movement are found in association with local and provincial roadways, cottage developments, and settlement areas such as in the Village of Haliburton.

This category includes wildlife habitats that have distinct passageways or well defined natural features for movements between habitats required by a species to complete its life cycle. For the *Criteria Schedules for Ecoregion 5E* this specifically includes amphibian, cervid and fur bearer movement corridors.

There were no Candidate Animal Movement Corridors identified within the subject property.

3.0 Summary Comments and Recommendations

3.1 Summary Comments

The subject property is a small parcel of land of 3.67 ha size within the Village of Haliburton. It is located adjacent to commercial lands, is currently bisected by a driveway, and much of it has been disturbed through past clearing and regrading activities. Topography is quite gentle over much of the property. Portions of it are presently maintained as lawn, with past works on other portions of these lands (stripping of soil in particular) impacting on their ability to succeed back to a forested landscape. It does contain some remnant forested areas, which are primarily located in areas where the topography is more rugged, and which are immature to mid-mature.

The subject property does contain a small drainage feature, however this is intermittent in character, un-channelized due to past grading over a portion of the subject property, and culverted and ditched through other portions of the subject property. It does not afford any opportunities as fish habitat, even on a seasonal basis, with it simply having a conveyance function (with its role in helping convey cleaner flows towards a downgradient wetland, then ultimately to Grass Lake, being important). This drainage feature does not meet the zoning definition of a “Water Body” requiring protection and buffering under the Municipality of Dysart et al’s Official Plan.

There is a small inclusion of wetland on the subject property, occupying an area of just under 0.2 ha, however that inclusion has been artificially created by the stripping of these lands. Intermittent drainage from upstream areas has simply been concentrated by past earthworks into this area, creating shallow pooling of water that dries up through the spring. Flows and water depths are insufficient to support even early spring amphibian breeding, and there are no other ecological values associated with it. Given its anthropogenic character and lack of any natural heritage values it is not a feature that should require protection.

Although one Special Concern bird was observed in one of the forested areas of the subject property, there was no evidence of any breeding, and no concerns that the loss of trees on this property, if removed outside of the breeding bird season, will impact on the ability of that species, or of other forest-dependent birds, to continue to find habitat within this area. In this regard, much of the landscape in the broader environs is forested and will remain so over the long term. Nor are there any concerns that bat maternity and roosting habitat will be negatively impacted by the loss of trees on this property, if removed outside of the period of maternity and roosting use.

There are no other Species at Risk or Significant Wildlife Habitat concerns in relation to the subject lands. There are no Areas of Natural and Scientific Interest or Provincially Significant Wetlands in the vicinity of these lands, nor are there any concerns that properly planned development of these lands would impact on nearby wetlands (upgradient beaver pond; downgradient cattail marsh), although as previously noted the conveyance of clean water from this property is important to the protection of the downgradient wetland.

In accordance with the above, Michalski Nielsen Associates Limited has no concerns with the proposed subdivision of these lands to allow for five commercial lots, as illustrated in the Site Plan provided in **Appendix A**, and as shown as an overlay with our existing conditions mapping on **Figure 3**. In coming to this conclusion, we recognize that the implementation of that plan will require the removal of good portions of the remnant forested areas within these lands, the removal of the small wetland feature, and some corresponding ditching of the small drainage course. In the subsections which follow, we provide additional commentary and recommendations specific to the required alterations to the drainage course, stormwater management, additional aspects of site servicing, and construction management.

3.2 Alterations to Drainage Course

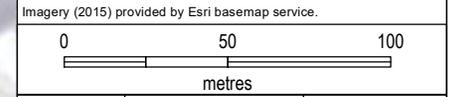
The small, intermittent drainage feature within the subject property does not provide fish habitat, with its ecological values limited to those associated with the clean conveyance of flows (which have been impaired



- LEGEND:**
- Subject Site
 - Other Lands Owned by Applicant
 - Ecological Land Classification (ELC)
 - Drainage Feature
 - Site Plan

ELC DESCRIPTION:

ANT: Anthropogenic
 CUM1: Mineral Upland Cultural Meadow
 CUT1-5: Mineral Upland Raspberry Cultural Thicket
 MAS2-1: Cattail Mineral Shallow Marsh
 G059Tt: Dry to Fresh, Coarse: Mixedwood
 G055TI: Dry to Fresh, Coarse: Aspen – Birch Hardwood



	PROJECT NO. 1603351	REVISION: 1-2
	DATE: Jun 16, 2023	SCALE: 1:2300
	DRAWN: CV/SM	DATUM: NAD 1983
	CHECKED: RM	PROJECTION: UTM zone 17

CLIENT:

PREPARED BY:

PROJECT: Campbell Site EIS

Proposed Development

Figure 3

to a degree by past work on the subject property). This drainage flows across an area of stripped lands west of the existing driveway where it lacks channel definition; it can and should be ditched through this reach, with the boundary line between proposed lots 2 and 3 having been configured to allow for that ditch to run along it, just within the boundary of Lot 2. There is a short reach of this drainage course that is better channelized downgradient of the stripped lands, which courses towards the culverted outlet under the driveway; there are no concerns with altering that reach by continuing the ditch along the property line between lots 2 and 3, then having that ditch run parallel to the driveway to the existing culverted crossing. Below the culvert, this drainage course is already ditched, with such ditching continuing beyond the subject property down to Mallard Road. To ensure new ditching on this watercourse protects and enhances the functions of this intermittent drain in conveying clean flows to the downgradient wetland, and ultimately to Grass Lake, Michalski Nielsen Associates Limited recommends that:

- **a ditch be constructed with an invert of 1 m width and with an adjacent bank/top of bank of 4 m on either side which can be restored with native shrubs. This ditch and its naturalized banks/top of banks will occupy a total width of 9 m;**
- **the ditching of this drainage feature occur between June 1 and September 15, when the drainage feature will be dry, except for intermittent flows following rain events;**
- **the new ditching be completed over as short a time frame as possible. Over the course of that work, there are to be provisions for damming and pumping of any upstream flows around the work area in the event of a rain event;**
- **the bottom of the new ditching be stabilized with stone, as deemed appropriate by the engineer. The sides of new ditching are to be stabilized with a biodegradable erosion mat, such as coir cloth;**
- **the restored riparian buffer be seeded with a landscape restoration seed mix appropriate for that purpose, for example Ontario Seed Corporation's Creek Bank Native Seed Mixture;**
- **the riparian buffer be planted with native shrubs appropriate to this locale. Planting is to occur at a density of two shrubs for every linear metre of ditch, on each side of the ditch. Appropriate native shrubs to this locale include:**

– Red Osier Dogwood	2 gallon potted
– Alternate Leaved Dogwood	2 gallon potted
– Grey Dogwood	2 gallon potted
– Nannyberry	2 gallon potted
– Beaked Willow	1 gallon potted
– Pussy Willow	3 gallon potted
– Sandbar Willow	1 gallon potted

3.3 Stormwater Management

A Storm Water Management and Construction Mitigation Plan has been prepared by Pinestone Engineering Ltd. and is being submitted under separate cover. Given that the development plans for the five lots are unknown at this time, that plan simply outlines stormwater management requirements for those lots. Some of the design criteria which have guided Pinestone's stormwater management plans include:

- peak flow attenuation to pre-development levels for all storms up to the 100 year event;
- conveyance of post-development peak flows in excess of the 100 year event safely from the site; and
- water quality enhancement to an Enhanced Level of protection, using a treatment train approach.

Measures being recommended to address these criteria include:

- enhanced swales behind lots to promote filtration and infiltration of storm water;
- provision of detention facilities that are sized to attenuate the 100 year storm, using either parking lot storage or private storm water management ponds within each lot;
- installation of oil/grit separator units sized to provide an Enhanced Level of quality control;
- rip-rap treatment at storm outlets to prevent migration of sediments; and
- maintenance of lot line vegetation to filter runoff.

The erosion and sediment control plan is to include the following measures:

- installation of silt fencing along the downgradient edge of all areas to be disturbed;
- installation of rock check dams along proposed ditches;
- installation of mud mats at site entrances; and
- regular monitoring and repair of the controls by the contractor.

This plan is appropriate in helping to achieve our objectives of safely and cleanly conveying site runoff, as well as protecting the downgradient wetland, and ultimately Grass Lake, which will receive these flows.

3.4 Additional Aspects of Site Servicing

The Village of Haliburton is on municipal sanitary sewers, with sewage to outlet through gravity sewers into this system.

The Village of Haliburton does not have a municipal water supply, so each lot will need to be serviced by an individual well; a Hydrogeology Servicing Study completed by Palmer confirms that such a solution can be achieved.

Sanitary services and other services such as hydro and internet are intended to follow the existing driveway alignment.

There are no concerns with any of those aspects of servicing from a natural environment perspective.

3.5 Construction Management

It is important that construction activities be timed and managed in a manner which avoids potential harm to local wildlife and which minimizes the potential for adverse physical or water quality impacts on surrounding areas. To this end, and in conjunction with the recommendations of the Storm Water Management and Construction Mitigation Plan prepared by Pinestone Engineering Ltd., Michalski Nielsen Associates Limited recommends that:

- **all tree cutting be undertaken between October 1 and April 30, so as to avoid impacts on breeding birds and any potential bat roosting;**
- **at the onset of grubbing, and prior to any other earthworks, a heavy-duty silt fence be properly installed around the downgradient perimeter of all such works. The sediment fence is to be properly trenched into the ground (a minimum 0.2 m). A qualified professional is to provide certification that the silt fencing has been properly installed;**
- **additional sediment and erosion controls be installed, where deemed necessary by the project engineer or another qualified professional, including such measures as temporary or permanent check dams at appropriate locations on any ditching;**
- **sediment and erosion controls be inspected daily by the contractor. Any deficiencies in these controls are to be remedied immediately;**
- **once an area has been grubbed, works progress as quickly as possible, with all disturbed areas to be stabilized by grading, then by seeding or sodding, as soon as can be practically achieved; and**
- **sediment and erosion controls be left in place, and regularly monitored and repaired, until such time as the lands which have been disturbed are stable.**

* * * * *

In closing, I trust this EIS is complete and provides the Municipality of Dysart et al and County of Haliburton with all of the information required to inform their approval of this proposed subdivision and condominium. Please do not hesitate to contact me should you have any questions or comments.

Yours truly,

MICHALSKI NIELSEN ASSOCIATES LIMITED

Per:



Gord Nielsen, M.Sc.
Ecologist
President

References

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2014. **Guidelines for Conducting Eastern Whip-poor-will Roadside Surveys in Ontario.**
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APPENDIX A – PROPOSED SITE PLAN

DRAFT PLAN OF SUBDIVISION AND COMMON ELEMENTS CONDOMINIUM DESCRIPTION

PART OF LOTS 11 & 12, CONCESSIONS 8 & 9

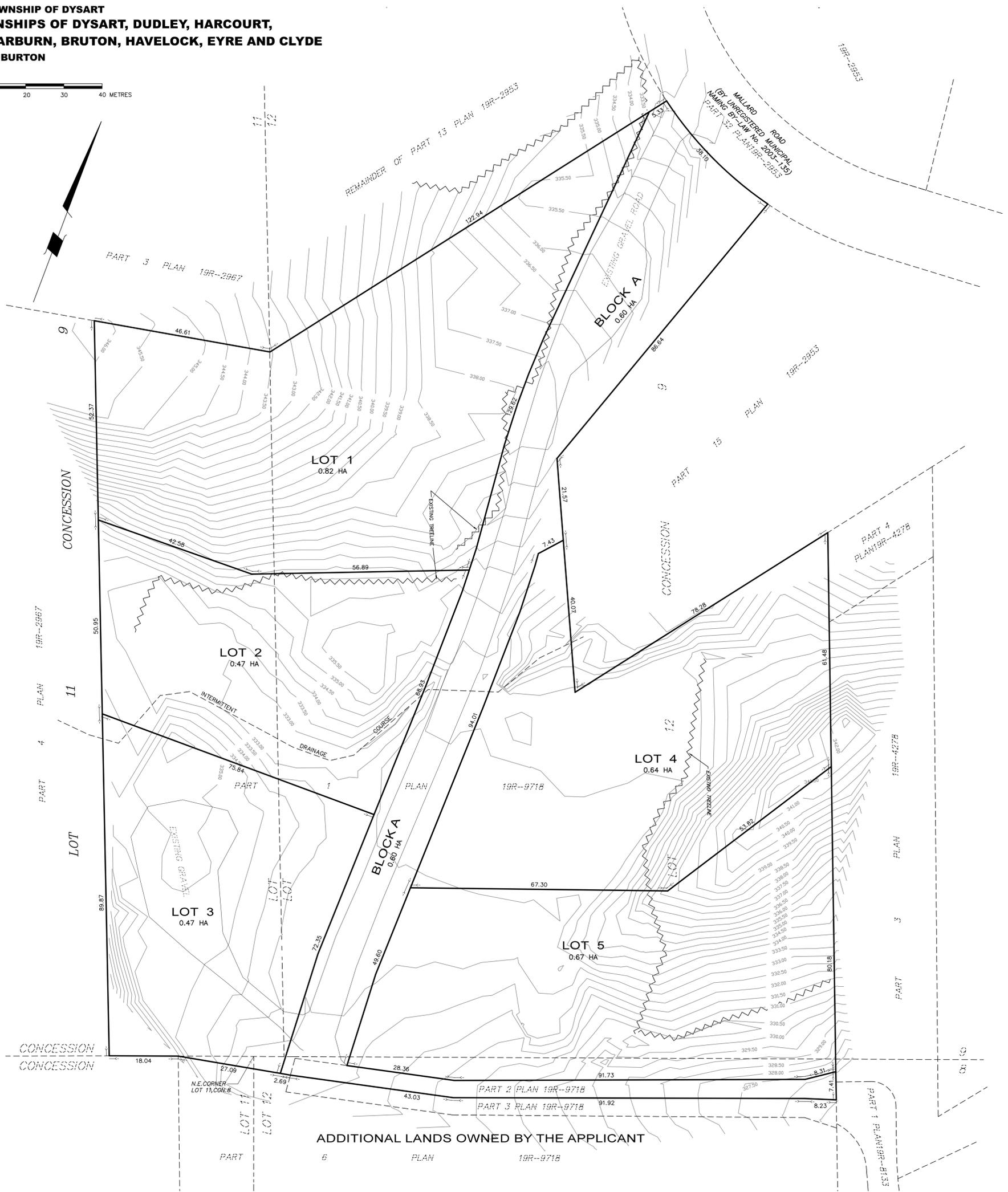
**GEOGRAPHIC TOWNSHIP OF DYSART
UNITED TOWNSHIPS OF DYSART, DUDLEY, HARCOURT,
GUILFORD, HARBURN, BRUTON, HAVELOCK, EYRE AND CLYDE
COUNTY OF HALIBURTON**

SCALE 1 : 500 METRIC



RODNEY GEYER O.L.S.

METRIC: DISTANCES AND COORDINATES ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.



ADDITIONAL LANDS OWNED BY THE APPLICANT

SCHEDULE

LOT/BLOCK	PROPOSED LAND USE	AREA
SUBDIVISION LOTS 1-5	COMMERCIAL	3.07 ha.±
CONDOMINIUM BLOCK A	ACCESS ROAD	0.60 ha.±

OTHER INFORMATION

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51 (17) OF THE PLANNING ACT:
 A. AS SHOWN HEREON.
 B. AS SHOWN HEREON.
 C. AS SHOWN HEREON.
 D. COMMERCIAL.
 E. AS SHOWN HEREON.
 F. AS SHOWN HEREON.
 G. AS SHOWN HEREON.
 H. DRILLED WELLS TO BE SOURCE OF DOMESTIC WATER SUPPLY.
 I. SAND AND SILT WITH BOULDERS.
 J. AS SHOWN HEREON.
 K. MUNICIPAL SEWAGE SERVICES: COMMON ELEMENT CONDOMINIUM ROAD TO MALLARD ROAD; PRIVATE ROAD TO COUNTY ROAD 21 VIA PART 1, PLAN 19R-8133.
 L. SEE APPLICATION.

CONTOURS:

1. CONTOURS SUPPLIED BY PINESTONE ENGINEERING LTD.
2. CONTOUR INTERVALS ARE 0.5 METRES.

OWNER'S CERTIFICATE

I HEREBY CONSENT TO THE SUBMISSION OF THIS PLAN FOR DRAFT APPROVAL.

JANUARY 11, 2023.
HALIBURTON, ONTARIO.

RORY CAMPBELL FOR
LRC CAMPBELL LTD.
I HAVE AUTHORITY TO BIND
THE CORPORATION

PLANNER'S CERTIFICATE

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY A REGISTERED PROFESSIONAL PLANNER, WITHIN THE MEANING OF THE ONTARIO PROFESSIONAL PLANNERS INSTITUTE ACT, 1994.

JANUARY 11, 2023.
TORONTO, ONTARIO.

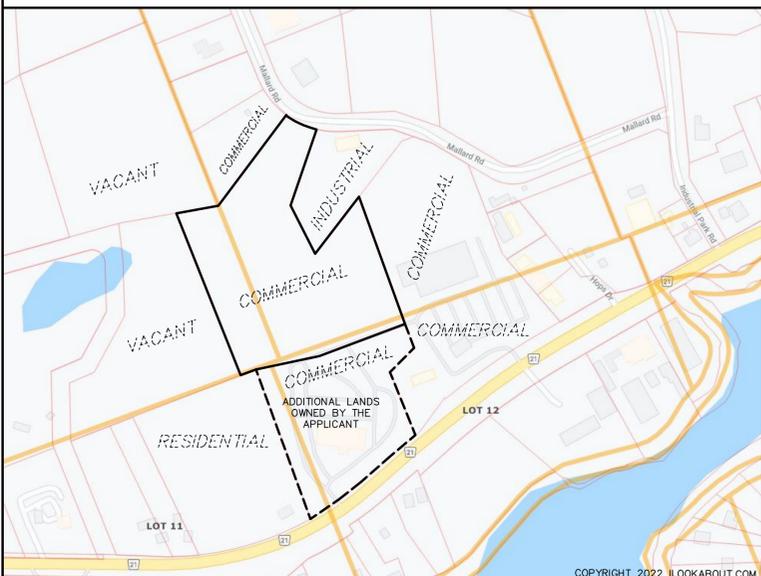
Anthony Usher
ANTHONY USHER
REGISTERED PROFESSIONAL PLANNER

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED ARE ACCURATELY SHOWN ON THIS PLAN.

JANUARY 11, 2023.
HALIBURTON, ONTARIO.

Rodney Geyer
RODNEY GEYER
ONTARIO LAND SURVEYOR



KEY PLAN

SCALE 1 : 3000

BISHOP GEYER SURVEYING INC.
 ONTARIO LAND SURVEYOR
 BOX 309, HALIBURTON, ONTARIO, K0M1S0
 PHONE (705) 457 - 2811

CHECKED BY: RHG	DRAWN BY: CB	REV. DATE: JANUARY 11, 2023	W.D.:	REV.:
			2022-00	B

APPENDIX B – VASCULAR PLANT LIST

Appendix B. Vascular Plant List.

Scientific Name	Common Name	S Rank	COSEWIC Status	SARO Status
<i>Abies balsamea</i>	Balsam Fir	S5		
<i>Acer pensylvanicum</i>	Striped Maple	S4		
<i>Acer rubrum</i>	Red Maple	S5		
<i>Acer saccharum</i>	Sugar Maple	S5		
<i>Achillea millefolium</i>	Common Yarrow	SNA		
<i>Aegopodium podagraria</i>	Goutweed	SNA		
<i>Apocynum androsaemifolium</i>	Spreading Dogbane	S5		
<i>Aralia nudicaulis</i>	Wild Sarsaparilla	S5		
<i>Arisaema triphyllum</i>	Jack-in-the-pulpit	S5		
<i>Athyrium filix-femina</i> var. <i>angustum</i>	Northeastern Lady Fern	S5		
<i>Betula papyrifera</i>	Paper Birch	S5		
<i>Bromus inermis</i>	Smooth Brome	SNA		
<i>Carex communis</i>	Fibrous-root Sedge	S5		
<i>Carex intumescens</i>	Bladder Sedge	S5		
<i>Carex pedunculata</i>	Long-stalked Sedge	S5		
<i>Centaurea stoebe</i>	Spotted Knapweed	SNA		
<i>Coptis trifolia</i>	Goldthread	S5		
<i>Cornus sericea</i>	Red-osier Dogwood	S5		
<i>Dryopteris cristata</i>	Crested Wood Fern	S5		
<i>Dryopteris intermedia</i>	Evergreen Wood Fern	S5		
<i>Dryopteris marginalis</i>	Marginal Wood Fern	S5		
<i>Echium vulgare</i>	Common Viper's Bugloss	SNA		
<i>Erigeron philadelphicus</i>	Philadelphia Fleabane	S5		
<i>Erythronium americanum</i>	Yellow Trout-lily	S5		
<i>Eupatorium perfoliatum</i>	Common Boneset	S5		
<i>Fagus grandifolia</i>	American Beech	S4		
<i>Fragaria virginiana</i>	Wild Strawberry	S5		
<i>Fraxinus americana</i>	White Ash	S4		
<i>Gymnocarpium dryopteris</i>	Common Oak Fern	S5		
<i>Juncus dudleyi</i>	Dudley's Rush	S5		
<i>Juncus effusus</i>	Soft Rush	S5		
<i>Juncus tenuis</i>	Path Rush	S5		
<i>Lonicera japonica</i>	Japanese Honeysuckle	SNA		
<i>Lysimachia borealis</i>	Northern Starflower	S5		
<i>Onoclea sensibilis</i>	Sensitive Fern	S5		
<i>Ostrya virginiana</i>	Eastern Hop-hornbeam	S5		
<i>Oxalis montana</i>	White Wood-sorrel	S5		
<i>Parathelypteris noveboracensis</i>	New York Fern	S4S5		

Appendix B. Vascular Plant List.

<i>Parthenocissus vitacea</i>	Thicket Creeper	S5		
<i>Picea glauca</i>	White Spruce	S5		
<i>Pinus strobus</i>	Eastern White Pine	S5		
<i>Pinus sylvestris</i> var. <i>sylvestris</i>	Scots Pine	SNA		
<i>Plantago lanceolata</i>	English Plantain	SNA		
<i>Poa pratensis</i> ssp. <i>pratensis</i>	Kentucky Bluegrass	SNA		
<i>Populus grandidentata</i>	Large-toothed Aspen	S5		
<i>Populus tremuloides</i>	Trembling Aspen	S5		
<i>Prunella vulgaris</i>	Common Self-heal	S5		
<i>Prunus virginiana</i>	Chokecherry	S5		
<i>Pteridium aquilinum</i>	Bracken Fern	S5		
<i>Rubus idaeus</i> ssp. <i>idaeus</i>	European Red Raspberry	SNA		
<i>Rumex acetosella</i>	Sheep Sorrel	SNA		
<i>Salix bebbiana</i>	Bebb's Willow	S5		
<i>Salix petiolaris</i>	Meadow Willow	S5		
<i>Sambucus racemosa</i>	Red Elderberry	S5		
<i>Setaria pumila</i>	Yellow Foxtail	SNA		
<i>Setaria viridis</i>	Green Foxtail	SNA		
<i>Solidago juncea</i>	Early Goldenrod	S5		
<i>Spiraea alba</i>	White Meadowsweet	S5		
<i>Symphyotrichum</i> <i>puniceum</i>	Purple-stemmed Aster	S5		
<i>Syringa vulgaris</i>	Common Lilac	SNA		
<i>Taraxacum officinale</i>	Common Dandelion	SNA		
<i>Tilia americana</i>	Basswood	S5		
<i>Trifolium pratense</i>	Red Clover	SNA		
<i>Typha latifolia</i>	Broad-leaved Cattail	S5		
<i>Verbascum thapsus</i>	Common Mullein	SNA		

APPENDIX C – BREEDING BIRD SURVEY RESULTS

Common Name	Scientific Name	Status							Area-sensitive (OMNR)c	Breeding Evidence	Locations					Flyovers and adjacent	Date Observed	
		National Species at Risk COSEWICa	Species at Risk in Ontario Listing a	Provincial breeding season SRANK ^b	TRCA Status	CVC status	Regional Status	1			2	3	4	5	08-Jun-20		24-Jun-20	
Ring-billed Gull	<i>Larus delawarensis</i>			S5	L4	yes			X						x	1		
Rock Pigeon	<i>Columba livia</i>			SE	L+	yes			X						x	1		
Northern Flicker	<i>Colaptes auratus</i>			S4	L4	yes			S			x				1		
Eastern Wood-Pewee	<i>Contopus virens</i>	SC	SC	S4	L4	yes			S	x						1		
Eastern Phoebe	<i>Sayornis phoebe</i>			S5	L5	yes			S			x				1		
Great Crested Flycatcher	<i>Myiarchus crinitus</i>			S4	L4	yes			S		x						1	
Barn Swallow	<i>Hirundo rustica</i>	THR	THR	S4	L4	yes			X						x	10		
American Crow	<i>Corvus brachyrhynchos</i>			S5	L5	yes			H				x			1		
Common Raven	<i>Corvus corax</i>			S5	L4	yes			V	x						3		
Black-capped Chickadee	<i>Poecile atricapillus</i>			S5	L5	yes			S	x						1		
White-breasted Nuthatch	<i>Sitta carolinensis</i>			S5	L4	yes		A	S	x	x					1	1	
House Wren	<i>Troglodytes aedon</i>			S5	L5	yes			S		x	x				2	1	
Veery	<i>Catharus fuscescens</i>			S4	L2	yes		A	S	x							1	
American Robin	<i>Turdus migratorius</i>			S5	L5	yes			S	x	x	x	x		x	4	3	
Gray Catbird	<i>Dumetella carolinensis</i>			S4	L4	yes			FY	x		x				2	2	
Cedar Waxwing	<i>Bombycilla cedrorum</i>			S5	L5	yes			H			x					2	
Red-eyed Vireo	<i>Vireo olivaceus</i>			S5	L4	yes			S	x							1	
Yellow Warbler	<i>Setophaga petechia</i>			S5	L5	yes			S			x					1	
Black-and-white Warbler	<i>Mniotilta varia</i>			S5	L2	yes		A	S	x		x	x			4		
American Redstart	<i>Setophaga ruticilla</i>			S5	L4	yes		A	S	x						1		
Ovenbird	<i>Seiurus aurocapillus</i>			S4	L2	yes		A	S	x						1		
Common Yellowthroat	<i>Geothlypis trichas</i>			S5	L4	yes			S	x			x			4		
Song Sparrow	<i>Melospiza melodia</i>			S5	L5	yes			S	x		x	x			5	1	
Red-winged Blackbird	<i>Agelaius phoeniceus</i>			S4	L5	yes			P					x		3		
American Goldfinch	<i>Carduelis tristis</i>			S5	L5	yes			S	x	x		x			4	1	
House Sparrow	<i>Passer domesticus</i>			SE	L+	yes			S				x			1		

Field Work Conducted On:	Date	Temp (°C)	Wind Speed (km/h)	Cloud Cover (%)	Start time	End time	Level of effort (h:min)	Number of species
Site visit 1	08-Jun-20	7	0	0	7:10	8:20	1:10	21
Site visit 2	24-Jun-20	14	18	95	8:16	9:30	1:14	11

Summary								
Location 1								
Location 2								
Location 3								
Location 4								
Location 5								
Study Area								
Number of Species:		26						
Number of (provincial and national) Species at Risk:		2						
Number of S1 to S3 (provincially rare) Species:		0						
Number of Regionally Rare Species:		0						
Number of Area-sensitive Species:		5						
Location 1 -								
Number of Species:								

Number of (provincial and national) Species at Risk:								
Number of S1 to S3 (provincially rare) Species:								
Number of Regionally Rare Species:								
Number of Area-sensitive Species:								
Location 2 -								
Number of Species:								
Number of (provincial and national) Species at Risk:								
Number of S1 to S3 (provincially rare) Species:								
Number of Regionally Rare Species:								
Number of Area-sensitive Species:								
Location 3 -								
Number of Species:								
Number of (provincial and national) Species at Risk:								
Number of S1 to S3 (provincially rare) Species:								
Number of Regionally Rare Species:								
Number of Area-sensitive Species:								
Location 4 -								
Number of Species:								
Number of (provincial and national) Species at Risk:								
Number of S1 to S3 (provincially rare) Species:								
Number of Regionally Rare Species:								
Number of Area-sensitive Species:								
Location 5 -								
Number of Species:								
Number of (provincial and national) Species at Risk:								
Number of S1 to S3 (provincially rare) Species:								
Number of Regionally Rare Species:								
Number of Area-sensitive Species:								
Location 6 - Flyovers and adjacent areas								
Number of Species:								
Number of (provincial and national) Species at Risk:								
Number of S1 to S3 (provincially rare) Species:								
Number of Regionally Rare Species:								
Number of Area-sensitive Species:								

KEY

a COSEWIC = Committee on the Status of Endangered Wildlife in Canada

a Species at Risk in Ontario List (as applies to ESA) as designated by COSSARO (Committee on the Status of Species at Risk in Ontario)

END = Endangered, THR = Threatened, SC = Special Concern

^u SRANK (from Natural Heritage Information Centre) for breeding status if:

S1 (Critically Imperiled), S2 (Imperiled), S3 (Vulnerable), S4 (Apparently Secure), S5 (Secure)

SZB (breeding migrants or vagrants) and SR (reported as breeding, but no persuasive documentation) .

SE (exotic, i.e. non-native)

c Ontario Ministry of Natural Resources (OMNR). 2000. Significant Wildlife Habitat Technical Guide (Appendix G). 151 p plus appendices.

d Toronto and Region Conservation Authority L rank:

L1 to L3 Regional species of concern from highest to lowest; L4 Urban concern; L5 Secure through region

APPENDIX D – SPECIES AT RISK SCREENING

Appendix D. Species at Risk Screening.

NAME	SARA STATUS	SARO	HABITAT REQUIREMENTS	SOURCE OF RECORD	POTENTIAL HABITAT PRESENT (Y/N)	RATIONALE	POTENTIAL IMPACTS AND MITIGATION
AVIFAUNA							
Eastern Whip-poor-will (<i>Antrostomus vociferus</i>)	THR	THR	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).	Professional Experience / OBBA	N	Lack of natural communities or habitat mosaic that may support the Eastern Whip-poor-will. Communities are either highly anthropogenic (i.e car dealership) or densely forested and not suitable for Eastern Whip-poor-will nesting.	None
Eastern Wood-Pee-wee (<i>Contopus virens</i>)	SC	SC	The eastern wood-pee-wee 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-pee-wee 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).	Professional Experience / OBBA	Y	A single Eastern Wood-pee-wee was identified during breeding bird investigations on the subject property, occurring within the G059Tt forest and shown on (Figure 2).	Low potential for impacts. Eastern Wood-pee-wee are habitat generalists of intermediate-age forests and are found throughout the Haliburton Region during the breeding bird season. Mitigation: Impacts to individuals of this species can be mitigated by the application of timing window restrictions that prevent any removal of vegetation during the Breeding Bird Season (May 1 - July 31).
HERPTILES							
Blandings Turtle (<i>Thamnophis sauritus</i>)	THR	THR	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).	Adjacent NHIC Square	N	Wetland and aquatic habitats are very limited on the subject property. The sites isolation from more suitable habitat via road networks and surrounding businesses decreases the likelihood that a Blanding's Turtle would find itself within the property.	None
Snapping Turtle (<i>Chelydra serpentina</i>)	SC	SC	The snapping turtle is a species of special concern in Ontario due to the potential for the species to become threatened or endangered as a result of biological factors or other identified threats. While not presently protected by law, the snapping turtle has been recognized as a species of special concern by COSSARO. Snapping turtles spend the majority of their lives in water and travel slightly upland to gravel or sandy embankments or beaches to lay their eggs (Ontario Ministry of Natural Resources and Forestry, 2014).	Adjacent NHIC Square	N	Lack of wetland or aquatic habitat.	None
MAMMALS							
Eastern Small-footed Myotis (<i>Myotis leibii</i>)	No Status	END	The eastern small-footed myotis, a bat, are an endangered species threatened by a disease known as white nose syndrome, caused by a fungus from Europe. Eastern small-footed bat's fur has black roots and shiny light brown tips, giving it a yellowish-brown appearance. Its face mask, ears and wings are black, and its underside is grayish-brown, about 8 cm long in size and weighs 4-5 grams. In the spring and summer, eastern small-footed bats will roost in a variety of habitats, including in or under rocks, in rock outcrops, in buildings, under bridges, or in caves, mines, or hollow trees. They change their roosting locations daily and hunt at night for insects to eat, including beetles, mosquitos, moths, and flies. They hibernate in winter, often in caves and abandoned mines. They can be found from south of Georgian Bay to Lake Erie and east to the Pembroke area, and choose colder and drier sites (Ministry of Natural Resources and Forestry, 2014).	Professional Experience	Y - but not recorded	Potential suitable forest habitat with occasional snags exists within the subject property, however, large snags with ideal peeling bark/cavities are limited. No anthropogenic habitats (old barns, outbuildings) which they may use are found on the property.	Low potential for impacts. Mitigation: Minimize extent of forest removals. The primary mitigation is for the protection of maternity roosting. As SAR bats are typically active between early April and late September, and hibernate in caves outside of that period, tree removal should be carried out between October 1 and March 31. This will avoid harm or impacts to individuals.
Little Brown Myotis (<i>Myotis lucifugus</i>)	END	END	Little brown myotis, a bat, are an endangered species threatened by a disease known as white nose syndrome, caused by a fungus from Europe. Little brown bats have glossy brown fur and usually weigh between four and 11 grams. Bats are nocturnal. During the day they roost in trees and buildings. They often select attics, abandoned buildings and barns for summer colonies where they can raise their young. Little brown bats hibernate from October or November to March or April, most often in caves or abandoned mines that are humid and remain above freezing – an ideal environment for the fungus to grow and flourish. The syndrome affects bats by disrupting their hibernation cycle, so that they use up body fat supplies before the spring when they can once again find food sources (Ministry of Natural Resources and Forestry, 2014).	Professional Experience	Y - but not recorded	Potential suitable forest habitat with occasional snags exists within the subject property, however, large snags with ideal peeling bark/cavities are limited. No anthropogenic habitats (old barns, outbuildings) which they may use are found on the property.	Low potential for impacts. Mitigation: Minimize extent of forest removals. The primary mitigation is for the protection of maternity roosting. As SAR bats are typically active between early April and late September, and hibernate in caves outside of that period, tree removal should be carried out between October 1 and March 31. This will avoid harm or impacts to individuals.

Appendix D. Species at Risk Screening.

NAME	SARA STATUS	SARO	HABITAT REQUIREMENTS	SOURCE OF RECORD	POTENTIAL HABITAT PRESENT (Y/N)	RATIONALE	POTENTIAL IMPACTS AND MITIGATION
Northern Myotis (<i>Myotis septentrionalis</i>)	END	END	The northern long-eared myotis, a bat, are an endangered species threatened by a disease known as white nose syndrome, caused by a fungus from Europe. Northern long-eared bats have dull yellow-brown fur with pale grey bellies. They are approximately eight cm long, with a wingspan of about 25 cm, and usually weigh six to nine grams. Northern long-eared bats can be found in boreal forests, roosting under loose bark and in the cavities of trees. These bats hibernate from October or November to March or April, most often in caves or abandoned mines (Ministry of Natural Resources and Forestry, 2014).	Professional Experience	Y - but not recorded	Potential suitable forest habitat with occasional snags exists within the subject property, however, large snags with ideal peeling bark/cavities are limited. No anthropogenic habitats (old barns, outbuildings) which they may use are found on the property.	Low potential for impacts. Mitigation: Minimize extent of forest removals. The primary mitigation is for the protection of maternity roosting. As SAR bats are typically active between early April and late September, and hibernate in caves outside of that period, tree removal should be carried out between October 1 and March 31. This will avoid harm or impacts to individuals.

Notes:

- SC - Special Concern
- THR - Threatened
- END - Endangered
- S1 - Extremely rare in Ontario
- S2 - Very rare in Ontario
- S3 - Rare to uncommon in Ontario
- S4 - Considered to be common in Ontario
- S5 - Species is widespread in Ontario
- SH - Possibly extirpated
- S#S# - Indicates insufficient information exists to assign a single rank.
- S#? - Indicates some uncertainty with the classification due to insufficient data.
- S#N - Nonbreeding
- S#B - Breeding

**APPENDIX E – SIGNIFICANT WILDLIFE
HABITAT SCREENING**

SWH Type	Associated Species	Associated ELC Ecosites	Habitat Criteria	Presence (Y/N)	Additional Notes
Seasonal Concentration Areas of Animals					
Waterfowl Stopover and Staging Areas (Terrestrial)	Ducks	Fields, Meadows, Sparse Shrubs: G060-062, G077-079, C093-095, G109-111	Fields with sheet-water flooding mid-March to May	N	No potential habitat present within subject property.
Waterfowl Stopover and Staging Area (Aquatic)	Ducks, Geese	G142-152: Ponds, Lakes, Inlets, Marshes, open/shrubby fens, Shallow Water Ecosites	Sewage & SWM ponds not SWH. Reservoir managed as a large wetland or pond/lake qualifies.	N	No potential habitat present within subject property.
Shorebird Migratory Stopover Area	Shorebirds	G005-006, G160-162, G170-172, G176-178, G186-188, G204-G214: Beaches, Shorelines	Shorelines. Sewage treatment ponds and storm water ponds not SWH.	N	No potential habitat present within subject property.
Raptor Wintering Area	Hawks, Owls	Combination of Forest and meadow/field. Woodland Ecosites: G011-019, 023-028, 033-043, 048-059, 064-076, 081-092, 097-108, 113-125	Raptor wintering sites: >20ha, with a combo of forest and upland. Meadow (>15ha) with adjacent woodlands.	N	No potential habitat present within subject property.
Bat Hibernacula	Big Brown Bat, Tri-coloured Bat	Caves, Rock Talus: G158-159, 164, 180-181	Cave, Mines, Karsts. Buildings and active mine sites not SWH.	N	No potential habitat present within subject property
Bat Maternity Colonies	Big Brown Bat, Silver-haired Bat	Deciduous or mixed forests: G016-019, 028, 040-043, 055-059, 070-076, 088-092, 103-108, 118-125	Mature deciduous and mixed forest stands with >10/ha cavity trees >25 cm DBH.	Y	Potential for suitable snag trees to occur within the G059Tt community, however opportunities are limited due to a lack of mature hardwood trees. The threshold for >10/ha would not likely be met in this forest.
Turtle Wintering Area	Turtles	Swamps, Open fens & marshes, Open and shallow water: G128-G135, G140-G152	Free water beneath ice. Soft mud substrate. Permanent water bodies, large wetlands, bogs, fens with adequate DO.	N	The small wetland is not deep enough or connected to suitable habitats to provide winter survival for turtles.
Reptile Hibernaculum	Snakes	Habitat may be found in any ecosite (esp. w/ rock) other than very wet ones. Five-lined Skink: G056-G059, G070-G076, G087-G092, G103-G108, G118-G125	Access below frost line: burrows; rock crevices, piles or slopes, stone fences or foundations. Conifer/shrubby swamps/swales, poor fens, depressions in bedrock w/ accumulations of sphagnum moss or sedge hummock ground cover.	N	While a large man-made pile of boulders exist on the property, the high degree of exposure surrounding them and isolation via road networks and adjacent commercial activities would not likely make this suitable reptile hibernaculum.
Colonially-nesting Bird Breeding Habitat (Bank and Cliff)	Cliff Swallow, Northern Rough-winged Swallow	Eroding banks, sandy hills, borrow pits, steep slopes, sand piles, cliff faces, bridge abutments, silos, barns. (long G-list).	Exposed soil banks, sandy hills, borrow pits, steep slopes, and sand piles that are undisturbed or naturally eroding. Not a licensed/permitted aggregate area.	N	No exposed soil banks, sandy hills, borrow pits, or steep slopes observed that would be suitable swallow habitat.
Colonially-nesting Bird Breeding Habitat (Tree/Shrubs)	Great Blue Heron, Black-crowned Night Heron	Forested Ecosites: G064-G076, G081-G092, G097-G108, G113-G125, G128-G136	Nests in live or dead standing trees in wetlands, lakes, islands and peninsulas. Shrubs and emergents may be used. Nests in trees are 11 to 15 m from ground, near top of the tree.	N	No potential habitat present within subject property.

Appendix E. Significant Wildlife Habitat Screening.

SWH Type	Associated Species	Associated ELC Ecosites	Habitat Criteria	Presence (Y/N)	Additional Notes
Colonially-nesting Bird Breeding Habitat (Ground)	Herring Gull, Great Black-backed Gull, Little Gull, Ring-billed Gull, Common Tern, Caspian Tern, Brewer's Blackbird	Rocky island or peninsula in lake or river. Close to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird). (long G-list)	Gulls and terns: on islands or peninsulas with open water or marshy areas. Brewers Blackbird colonies: found on the ground in low bushes close to streams and irrigation ditches.	N	No potential habitat present within subject property.
Deer Yarding Areas	White-tailed Deer	All Tall Treed forest and swamp Ecosites.	Determined by MNRF - no studies	N	Deer yarding habitat is not identified in LIO mapping for the subject property. Features that provide suitable habitat for deer yarding (low-lying conifer dominated forest) were not found either.
Beach/Beach Ridge/Bar/Sand Dunes	Marram Grass (<i>Ammophila breviligulata</i>), Beach Pea (<i>Lathyrus japonicus</i>)	Central Ontario FEC: ES1, ES2. ELC Ecosites: G005-G006, G166-G168, G182-G184, G213-214	Characterized by unstable sand: Any identified beach, beach ridge, or sand dune.	N	No habitat present within the subject property.
Shallow Atlantic Coastal Marsh	Virginia Meadowbeauty (<i>Rhexia virginica</i>)	G143-G145, G148-G152	Shallow marsh on shallow mineral or mineral organic shoreline. Subject to low wave energy. Inland lakes and beaver ponds with fluctuating water levels.	N	No wetland communities or potential ACP habitat occur within the subject property.
Cliffs and Talus Slopes	In 5E: primarily Precambrian rock and are typically sparsely vegetated.	Ecosites: G158-159, G166-G168, G173-G175, G182-G184, G201-G203	Cliff: near vertical bedrock >3m Talus Slope: coarse rock rubble at the base of a cliff	N	No habitat present within the subject property.
Rock Barren (Precambian)	Dry and ericacious species: Common species in Criteria guide	G163-G165, G179-G181 Central Ontario Forest Ecosites: ES8	Vegetation patchy but < 60%. Must be > 1ha.	N	No habitat present within the subject property.
Sand Barren	Veg list in Criteria Guide	G007, G215 Central Ontario Forest Ecosites: ES10	No minimum size. Vegetation can vary from patchy and barren to tree covered, but <60%. Exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion.	N	No habitat present within the subject property.
Alvar	<i>Penstemon hirsutus</i> , <i>Panicum philadelphicum</i> , <i>Scutellaria parvula</i> , <i>Rhus aromatica</i> , <i>Monarda fistulosa</i> , <i>Senecio pauperculus</i>	S. Ontario Sites: ALO1, ALS1, ALT1, FOC1, FOC2, CUM2, CUS2, CUT2-1, CUW2 Central Ontario Ecosites: ES13.1, ES14.1, ES16.1, ES21.1, ES9	Alvar >0.5 ha. Vegetation cover varies from patchy to barren with <60% tree cover.	N	No habitat present within the subject property.

SWH Type	Associated Species	Associated ELC Ecosites	Habitat Criteria	Presence (Y/N)	Additional Notes
Old Growth Forest		Ecosites: G011-G015, G017-G018, G023, G027, G033, G036, G039-G042, G048, G051, G054-G058, G064, G066, G069, G071-G075, G081, G084, G087, G089-G091, G103, G105-G107, G113, G115, G118, G120-G124 Central Ontario Forest Ecosites: ES11, ES12, ES14, ES20, ES21-ESES30	Woodland areas 30 ha or greater in size or with at least 10 ha interior habitat assuming 100 m buffer at edge of forest.	N	Forest on the subject property represented by early or secondary succession.
Bog	<i>Sphagnum moss</i>	G126, G137-G138	Any size bog.	N	No habitat present within the subject property.
Tallgrass Prairie	Big Blue Stem (<i>Andropogon gerardi</i>) Prairie Cordgrass (<i>Spartina pectinata</i>)	TPO1, TPO2 Central Ontario Ecosite: ES10	An open Tallgrass Prairie habitat has < 25% tree cover. No minimum size. Remnant sites such as railway right of ways not SWH.	N	No habitat present within the subject property.
Savannah		TPS1, TPS2, TPW1, TPW2, CUS2	A Savannah is a tallgrass prairie habitat that has tree cover between 25 – 60%. No minimum size.	N	No habitat present within the subject property.
Red Spruce	Red Spruce (<i>Picea rubens</i>)	G036, G051, G066, G084, G086, G100, G102, G116, G117. Central Ontario Forest Ecosites: ES 30.1, ES 30.2	Red Spruce is a shade tolerant conifer, growing best in cool, moist climate. It will grow in shallow, till soils any may grow on site unfavourable to other species such as organic soil over rock, steep slopes and wet bottomlands. No minimum size.	N	Red Spruce were searched for but not found within the subject property.
White Oak	White Oak (<i>Quercus alba</i>)	G017, G041, G057, G072, G090, G106, G121. Central Ontario Forest Ecosites: ES 14.1, ES 14.2	Forest stands containing white oak trees. No minimum size.	N	No habitat present within the subject property.
Specialized Habitat for Wildlife					
Waterfowl Nesting Area	Ducks	Upland habitats adjacent to: G129-G135, G142-G152. Note: includes adjacency to PSW	Extends 120 m from a wetland (>0.5 ha) or a cluster of 3 or more small wetlands (<0.5 ha) . Upland areas should be at least 120 m wide. Wood Ducks and Hooded Mergansers use cavity trees (>40cm dbh).	N	No habitat present within the subject property.
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	Osprey, Bald Eagle	Forest communities directly adjacent to riparian areas - river, lakes, ponds and wetland	Nesting areas are associated with waterbodies along forested shorelines, islands, or on structures over water. Nests located on man-made objects are not included as SWH.	N	No habitat present within the subject property.

Appendix E. Significant Wildlife Habitat Screening.

SWH Type	Associated Species	Associated ELC Ecosites	Habitat Criteria	Presence (Y/N)	Additional Notes
Woodland Raptor Nesting Habitat	Red-tailed Hawk, Great Horned Owl, Merlin, Northern Goshawk, Cooper's Hawk, Sharp-shinned Hawk, Red-shouldered Hawk, Barred Owl, Broad-winged Hawk	All forested ecosites. May also be found in forested swamps G128-G133.	>30 ha with > 10 ha interior habitat.	N	No habitat present within the subject property.
Turtle and Lizard Nesting Areas	Midland Painted Turtle, Snapping Turtle, Northern Map Turtle, Five-lined Skink	Turtle nesting areas may be adjacent to G138, G140-149 Five-lined Skink in Central Ontario: ES14.2, ES17-ES20, ES23-ES30 or G056-G059	Nest sites within open sunny areas, close to water with soil suitable for digging. Sand and gravel beaches. Skinks will nest under logs, in stumps or under loose rock in partially wooded areas.	N	No habitat present within the subject property.
Seeps and Springs	Wild Turkey, Ruffed Grouse, Spruce Grouse, Moose, White-tailed Deer, Salamander spp.	Seeps/Springs are areas where ground water comes to the surface. Often found within headwater areas within forested habitats.	Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream/river system.	N	No seeps or springs identified on the subject property.
Aquatic Feeding Habitat	Moose, White-tailed Deer	Habitat may be found in any ecosite in all forested ecosites adjacent to water.	Wetlands and isolated embayments in rivers or lakes which provide an abundance of submerged aquatic vegetation are preferred. Adjacent stands of lowland conifer or mixed woods will provide cover and shade.	N	No aquatic habitats within subject property.
Mineral Licks	Moose, White-tailed Deer	Habitat may be found in any ecosite in all forested ecosites.	Found in upwelling groundwater and the soil around these seepage areas. Typically occurs in areas of sedimentary and volcanic bedrock.	N	No known mineral licks on the subject property.
Denning Sites for Mink, Otter, Marten, Fisher, and Eastern Wolf	Mink, Otter, Marten, Fisher, Grey Wolf, Eastern Wolf	Habitat may be found in any ecosite in all forested ecosites.	Mink prefer shorelines dominated by coniferous or mixed forests with dens usually underground. Otters prefer undisturbed shorelines along waterbodies with fish, abundant shrubby vegetation and downed woody debris. Marten and Fisher require large tracts of coniferous or mixed forests of mature or older age classes. Denning sites are often in cavities in large trees.	N	No known denning sites on the subject property or suitable habitat.
Amphibian Breeding Habitat (Woodland)	Woodland Frogs, Toads, Eastern Newt and Salamanders	All forested ecosites. The wetland breeding ponds (including vernal pools) may be permanent, seasonal, ephemeral, large or small in size.	Wetland, pond or woodland pool of >500 m ² within or adjacent to wooded areas. Permanent ponds or those containing water until mid-July are preferred.	N	Dry, rapid draining habitats not likely to hold water. No amphibians recorded during breeding surveys.

SWH Type	Associated Species	Associated ELC Ecosites	Habitat Criteria	Presence (Y/N)	Additional Notes
Amphibian Breeding Habitat (Wetlands)	Toads, Frogs, Eastern Newt and Salamanders	Ecosites: G129-G135, G142-G152 Typically isolated (>120m) from woodland ecosites, however larger wetlands may be adjacent to woodlands.	Wetlands and pools >500m ² isolated from woodland ecosites with high species diversity. Permanent water with abundant vegetation for bullfrogs.	N	Breeding amphibian surveys were conducted on the subject property within the wetland, drainage feature and man-made pond and none were found to contain breeding amphibians
Mast Producing Areas	Black Bear, White-tailed Deer, Wild Turkey, Ruffed Grouse	G015, G017, G019, G027-G028, G041-G043, G057, G059, G072, G090, G106, G108, G121 Central Ontario Forest Ecosites: ES14, ES17.1, ES23-ES26	Most important areas are mature forests >0.5ha containing numerous large beech and red oak trees that supply energy-rich mast that wildlife prefer. Sites providing long-term, relatively stable food supplies, forest openings or barrens >1ha provide excellent sites for mast producing shrubs.	N	Suitable habitat not found on subject property.
Habitat of Species of Conservation Concern					
Marsh Bird Breeding Habitat	Wetland Birds	Ecosites: G138-G152 For Green Heron: Above ecosites plus G129-G136	Wetlands with shallow water and emergent vegetation.	N	No wetlands within subject property.
Open Country Bird Breeding Habitat	Upland Sandpiper, Grasshopper Sparrow, Vesper Sparrow, Northern Harrier, Savannah Sparrow, Short-eared Owl	G008-G009, G020-G021, G029-G031, G044-G046, G060-G062, G077-G079, G093-G095, G109-111	Grassland and meadow >30 ha. Not being actively used for farming. Habitat established for 5 years or more.	N	Suitable habitat not found on subject property.
Shrub/Early Successional Bird Breeding Habitat	Willow Flycatcher, Brown Thrasher, Blue-winged Warbler, Tennessee Warbler, Prairie Warbler, Eastern Towhee, Clay-coloured Sparrow, Field Sparrow, Golden-winged Warbler	Ecosties: G009-G010, G021-G022, G031-G032, G046-G047, G062-G063, G079-G080, G095-G096, G111-G112, G134-G135	Large field areas succeeding to shrub and thicket habitats > 10 ha. Areas not actively used for farming in the last 5 years. Larger shrub thicket habitats (>30ha) are more likely to support a diversity of species.	N	Suitable habitat not found on subject property.
Special Concern and Rare Wildlife Species	Any species of concern or rare wildlife species	Any ELC code.	Presence of species of concern or rare wildlife species.	N	Eastern Wood-pewee (Special Concern) observed during one 2020 breeding bird survey in G059Tt. Based on this observation, potential habitat for Eastern Wood Pewee may be provided within the subject property. However, multiple breeding pairs of SC SAR would be required to warrant Confirmed SWH in our opinion. No other SAR birds or other rare flora or fauna were recorded during field investigations.