Environmental Impact Study

Block 18, 51M-917
Fesserton

Part of Lot 6, Concession 11 Township of Severn
County of Simcoe

Prepared for:
28018229 Ontario Inc.

Prepared by:
Azimuth Environmental
Consulting, Inc.

March 2021

AEC 19-180

AZIMUTH ENVIRONMENTAL CONSULTING, INC.
Environmental Assessments & Approvals

March 26, 2021 AEC 19-180

2801829 Ontario Inc. c/o
PCG Land Management Inc.
8800 Dufferin Street, Suite 200
Vaughan, Ontario
L4K 0C5

Attention: Peter G. Campbell, Partner

Re: **Environmental Impact Study - Block 18, 51M-917, Fesserton**
Part of Lot 6, Concession 11, Township of Severn, County of Simcoe

Dear Mr. Campbell:

Azimuth Environmental Consulting, Inc. (Azimuth) is pleased to provide our Environmental Impact Study (EIS) for the abovementioned property. It is our understanding that the EIS will form a component of the submission to the County for Subdivision and the Township of Severn for the proposed Zoning By-law amendment. This report summarizes investigations undertaken in 2019-2020 and provides an assessment of the natural heritage features present on the property and adjacent lands.

Please feel free to contact the undersigned should you wish to discuss.

Yours truly,
AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Lisa Moran, B.Sc.Env.
Terrestrial Ecologist

Mike Gillespie, B.Sc.Env.
Aquatic Ecologist

642 Welham Road, Barrie, Ontario L4N 9A1
telephone: (705) 721-8451 • fax: (705) 721-8926 • info@azimuthenvironmental.com • www.azimuthenvironmental.com

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1.0 INTRODUCTION

Azimuth Environmental Consulting, Inc. (Azimuth) has been retained by 2801829 Ontario Inc. to undertake an Environmental Impact Study (EIS) for the property known as Block 18 on Plan 51M-917 Fesserton located on Part of Lot 6, Concession 11, Township of Severn (Township), County of Simcoe (County; Figure 1). It is our understanding that an EIS is required as highlighted during the pre-consultation meeting held in June 2018 with County and Township staff (Appendix A).

The purpose of the EIS is to address the proposed changes to the property and specifically to determine the potential environmental impacts of the proposed development upon the natural environmental features and functions on and adjacent to the property in accordance with applicable provincial, County and Township policies.

2.0 PLANNING CONTEXT

2.1 Provincial Planning Policy

The Provincial Policy Statement (PPS) outlines policies related to Natural Heritage Features and water resources (MMAH, 2020). Ontario's *Planning Act* (1990) requires that planning decisions shall be consistent with the PPS. Section 2.1.5 of the PPS states that, unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions, development and site alteration shall not be permitted within:

a) *significant wetlands* in the Canadian Shield north of Ecoregions 5E, 6E; and 7E;
b) *significant woodlands* in Ecoregions 6E; and 7E;
c) *significant valleylands* in Ecoregions 6E; and 7E;
d) *significant wildlife habitat*;
e) *significant areas of natural and scientific interest*; and,
f) *coastal wetlands* in Ecoregions 5E, 6E, and 7E that are not subject to policy 2.1.4(b).

As per Section 2.1.8 of the PPS, no development and site alteration will be permitted on lands adjacent to natural heritage features and areas identified in policies 2.1.4, 2.1.5 and 2.1.6 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated there will be no negative impacts on the natural features and ecological functions.

The term development, as defined in the PPS, refers to the creation of a new lot, a change in land use or the construction of buildings and structures, requiring approval under the *Planning Act*.

The Natural Heritage Reference Manual (MNRF, 2010) and EcoRegion 6E Significant Wildlife Habitat Criterion Schedule (MNRF, 2015) were used to identify potential features considered applicable to the property and adjacent lands. However, it is ultimately the responsibility of the Province and/or the Municipality to designate areas identified within Section 2.1.4 and 2.1.5 of the PPS as significant.

2.2 Growth Plan for the Greater Golden Horseshoe

The Growth Plan for the Greater Golden Horseshoe (Growth Plan, 2020) defines the Greater Golden Horseshoe policy area. The property occurs within the Growth Plan policy area. Therefore, any Planning Act application related to this property should conform to applicable policies contained within the Growth Plan.

As per Section 4.2.2.6, beyond the Natural Heritage System for the Growth Plan, including within settlement areas, the municipality:

a) will continue to protect any other natural heritage features and areas in a manner that is consistent with the PPS; and
b) may continue to protect any other natural heritage system or identify new systems in a manner that is consistent with the PPS.

2.3 Endangered Species Act

Ontario's *Endangered Species Act* (ESA; 2007) provides regulatory protection to Endangered and Threatened species and prohibits the harassment, harm and/or death of individuals or destruction of their habitats. Habitat is broadly characterized within the *ESA* as the area prescribed by a regulation as the habitat of the species, or, an area on which the species depends, directly or indirectly, to carry on its life processes including reproduction, rearing of young, hibernation, migration or feeding.

The various schedules of the *ESA* included under Ontario Regulation (O. Reg.) 230/08 identify Species at Risk (SAR) in Ontario. These include species listed as Extirpated, Endangered, Threatened, and Special Concern. As noted above, only species listed as Endangered and Threatened receive protection from harm and destruction to habitat on which they depend. Species listed as Special Concern are not afforded protection as per the *ESA* but their habitat may be considered to be Significant Wildlife Habitat as per the PPS.

2.4 County of Simcoe

As per Schedule 5.1 of the County of Simcoe Official Plan, the property is located within a Settlement (Fesserton), known as Block 18 in Registered Plan 51M-917, and is therefore not included within the adjacent County Greenlands (Appendix A).

As per Section 3.8.1.7, within Settlement Areas, all lands shall be deemed to be Settlement designation in this plan. Local municipal official plans are required to identify and map natural heritage features and areas within Settlement areas and provide policy direction in accordance with Section 3.3.15 i) and ii). Local municipal official plans may also map other natural heritage systems and provide policy direction related to those systems within Settlement Areas.

Section 3.3.15 states that despite anything else in this Plan, except Section 4.4 as it applies to mineral aggregate operations only, development and site alteration shall not be permitted:

> i. In significant wetlands and significant coastal wetlands.
> ii. In the following unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions: Significant woodlands, significant valleylands, significant wildlife habitat, significant areas of natural and scientific interest (ANSIs), and coastal wetlands (not covered by 3.3.15 i) above).

2.5 Township of Severn

The property is within Block 18 of Registered Plann 51M-917 and is currently zoned Estate Residential (ER) with a small area of Environmental Protection (EP) (Appendix A). The EP zone is associated with a small segment of watercourse in proximity to Fesserton Sideroad and may have been associated with a historical pond within the central portion of the property.

According to Schedule A7 of the Town of Severn Official Plan, the property is located in the Fesserton Settlement Area, and designated as Country Residential (Appendix A).

Section C1 of the Township`s Official Plan, sets out the guidelines and policies related to the Township`s Natural Heritage System. The Township of Severn`s Natural Heritage System includes the following designations: Greenland and Environmental Protection Area.

The property is not designated as Greenlands as per Schedule A7, although components of the Natural Heritage System may be present on the property (Section C1.3.1). There

are no mapped Environmental Protection Areas (*i.e.* permanent and intermittent streams, wetlands) identified on the property, although a watercourse and drainage features have been identified on the property through Azimuth's field investigations.

2.6 Federal *Fisheries Act*

On August 28, 2019, provisions of the *Fisheries Act* came into force that included new protections for fish and fish habitat in the form of standards, codes of practice, and guidelines for projects near water. The *Act* provides protection against the 'death of fish, other than by fishing', (Section 34.4(1)) and the 'harmful alteration, disruption or destruction of fish habitat', (Section 35(1)), otherwise known as HADD.

If the death of fish, and/or HADD is likely to result from a project, the project will require an authorization from Fisheries and Oceans Canada (DFO) as per Paragraph 34.4(2)(b) or 35(2)(b) of the *Fisheries Act Regulations*. The fish and fish habitat protection provisions of the *Fisheries Act* are documented in the Fish and Fish Habitat Protection Policy Statement, which outlines how DFO will implement these provisions. The process of fisheries review is currently being revised as DFO unveils codes of practice. In the meantime, projects are being reviewed to determine potential impacts to fish and fish habitat, mitigative strategies to eliminate impacts, and determine approval requirements. Projects that take place near or in water that have the potential to impact fish and fish habitat, after taking measures to avoid and mitigate impacts, may require a permit from DFO.

3.0 STUDY APPROACH

A combination of field investigations and searches of background information was used to fulfill objectives of the EIS. The following outlines the activities undertaken to satisfy the informational requirements of the County and Township.

3.1 Study Area

The property is located on the northeast side of Georgian Heights Boulevard and Fesserton Sideroad, Part of Lot 6, Concession 11, Township of Severn, County of Simcoe and is depicted in its regional context on Figure 1. For the purpose of this EIS, the 'property' refers to the defined property limits show on Figure 1 through Figure 5b. The term "adjacent lands' refers to those areas located outside (*i.e.* lands within approximately 120m) of the property boundary. The term 'study area' refers to the property and adjacent lands. This is consistent with the recommendations within the Natural Heritage Reference Manual (2010). Adjacent lands may be pertinent when certain natural heritage features and functions are dependent on the contiguous natural cover beyond the boundaries of the property.

3.2 Background Data

A review of background documents provided information on site characteristics, habitat, wildlife, rare species and communities, and general cultural/historic aspects of the study area. This included a review of the following:

- Atlas of the Breeding Birds of Ontario [website - http://www.birdsontario.org/atlas/index.jsp] (Bird Studies Canada, 2006);
- Ministry of Natural Resources and Forestry (MNRF) Natural Heritage Information Center [NHIC; website - https://www.ontario.ca/page/make-natural-heritage-area-map] (MNRF, 2020);
- MNRF's SARO list [website - http://www.mnr.gov.on.ca/en/Business/Species/2ColumnSubPage/246809.html];
- MNRF's Land Information Ontario [website - https://www.ontario.ca/page/land-information-ontario];
- MNRF's Fish ON-Line [website - https://www.lioapplications.lrc.gov.on.ca/fishonline/Index.html?viewer=FishONLine.FishONLine&locale=en-CA]
- Ontario Nature – Ontario Reptile and Amphibian Atlas [website - https://www.ontarionature.org/protect/species/reptiles_and_amphibians/index.php] (Ontario Nature, 2020); and
- Atlas of the Mammals of Ontario (Dobbyn, 1994).
- DFO aquatic species at risk mapping [website - https://www.dfo-mpo.gc.ca/species-especes/sara-lep/map-carte/index-eng.html] (DFO, 2019).

3.3 Scope of Work

Azimuth undertook the following activities to fulfill the objectives of the EIS:

- Evaluated/mapped vegetation communities using protocols of the Ecological Land Classification for Southern Ontario (Lee *et al*.,1998);
- Three-season survey of vascular plants on the property (2019);
- Three evening calling amphibian surveys according to protocols of the Marsh Monitoring Program (May-June 2019);
- Two dawn breeding bird surveys according to guidelines of the Ontario Breeding Bird Atlas (June 2019);
- Three evening breeding bird surveys to identify the presence of Whip-poor-will on or adjacent to the property (June-July, 2019);
- Conducted an aquatic habitat assessment of watercourses and site drainage (May/June 2019, August 2020);

- Completed a Species at Risk screening for the property including a review of the habitat types used by SAR as defined by the MNRF and determine if the habitat types utilized by the SAR are present in the study area;
- Conducted a detailed assessment, including detailed snag mapping and acoustic analysis, within the woodland to determine if SAR bats are utilizing the property;
- Recorded other wildlife observations and assess wildlife habitat function of the property, including potential function of the property as Significant Wildlife Habitat utilizing the Significant Wildlife Habitat Schedule for Ecoregion 6E; and,
- Assessed the potential direct, and indirect impacts of the proposed development on the identified natural heritage features and functions

3.4 Methodology and Surveys

3.4.1 Vegetation Community Mapping and Surveys

The ELC for southern Ontario was used to classify vegetation community types on the Subject Land. Surveys were undertaken on May 28, June 27, July 2, August 16 and September 5, 2019 to identify vegetation communities and inventory vascular plants identified within their respective ELC community. This assessment was focused on detecting any provincially designated vegetation, notably SAR as identified in the schedules of O. Reg. 230/08 (*i.e.* Butternut). The details of the surveys (*i.e.* surveyors, weather conditions etc.) can be found within Table 2.

3.5 Wildlife Surveys

3.5.1 Birds

Two dawn breeding bird surveys were conducted on the Subject Land on June 12 and June 24 of 2019. Breeding evidence was assessed and point count protocol was followed using the Ontario Breeding Bird Atlas Guide for Participants (Bird Studies Canada, 2001). Seven point count stations were surveyed as depicted on Figure 2.The details of the surveys (*i.e.* surveyors, weather conditions etc) can be found within Table 3.

Specific surveys for Eastern Whip-poor-will were conducted on June 11, 12 and July 11, 2019 at the point station depicted on Figure 2. Surveys were conducted utilizing information within the *Survey Protocol for Eastern Whip-poor-will (Caprimulgus vociferus) in Ontario* (MNRF, 2013). Surveys were focused to a period within 5 days of the full moons and began 30 minutes after sunset. Surveys were carried out for a minimum of 10 minutes, weather was recorded upon arrival at each site, and all bird species identified during the survey were recorded. Surveyor, date and conditions are as follows:

Date	Time	Surveyor and Weather Conditions
11-Jun-19	22:42	J. Broadfoot, Temp= 10C, Beaufort Wind= 0, cloud cover <5%, Precip.= nil
12-Jun-19	22:57	J. Broadfoot, Temp= 15C, Beaufort Wind= 0, cloud cover <20%, Precip.= nil
11-Jul-19	22:14	J. Broadfoot, Temp= 17C, Beaufort Wind=0-3, cloud cover =20%, Precip.= nil

3.5.2 Amphibians

Three amphibian breeding surveys were conducted on the Subject Land on May 2, May 28 and June 12, 2019 following the Marsh Monitoring Program Protocol. Two point count stations were established as depicted on Figure 2. Surveyor, date and conditions are as follows:

Date	Time	Surveyor and Weather Conditions
2-May-19	21:36	S.Martin and J. Runtas, Temp= 7C, Beaufort Wind= 2, cloud cover 20%, Precip.= nil
28-May-19	21:30	L.Moran and C. Fligg, Temp= 13C, Beaufort Wind= 1, cloud cover 25%, Precip.= nil
12-June-19	22:57	J. Broadfoot, Temp= 15C, Beaufort Wind=0, cloud cover =20%, Precip.= nil

3.5.3 Bats

Azimuth conducted assessments focused on Northern Myotis, Little Brown Myotis and Tri-colored Bat based on our understanding of the habitat requirements of these species and using direction provided in the MNRF's Technical Note for Species at Risk Bats (2015).

Detailed Snag Tree Mapping

Detailed snag tree mapping was completed as per the Technical Note on April 16, 17, 24 and May 5, 2020. Transects were established 20 metres (m) apart throughout all of the woodland cover of the property (forests, treed swamps). Snag trees [trees with diameter at breast height (DBH) greater than 25 centimeters (cm) providing holes or other features of value to bats for roosting] were assessed and locations were established using a GPS.

Acoustic Monitoring

Azimuth deployed six acoustic monitors on the property for eleven nights each (June 11 – June 22, 2020) in the locations shown on Figure 3a. These monitors were established in locations where bat activity was expected to be high (*i.e.*, along potential movement corridors, in proximity to potential foraging areas) as follows:

- Monitor 01 – Placed within the deciduous forest along the watercourse corridor adjacent to snag cluster B. This area was anticipated to be used by bats potentially as roosting habitat and a movement corridor.
- Monitor 02 – Placed within the deciduous forest along the watercourse corridor adjacent to snag cluster B. This area was anticipated to be used by bats potentially as roosting habitat and as a movement corridor.
- Monitor 03 – Placed within an opening of the deciduous forest canopy and subcanopy that may be used as foraging habitat.
- Monitor 04 – Placed within a small opening of the deciduous forest canopy and subcanopy within snag cluster A. This area was anticipated to be used by bats as foraging and roosting habitat.
- Monitor 05 – Placed within an area of the deciduous forest with a relatively open subcanopy and understory that may be utilized as foraging habitat.
- Monitor 06 –Placed along a woodland edge that was anticipated to be used by bats as a movement corridor and foraging habitat due to its proximity to the wetland on-site.

At each location, a Wildlife Acoustics Song Meter SM3BAT Bioacoustics Recorder was deployed with a weather resistant SMM-U1 ultrasonic microphone mounted approximately 5m above ground. The recorders were programmed to detect and record ultrasonic sounds each night, from 30 minutes before sunset until 30 minutes after sunrise the following morning.

Wildlife Acoustics' Kaleidoscope Pro 5 Analysis Softwarewas used to analyze the acoustic data for evidence of bat calls and to filter out false trigger noise such as rain and insects. Following noise filtering, the remaining files (each representing one "recording event", often simplified to a "bat pass") were tentatively auto-classified to species using the Kaleidoscope software's bat classifiers. Each tentative species was then manually verified by Azimuth ecologists trained in the identification of bat calls. *Myotis* and *Perimyotis* species, all of which are listed as Endangered in Ontario, were prioritized.

Graphs of the relative activity levels of Endangered *Myotis* bats were created for each bat recorder to contextualize SAR activity levels, and these are presented in Appendix C.

Confident species-level identification of bat calls is dependent on high-quality recordings, which only make up a small component of the data overall. This typically means that too little data is available to properly analyze each *Myotis* species individually. However, since all confirmed *Myotis* species in the dataset have potential to utilize treed communities as roosting and/or foraging habitat, and since all are listed as Endangered, genus-level verification could be used instead, which allowed for the inclusion of lower-quality recordings.All bat passes with the following criteria were verified to genus level where possible: 1) passes were tentatively flagged by Kaleidoscope as a *Myotis* species, 2) at least 16 call pulses were recorded, and 3) at least 60% of pulses supported the auto-identification. This helped to focus manual review on the most useful data. These reviewed bat passes were then graphed by hour for each date to visually demonstrate relative activity levels over the monitoring period. Each passive SM3 acoustic recorder was analyzed separately to determine relative activity levels for each monitoring location.

It is important to note the limitations of ultrasonic bat survey data. Unlike audible sounds like birdsong, ultrasonic calls from bats do not carry over long distances, and therefore ultrasonic acoustic microphones have a limited range of sound capture. Detection distance may range from a maximum of 65m for the loudest species, to as close as 20m or even 5m for the quietest species. This means tracking individual bats over a wide area and counting exact numbers of individuals is not possible. Each pass of a bat captured in a recording event may represent a single bat flying out-of-range and then back in-range, or could represent a second bat entirely. Occasionally, multiple bats are recorded simultaneously in a single recording event. Additionally, not all calls are close enough to the microphone to be recorded fully, and therefore only a proportion of calls recorded can be confidently identified. It is for these reasons that only *relative levels* of activity can be determined for a given species or group.

3.5.4 Habitat of Endangered and Threatened Species

The SAR screening included an analysis of the habitat requirements of SAR reported to occur in the overall planning area to identify those having potential to occur on or adjacent to the property based on habitats present. The MECP was contacted to acquire SAR information that may be relevant to this project. The MECP responded to indicate that Barn Swallow and Bank Swallow have been documented within the general area (Appendix B).

Habitat requirements and designations (Endangered or Threatened) for all species included in the screening are outlined in Table 5. Special Concern species are listed according to Ontario's *ESA*; however, Special Concern species and their habitat are not

protected under Ontario's *ESA*. Therefore, the potential for Special Concern species are considered within our discussions related to Significant Wildlife Habitat.

4.0 EXISTING CONDITIONS

4.1 Land Use

4.1.1 On-site Land Use

The property is within EcoRegion 6E within the settlement area of Fesserton. The northern portion of the property is entirely forested and is composed of mature Sugar Maple forest. Steep slopes are found within this forested portion of the property in addition to numerous groundwater seeps. The vegetation communities within the southern portion of the property appear to have resulted from past anthropogenic use (*i.e.* clearing, borrow pit). Wetland communities are present within this portion of the property. Three watercourses traverse through the property. There are no structures present on the property.

4.1.2 Adjacent Land Use

The property is largely surrounded by single-detached dwellings with natural heritage lands (*i.e.* forest, wetland etc.). An historic rail line runs adjacent to the property to the north and east.

4.2 Vegetation and Vegetation Communities

The ELC for Southern Ontario (Lee *et al*., 1998, update 2008) was used to classify vegetation community types. A total of twenty-three (23) vegetation communities were identified on the property. Classification and description of the vegetation communities is provided in Table 1 and depicted on Figure 2.

A complete list of plant species observed during the vascular plant inventory is provided in Table 2. No provincially rare vegetative communities or species were identified on the property.

4.3 Wildlife and Wildlife Habitat

4.3.1 Birds

A total of fifty-tree (53) bird species have been recorded utilizing the property (Table 3). Of these species, there were three (3) Special Concern species observed including Common Nighthawk, Eastern Wood-pewee and Golden-winged Warbler. One Threatened species, Eastern Meadowlark was also documented on site.

There were no Eastern Whip-poor-will documented during the nocturnal bird surveys.

No other provincially rare birds were identified during the dawn breeding bird surveys and/or incidentally during out-of-season field surveys.

4.3.2 Amphibians

Amphibians were documented during the third evening amphibian survey in June (2019) whereby three (3) Grey Treefrogs and five (5) Green Frogs within the central portion of the MAMM1-10 (Figure 2) wetland community.

4.3.3 Bats

Detailed Snag Tree Mapping

A total of 213 snag trees of a range of decay classes were mapped as shown on Figure 3a. Figure 3b identifies snag trees by number for cross-referencing to data tables provided in Appendix C.

Twenty-seven of the snag trees were assessed as 'high quality' based on the criteria of the Technical Note. Snag tree clusters were identified as groupings of more than five snag trees spaced approximately 10m apart, predominantly in the early stages of decay and consisting of at least one high quality snag tree. Figure3a identifies clusters of snag trees and Figure 5b shows the locations of snag trees and snag tree clusters in relation to proposed development.

Acoustic Surveys

Genus-level Summary

Endangered *Myotis* bats were detected on the property during the course of the survey:

- Monitor 01:
  - >241 *Myotis* passes;
- Monitor 03:
  - >531 *Myotis* passes;
- Monitor 04:
  - >80 *Myotis* passes;
- Monitor 05:
  - >810 *Myotis* passes; and
- Monitor 06:
  - >64 *Myotis* passes.

Myotis detection data are presented in Appendix C, which shows relative activity levels over the monitoring period. *Myotis* was not detected at Monitor 02. *Perimyotis* bats (Tri-colored Bat) were not detected on the property during the monitoring period.

Species Presence – Endangered Bats
Little Brown Myotis (*Myotis lucifugus*) were confidently detected at three of the monitoring locations (04, 05 and 06; Figure 3a) however, the majority of *Myotis* passes are expected to be from this species. In addition to anthropogenic structures, Little Brown Myotis are well known to roost in cavity trees, and forage in a variety of open habitats, including over water features and wetlands (Environment Canada, 2015). All of these natural heritage features were present on the property.

No other *Myotis* species could be confidently identified within the data set collected for the property however it is possible that Northern Myotis may also be utilizing the woodlands on the property.

Species Presence – Non-SAR Bats
Three non-SAR bat species were detected, including Big Brown Bat (*Eptesicus fuscus*), Hoary Bat (*Lasiurus cinereus*) and Silver-haired Bat (*Lasionycteris noctivagans*).

Big Brown Bats were the most commonly detected non-SAR bats, although detections of this species were significantly less than *Myotis* detections. Big Brown Bats were recorded at several locations including monitors 03, 04, 05 and 06. Approximate numbers of detections for this species ranged from as low as a single detection at monitor 03 to at least 112 detections at monitor 06.

Definitive calls for Silver-haired Bats were similarly recorded at monitors 03, 04, 05 and 06. Monitors 03 and 05 had only a single detection for this species while monitor 06 had the most with at least 56 tentative calls.

4.3.4 Wildlife

In addition to the amphibian and bird surveys undertaken on the property, incidental wildlife observations were recorded during all site visits. The following species were observed utilizing the property:

- Leopard Frog (*Lithobates pipiens*);
- Eastern Gartersnake (*Tamnophis sirtalis sirtalis*);
- Eastern Redback Salamander (*Plethodon cinereus*);
- Raccoon (*Procyon lotor*);
- Eastern Cottontail (*Sylvilagus floridanus*);
- Red Squirrel (*Sciurus vulgaris*);
- Eastern Gray Squirrel (*Sciurus carolinensis*);
- Eastern Chipmunk (*Tamias striatus*);

- White-tailed Deer (*Odocoileus virginianus*); and
- Coyote (*Canis latrans*).

None of the above-listed species are of provincial conservation concern.

4.4 Watercourses and Fish Habitat

4.4.1 Site Conditions

The property contains three watercourses, as shown on Figure 2. These watercourses ultimately discharge into Matchedash Bay (Georgian Bay) to the northeast.

Unnamed Creek

The northernmost of the watercourses on the property is an unnamed creek, with a main channel (Feature 'A' on Figure 2) and two contributing branches (Features 'Ai' and 'Aii' on Figure 2).

The main branch travels in a general northeast/north direction. It contains permanent flows, and has moderately defined to well defined creek banks approximately 1.5-4.0m wide. Water levels were relatively low (0.05-0.20m) during spring and summer site visits. Substrate/channel form varies along its pathway on the property, ranging from meandering, sand/gravel dominated sections to a central steeper, entrenched section with a clay bottom and small-large stone. At approximately the northeast property boundary, surface flows within the creek go underground, re-surfacing approximately 30-40m to the north (off property).

The western contributing branch of the unnamed creek (feature 'Ai' on Figure 2) originates in the wetland by the southwest boundary of the property, conveying year-round flows to the northeast. The channel has a defined flow pathway but undefined-weakly defined banks. Water levels were relatively low (<0.05m) during all site visits. Substrate consists primarily of small-medium stone and sand.

The southern contributing branch of the unnamed creek (feature 'Aii' on Figure 2) appears to be historically straightened, or manmade. It consists of a depression lacking a defined channel and containing facultative wetland species. Sections contained standing water (<0.05m) in the spring and summer, while other sections were dry. Standing water had a noticeable sheen indicative of groundwater seepage. Based on there being an outlet to the unnamed creek, it is likely that this feature contributes water seasonally into the unnamed creek.

Central Watercourse

The central watercourse on the property (feature 'B' on Figure 2) consists of a channelized section with sandy substrate (upstream), and an online wetland section with organic soils (downstream; Figure 2). Sections of standing water (0.02-0.20m deep) with several indicators of groundwater upwelling (surface sheen, iron staining) were noted throughout the feature on the property during spring and summer site visits, separated by dry sections. Trickle flow was noted at the 0.3-0.4m diameter, partly buried culvert at the existing trail/driveway in the spring. Standing water was observed during the summer site visit. This feature is characterized as intermittently flowing, conveying water generally from southwest to northeast.

Southern Watercourse

The southern watercourse (feature 'C' on Figure 2) flows along the existing driveway of the property for a short distance downstream of an online pond on the adjacent property to the southwest (Figure 2). It crosses under the driveway at a degraded, approximately 1.0m wide concrete culvert. The feature is highly modified, but contains abundant coarse substrate and permanent flows. It travels in a general northeast direction, on the west side of Fesserton Sideroad. Aerial photography indicates the central watercourse connects to this watercourse to the northeast of the property.

4.4.2 Fish Habitat

No fish were observed on the property during Azimuth's site evaluations. For the unnamed creek, site conditions on and off of the property prevent fish passage onto/towards the property. Barriers to fish passage observed include underground flows and the presence of an old degraded trail (former rail corridor) culvert to the northeast of the property (as shown on Figure 2), and conditions along County Road 16.

Downstream barriers to fish passage (some of which are shown on Figure 2) were also identified for the central and southern watercourse, preventing access to the property for fish.

Watercourses on the property are hydraulically connected to Matchedash Bay, which provides direct fish habitat for a diverse coolwater/warmwater fish community, including Northern Pike (*Esox lucius*), Smallmouth/Largemouth Bass (*Micropterus dolomieu/salmoides*), Yellow Perch (*Perca flavescens*), and Pumpkinseed (*Lepomis gibbosus*). Based on the contribution of flow and organic matter to Matchedash Bay, watercourses on the property are considered to provide an indirect fish habitat function. The exception to this is the southern branch (feature 'Aii' on Figure 2) of the unnamed creek, which does not contribute significant, sustained flows into the creek.

There are no records of aquatic SAR on the property.

5.0 NATURAL HERITAGE FEATURES AND FUNCTIONS

The following sections present an examination of our findings as they relate to Significant Natural Heritage Features and functions within the Study Area.

5.1 Wetland

There is no provincially significant wetland on or adjacent to the property (Appendix B). There is no MNRF (unevaluated) identified wetland on or adjacent to the property (Appendix B).

Wetland has been identified on the property (Figure 2).

5.2 Woodland

According to provincial mapping, there is approximately 56% forest cover within the Township of Severn. According to the NHRM (2010), there are standard criteria that should be considered when evaluating the significance of woodland. When woodland cover is 30-60% of the land cover, woodlands 50ha in size or larger should be considered significant. Through air photo interpretation, it was determined that the woodland on the property in conjunction with adjacent lands are upwards of 150ha in size, therefore, it would meet the size criteria for significance. The property itself, accounts for approximately 4.9% of the overall woodland cover. The woodland on the property may meet the provincial criteria for significance for the following:

- Woodland interior;
- Proximity to other woodlands or other habitats (*i.e.* watercourses, wetlands);
- Linkage corridor (*i.e.* between adjacent woodlands and to Matchedash Bay); and
- Woodland diversity (*i.e.* terrain).

Based on this definition, the woodland would be considered to be significant according to provincial criteria.

5.3 Valleyland

According to the NHRM (2010), a valley is a linear system that stretches across the landscape from their origins in headwater areas to their outlets into other aquatic systems such as wetlands and lakes. Based on this definition, the primary watercourse does not meet the definition of valley as it lacks the typical valley morphology and does not

extend beyond the property. At the property limits, the watercourse goes underground and enters into a ditch system.

5.4 Significant Wildlife Habitat

An assessment of potential Significant Wildlife Habitat functions associated with the subject lands are presented in Table 5. The results of our assessment indicate that natural features of the subject lands (and adjacent lands) have the potential to provide the following Significant Wildlife Habitat functions:

- Bat Maternity Colonies;
- Seeps and Springs; and
- Special Concern and Rare Wildlife Species [Common Nighthawk, Eastern Wood-pewee and Golden-winged Warbler].

5.4.1 Bat Maternity Colonies

Bat maternity colonies can be found in tree cavities, vegetation and often in buildings (note: Buildings are not considered SWH). According to MNRF (2015), maternity colonies are located in deciduous or mixed forested communities with large diameter (>25cm dbh) trees. This SWH function only considered Big Brown Bat and Silver-haired Bats (*i.e.* not SAR bats).

Big Brown Bat
This habitat generalist forages in a variety of open and woodland edge habitats as well as near water. Maternity roosts are frequently found in anthropogenic structures but may also be found in natural tree cavities (Thorne, 2017), such as those in forests and swamps (OMNRF, 2015). Forest habitat is present on the property.

Silver-haired Bat
Silver-haired bats are closely associated with treed habitats, and they often forage close to forest cover in clearings (as seen with monitor 06), disturbed areas, and sheltered habitat. This species is also frequently found near water and form maternity colonies in tree cavity features (Bat Conservation International, 2019; Thorne, 2017). Colonies are considered significant even if only used by >5 bats (OMNRF, 2015), so few bats are required for significance. Forest habitat is present on the property.

As highlighted above, both Big Brown Bat and Silver-haired Bats were recorded during while conducting the bat acoustic monitoring. Based on this information, the deciduous and mixed woodland communities located on the property and extend onto adjacent lands may provide suitable habitat for bat maternity colonies (Figure 2).

5.4.2 Seeps and Springs

Seeps and springs were observed throughout the woodland (Figure 2).

5.4.3 Special Concern and Rare Wildlife Species

Common Nighthawk (Special Concern)

Common Nighthawk inhabits open habitats where the ground is devoid of vegetation including but not limited to open forests, marsh, gravel roads, railways etc. (COSEWIC, 2007). The Common Nighthawk is an insectivore that forages from 1m up to 80m. This species was observed foraging high (*i.e.* upwards of 80m) above the property but not detected during on-site nocturnal surveys. Therefore, Common Nighthawk will not be included within our impact assessment.

Eastern Wood-pewee (Special Concern)

The Eastern Wood-pewee lives in the mid-canopy layer of forest clearings and edges of deciduous and mixed forests. It is most abundant in intermediate-age mature forest stands with little understory vegetation (MNRF, 2020). The forested community on the property provides suitable habitat for this species.

Golden-winged Warbler (Special Concern)

Golden-winged warbler inhabits early successional scrub with patches of herbs and shrubs, scattered trees surrounded by mature forests for perching and foraging. Typically, they will have a territory that is 1-2ha in size and are considered habitat specialists (only occur in these early successional habitats)(COSEWIC, 2006).

5.5 Area of Natural and Scientific Interest

There are no Areas of Natural and Scientific Interest on or adjacent to the subject lands (Appendix B).

5.6 Watercourses and Fish Habitat

Watercourses on the property do not contain fish, but are hydraulically connected to direct fish habitat downstream. As a result, the unnamed creek (except for the southern contributing branch), and central/southern watercourses, are considered to provide indirect fish habitat functions.

5.7 Habitat of Endangered and Threatened Species

A Species at Risk screening was completed to identify habitat requirements in the overall planning area (Table 4). The assessment identifies those species having potential to

occur on or adjacent to the property based on habitats present. Based on our background review of species known to occur within the general area and Azimuth's 2019/2020field investigations, the property has potential of providing functioning habitat for the following species.

- Mammals: Little Brown Myotis [Endangered (END)] and Northern Myotis (END); and
- Reptiles: Eastern Hog-nosed Snake (THR).

5.7.1 Endangered Bats

The Endangered bat species identified with potential to occur within the property (Little Brown Myotis and Northern Myotis) are known to utilize decaying, large diameter trees (>25cm DBH) for maternity roosts during the summer to raise their young. Within a maternity season, bats frequently move pups among snag trees. Between seasons, snag trees, which are typically large/old and decrepit individuals, are subject to natural tree fall and therefore at the outset of each maternity season, bats must select roosting habitat among standing trees that persist from one year to the next. A given cavity tree is not consistently or predictably "habitat" from one year to the next. As these species are listed as Endangered on the SAR in Ontario List, the species and their habitat are protected from harm or destruction under Section 9 and 10 of the *Endangered Species Act*.

Acoustic data confirms the presence of Endangered bats within the woodland on-site, specifically *Myotis* bats. Bat activity levels were greatest at monitors 03 and 05. The high overall activity levels recorded by monitor 05 (>810*Myotis* passes), as well as the consistency of elevated activity levels repeated on consecutive nights recorded by monitors 01, 03, and 05 (between June 16-20, see Attachment 2), suggests that the woodland is providing habitat in some capacity to Endangered bats. Since monitors 01-05 were all placed in locations inside the forest block, there is a higher probability that bat activity at these monitors results from bats residing in the forest itself, rather than external bats which would be more likely to utilize edges/corridors/wetlands around the forest. The low activity levels observed at monitor 06 may support this idea, since relatively few bats were detected along one of the forest edge, which would be more likely to attract bats from other treed habitats.

When considering the forest community structure, in conjunction with the acoustic data, it is anticipated that due to the relatively open canopy and subcanopy in proximity to monitors 03 and 05, activity is likely related to foraging. It is also possible however that some of the activity is related to roosting in adjacent trees given the mature forest composition and relatively even distribution of snags throughout the woodland.

Nevertheless, acoustic data confirms the use of the interior of the woodland by *Myotis* bats. Impacts to the function of the forest as maternity roost habitat for Endangered bats are considered in the Impact Assessment.

5.7.2 Eastern Hog-nosed Snake

Critical habitat features typically associated with the Eastern Hog-nosed Snake (*i.e.* exposed loose sandy soils, source of American Toads) were not documented on the property.

5.8 Natural Heritage Features and Functions Summary

The results of our field surveys, review of background information and analysis indicate the potential for the following Natural Heritage Features and Functions to be located on or adjacent to the subject lands:

- Wetland;
- Significant Woodland;
- Significant Wildlife Habitat –Bat Maternity Colonies, Seeps and Springs, and Special Concern and Rare Wildlife Species (Eastern Wood-pewee and Golden-winged Warbler);
- Watercourses and Fish Habitat;
- Endangered and Threatened Species – Little Brown Myotis, Northern Myotis (woodlands) and Eastern Hog-nosed Snake.

Figure 4 provides a visual summary of the Natural Heritage Features present on the property.

6.0 PROPOSED DEVELOPMENT

The proponent wishes to develop the property for estate residential use. Fourteen (14) residential lots are proposed (Figure 5a, Appendix D. Each lot will be privately serviced with a well and septic system.

As per the Functional Servicing Report & Stormwater Management (SWM) Brief prepared by R.J. Burnside & Associates Limited (December 2020), stormwater will be addressed based on lands to the north and south of the unnamed creek ('A' on Figure 2). North of the creek, the site will drain via ditches to the north pond which will provide water quality control, and water quantity control up to the 100-year runoff event. Rock check dams will provide additional storage and quality control. South of the creek, flows will be captured through roadside ditches to a south pond which will also provide water quantity (up to the 100-year runoff event) and quality control. The north pond will

discharge to the unnamed creek, while the south pond will discharge to the downstream end of the central watercourse on the property ('B' on Figure 2). The rear yards of the two northerly lots will discharge uncontrolled to the east as per existing conditions. Soakaway pits will be considered for these lots once building size has been determined (RJB, 2020).

The proposed development will also include a road crossing of the unnamed creek; however, culvert sizing/design details have not been determined at this time (RJB, 2020).

7.0 IMPACT ASSESSMENT

7.1 Wetland

The wetland on the property is approximately 1.27 ha in size. The proposed development will result in the loss of approximately 1.22 ha of wetland. All of the central wetland feature will be lost (*i.e.* MAM and SWT, Figure 2, 3 and 5a). Approximately 0.05 ha of SWCO will be maintained post-development (Figure 2 and 5a).

The results of Azimuth's field investigation concluded the following:

- Wetland communities are not considered to be provincially rare;
- The central wetland community is disturbed and culturally-influenced and originated from an historical borrow pit. The wet conditions appear to be a result of the groundwater runoff from the adjacent slope;
- No provincially rare species were documented within the wetland communities; and
- No SWH function was associated with the wetlands that will be lost.

7.2 Significant Woodland

The Woodland on the property is approximately 7.36 ha in size and is part of larger contiguous woodland unit that extends off of the property. The current development concept proposes to maintain at least 15m of woodland at the back of each lot with an increased area of tree preservation associated with Lots 5 and 6 in addition to the lots in proximity to the main watercourse (A, Figure 2 and 5b). The proposed development will result in the retention of approximately 3.2ha of Woodland, primarily associated with the periphery of the property and watercourse A (Figure 5). There will be a loss of approximately 4.13 ha of Woodland. The remaining woodland on and adjacent to the property will continue to meet the size criteria for significance post development. However, the proposed development will result in a reduced function and/or loss of certain woodland attributes on the property including:

- Interior forest habitat;
- Linkages; and
- Diversity.

Overall, the proposed development will result in the loss of approximately 2.8% of the overall woodland with approximately 146ha of contiguous woodland will remain post-development.

7.3 Significant Wildlife Habitat

7.3.1 Bat Maternity Colonies

See Section 7.5.1 for discussion on bat maternity roost habitat.

7.3.2 Seeps and Springs

It is our understanding that a Geotechnical investigation is currently underway (Soil Engineers Ltd.). Part of this investigation will include an analysis with respect to the construction measures that will be required in order to development/construct within the identified seepage areas. It is assumed (but not yet confirmed) that the importation of fill may be required in order to facilitate development within these areas which will lead to the loss of the identified seepage areas.

7.3.3 Special Concern and Rare Species

As per the Significant Wildlife Habitat Technical Guide (2000), many species and habitats of conservation concern will be contained within other natural heritage features (*i.e.* Significant Woodland) as well as the other components of SWH. Therefore, conservation efforts should focus on habitats and species of conservation concern that will not be adequately protected through the identification of these other components (OMNR, 2000).The 2010 Natural Heritage Reference Manual indicates that 'determining what constitutes SWH will vary across the province because of variation in the ecological landscapes of Ontario, and the amount, distribution and quality of remaining habitat. Wildlife habitat that is poorly represented in one jurisdiction may be considered significant, whereas the same habitat may not be considered significant in jurisdiction in which it is well represented.

As per the Provincial Planning Policy (PPS, 2020), negative impact means the degradation that threatens the health and integrity of the natural features or ecological functions for which as area is identified due to single, multiple or successive development or site alteration activities.

Golden-winged Warbler
The proposed development will result in the loss of Golden-winged Warbler early successional scrub habitat on the property. Even within natural areas, succession will eventually lead to the loss of habitat for this species. At this time, based on documented recent occurrences within e-bird, there appears to be an abundance of suitable habitat for this species within and adjacent to the Matchedash Bay PSW.

Eastern Wood-pewee
The Eastern Wood-pewee is a common species that, according to the Ontario Breeding Bird Atlas, was found in all atlas regions and was most common within the Lake Simcoe Rideau region, where the probability of observation was over 80%.

Given the substantial quantity of available habitat retained within the overall planning area, woodland habitat is well represented and this woodlot does not offer any unique function that is not already represented within the larger wooded areas located outside of the settlement area of Fesserton. The large tracts of forest habitat will ensure that suitable habitat for Eastern Wood-pewee persist post-development.

7.4 Watercourses and Fish Habitat

The proposed development will involve the alteration of watercourses on the property, and in-water work.

For the main branch of the unnamed creek, a development setback of approximately 15m from the centreline of the channel is proposed, as per the site plan in Appendix D. This is anticipated to be equivalent to an approximate 10m setback from the physical top-of-bank of the channel (Figure 5a), which will maintain a vegetated buffer around the creek. Retaining walls are proposed along the creek setback as shown in Drawing (Dwg) FIG2 (Appendix D; RJB, 2020). It is unknown at this time if the geotechnical study to be completed on the property will recommend additional setbacks upon determination of the stable top-of-bank of the creek, particularly surrounding the steep, entrenched central section of the channel.

Encroachment of the 10m setback will occur at the steep central section of the creek channel where a 20m wide residential road crossing is proposed (Street 'A' in Appendix D, Figure 5a). At this time, road/crossing designs are not available. It is unknown if permanent structures will be proposed below the high-water line of the creek. The road crossing is expected to result in permanent losses to riparian vegetation within this 20m long section of the creek.

Two SWM ponds are also proposed within Block 14 and 15 (Appendix D; RBJ, 2020) on the property. While detailed designs are not available at this time, these ponds will feature outlets to the unnamed creek (north pond) and the downstream section of the central watercourse ('south watercourse' on Dwg FIG2; RJB, 2020) by the east property boundary. The north outlet will encroach into the creek setback, and is expected to require in-water work during construction. Each pond will also have an emergency overflow weir for runoff events over the 100-year storm. As per Dwg FIG2, the grading limits associated with the north pond will not encroach into the creek setback (RJB, 2020). At this time, design details for the north and south pond weir/spillway are not available.

Post-development runoff into areas of fish habitat is required to match, or improve, pre-development conditions. This pertains to both water quality and quantity criteria for discharge to a watercourse. Based on the Functional Servicing Report & SWM Brief (RJB, 2020), stormwater controls will, at a minimum, match pre-development flows into the unnamed creek. The north SWM pond is anticipated to remove 80% Total Suspended Solids removal (RJB, 2020). Moving forward in design, it is recommended that the SWM plan for the property also consider the implementation of low impact development options (LID's), such as infiltration galleries, in addition to the proposed SWM ponds, in order to better control site runoff and remove suspended sediment before entry into a watercourse.

Review of updated site plans/design drawings for the creek crossing and north SWM pond, as well as the geotechnical survey results/recommendations, is required by a qualified Fisheries Ecologist in order to determine if the proposed development setbacks are sufficient for the protection of fish habitat within the creek, and to allow for the maintenance of creek form/function. General vegetated buffer recommendations for consideration in design stages are provided in Section 8.1.

The two contributing branches of the unnamed creek and central watercourse on the property (at least until the proposed south SWM pond; RJB, 2020) are to be removed as part of the proposed development (Appendix D, Figure 5a). All flow into the creek, and off-property, is anticipated to be maintained, likely through piping. Details related to watercourse removal/alteration are not available at this time. Development must ensure downstream flow quantity and quality is maintained, and permitting may be required for the removal of all features identified as providing indirect fish habitat functions (described further below).

The construction of Street 'A' into the proposed residential subdivision from Fesserton Sideroad will require the widening of the existing driveway. Culvert replacement is anticipated to occur, although design details are not available at this time. Culvert lengthening, and/or channel realignment, would be expected to result in permanent alteration/impacts to the southern watercourse.

All in and near water work has the potential to cause sediment impacts in areas with direct fish habitat downstream. However, detrimental effects to fish habitat can be avoided provided standard mitigative measures and Best Management Practices (BMP's) for working around water are adhered to during all construction stages. BMP's include ensuring that sediment and erosion controls are installed and properly maintained along watercourses, construction works are inspected regularly (particularly following rain events), and in-water work occurs 'in the dry' (*i.e.* isolated from flow). General design and mitigation recommendations for working in and around water to reduce impacts to fish and fish habitat are provided in Section 8.0.

It is recommended that all in and near water work on the property be 'screened' by a qualified Fisheries Ecologist when design details are available to determine potential permitting requirements under the *Fisheries Act*. Removal of indirect habitat features on the property requires submission of project designs to DFO, which is anticipated to be in the form of a Request for Review. New crossing structures (unnamed creek and southern watercourse), and any SWM controls requiring in-water work, may also require DFO review.

7.5 Endangered and Threatened Species

7.5.1 Endangered Bats

The woodland on the property is approximately 7.36 ha in size and is part of a larger contiguous woodland unit that extends off of the property. The proposed development will result in the loss of approximately 4.13 ha of woodland on the property (see shaded area on Figure 5b), leaving 3.2 ha of woodland that will be associated with the periphery of the property and watercourse A. As such, approximately 117 of 213 bat snag trees (approximately 55%) will be lost overall, including removing 12 of 27 high quality snag trees (44%; Figure 5b). All identified clusters will be impacted by the proposed development.

- Cluster A: 7 of the 25 snags to be removed. None of the snags to be removed are considered high quality;
- Cluster B: 12 of the 47 snags to be removed including 2 high quality snags.
- Cluster C: 12 of the 20 snags to be removed including 3 high quality snags.

Overall, bat habitat on the property will be reduced throughout the property; approximately 55% of snag trees will be lost.

According to provincial mapping, there is approximately 56% forest cover within the Township. This includes large tracts of contiguous forest to the south and southwest of the property.

It is our opinion that the proposed development will reduce the availability of maternity roost habitat for bats on-site, however, due to the relatively high forest cover within the overall planning area, potential bat habitat will remain in the surrounding landscape. We recommend that consultation with the MECP occurs to ensure that this development does not constitute a contravention of the ESA as it relates to bats.

7.5.2 Eastern Hog-nosed Snake

There is no expectation that critical habitat for the Eastern Hog-nosed Snake will be lost as a result of the proposed development. It is acknowledged that potentially suitable general habitat for the species may be lost as a result of the proposed works, however the loss of 2.8% of woodland will not reduce the overall availability of potentially suitable habitat within the overall area.

8.0 RECOMMENDATIONS AND OTHER CONSIDERATIONS

8.1 Setback – Unnamed Creek

Determination of a suitable setback from the unnamed creek on the property is ongoing, and will be revisited when additional design information is available, and a geotechnical study has been completed. Any setback from the creek should incorporate slope stability recommendations from a geotechnical engineer.

Any setback from the creek is to be left undisturbed and in a natural state so as to serve as a vegetated buffer. Enhancement options, such as the installation of native riparian tree/shrub plantings (particularly in areas of the buffer without dense vegetation), is recommended to improve its ability to filter overland runoff, and enhance shading/stability functions to the creek.

The edge of the creek buffer should be clearly delineated prior to construction activities in order to avoid unintentional encroachment.

8.2 Timing Restrictions

8.2.1 Bird and Bat Active Season

Vegetation clearing should be timed to avoid the bat active season and bird nesting season to avoid contravention of Ontario's ESA and the *Migratory Birds Convention Act*, 1994 (federal) and *Fish and Wildlife Conservation Act*, 1997 (provincial). Tree clearing/demolition should be restricted from occurring the active season for birds/bats (April 1-October 31).

8.2.2 Fish and Fish Habitat

Given the downstream coolwater/warmwater fish community downstream in Matchedash Bay, any in-water work should be completed between July 15 and March 15th as per DFO mandated in-water timing restrictions (DFO in-water timing windows: http://www.dfo-mpo.gc.ca/pnw-ppe/timing-periodes/on-eng.html). Once designs of in-water works are available, in-water timing windows should be confirmed with DFO/available published guidelines.

8.3 Erosion and Sediment Controls

Runoff due to construction can contribute significant sediment loads to receiving watercourses. Thus, effective erosion and sediment control (ESC) at construction sites are crucial in mitigating issues associated with sediment and erosion. The following BMP's should be considered for the planning and design of all proposed development activities:

- Installation and maintenance of silt fencing around the perimeter of the natural heritage features, including watercourses, will be required for construction activities on the property in order to prevent erosion into on-site and adjacent natural heritage features. Materials storage on the property (*i.e*. soil stockpiles) is also to be contained with ESC's;
- All ESC's should be installed prior to the commencement of any site alteration (*i.e.* grading, earthworks) and should be regularly monitored to ensure proper functioning. If deficiencies are identified, they should be rectified in a timely manner. Ongoing monitoring/maintenance is to occur until soils are stabilized and the site is deemed to be stable after construction;
- Minimize vegetation removal, where possible, within the development area;
- Bare areas should be stabilized within topsoil and seed or sod as soon as possible following construction;
- Timing on construction should coincide with dryer periods to further minimize the potential for transport of sediment and other deleterious substances into adjacent watercourses and natural features;

- All machinery and equipment must have regard for surrounding natural heritage features, and watercourses; and
- At no time should machinery enter a watercourse/fish habitat without a mitigation plan in place.

8.4 Species at Risk

Consultation with MECP regarding the results of Azimuth's SAR bat analysis is recommended in order to determine how to proceed without contravention of Ontario's *ESA*.

8.5 Steep Slopes

Steep topography and seepage areas can be found throughout the northern portion of the property (*i.e.* woodland) including areas in proximity to the watercourse to be maintained post-development. It is our understanding that Geotechnical analysis is currently underway and will aid in the determination of appropriate setbacks and/or mitigation measures required within these areas.

8.6 Site Restoration

Areas disturbed during construction should be restored where possible to re-naturalize site conditions utilizing a combination of herbaceous vegetation, native and non-invasive trees and shrubs in accordance with a planting plan. Site restoration should aim to stabilize exposed soils and provide aesthetic benefit for the development.

8.7 In-water Work

At this time, the details and extent of in-water work are unknown. Below are general design and mitigation recommendations for working in-water to reduce/eliminate the impacts to fish and fish habitat. This is not an exhaustive list, and will need to be revised once design plans are finalized.

- All in-water work should occur 'in the dry' and in isolation from flowing water. Non-permeable, temporary pea gravel cofferdams should be utilized to isolate in-water work areas;
- The duration of in-water work is to be minimized to the extent possible, and occur during dryer times of the year (in accordance with timing recommendations in Section 8.2.2). Work should be scheduled so as to avoid periods of rain/precipitation;
- If dewatering is necessary, dewatering activities should be pumped to a filter bag (i.e., envirobag or equivalent) prior to being released into any watercourse feature. Filter bags should be placed a minimum of 30m from the watercourses on stable,

vegetated ground to allow fines to settle out of the water. Monitoring of dewatering operations should occur throughout the construction process to ensure water is free of fines before entering the watercourses. MECP permits may be required for dewatering/water taking; and

- All maintenance of machinery required during construction should be conducted 30m away from the watercourses to prevent accidental spillage of deleterious substances that may harm the aquatic environment. An appropriate spill control plan should be in place before the start of construction.

Design recommendations:

- If crossing/SWM designs require substrate to be added to a watercourse, clean riverstone and gravel should be used to match existing natural substrate.
- The crossing over the unnamed creek should consider spanning the high-water level of the channel to benefit aquatic habitat and fluvial processes. This may be accomplished from a bridge design or open-bottomed culvert.
- SWM controls outletting to areas of fish habitat should take appropriate measures to prevent scour at their outlets, and prevent bed/bank erosion. Any floodplain areas disturbed from their installation should be stabilized and re-vegetated to the extent possible. As above, flow isolation may be required for installation.

8.8 DFO Permitting Considerations

As mentioned above, submission of project designs related to the removal of features providing indirect fish habitat on the property to DFO is anticipated to be required. All other in and near water work should be screened by a qualified fisheries biologist once design details are available to determine permitting required under the *Fisheries Act*.

Any submission to DFO will require supporting material that includes grading, ESC, SWM, and site restoration plans.

9.0 CONCLUSION

Natural Heritage Features and Functions have been identified on and adjacent to the property. The proposed development will require additional review and consideration with respect to the works in relation to the steep slopes, seepage areas, and setbacks to retained watercourse. The geotechnical investigation that is currently underway will provide additional insight related to the above-noted features and will aid in the confirmation of the appropriateness of the proposed setbacks to the retained watercourse. Furthermore, the recommended consultation/submission to DFO and MECP will ensure that the project remains consistent with the *Fisheries Act* and Ontario's *ESA*. On a

landscape scale, due to the high overall natural heritage cover within the general area, the identified ecological functions will remain on the landscape post-development.

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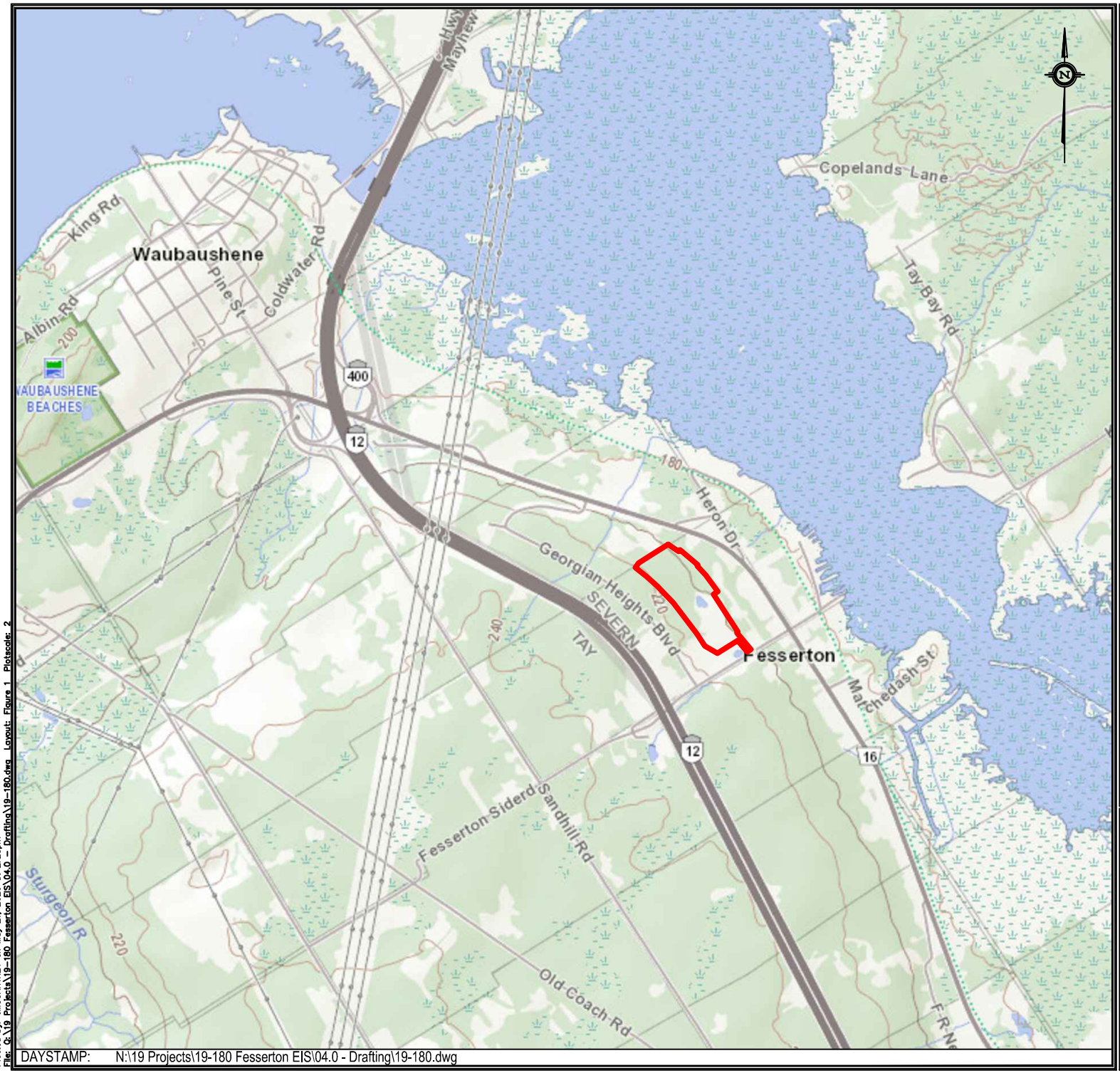
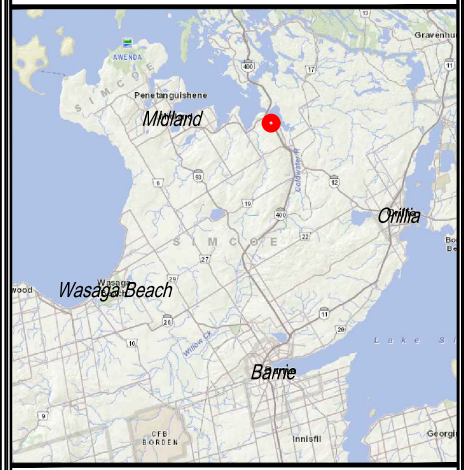


LEGEND:

Approx. Property Boundary



REG MAP

250m 0 750m

HORIZONTAL SCALE 1:25,000

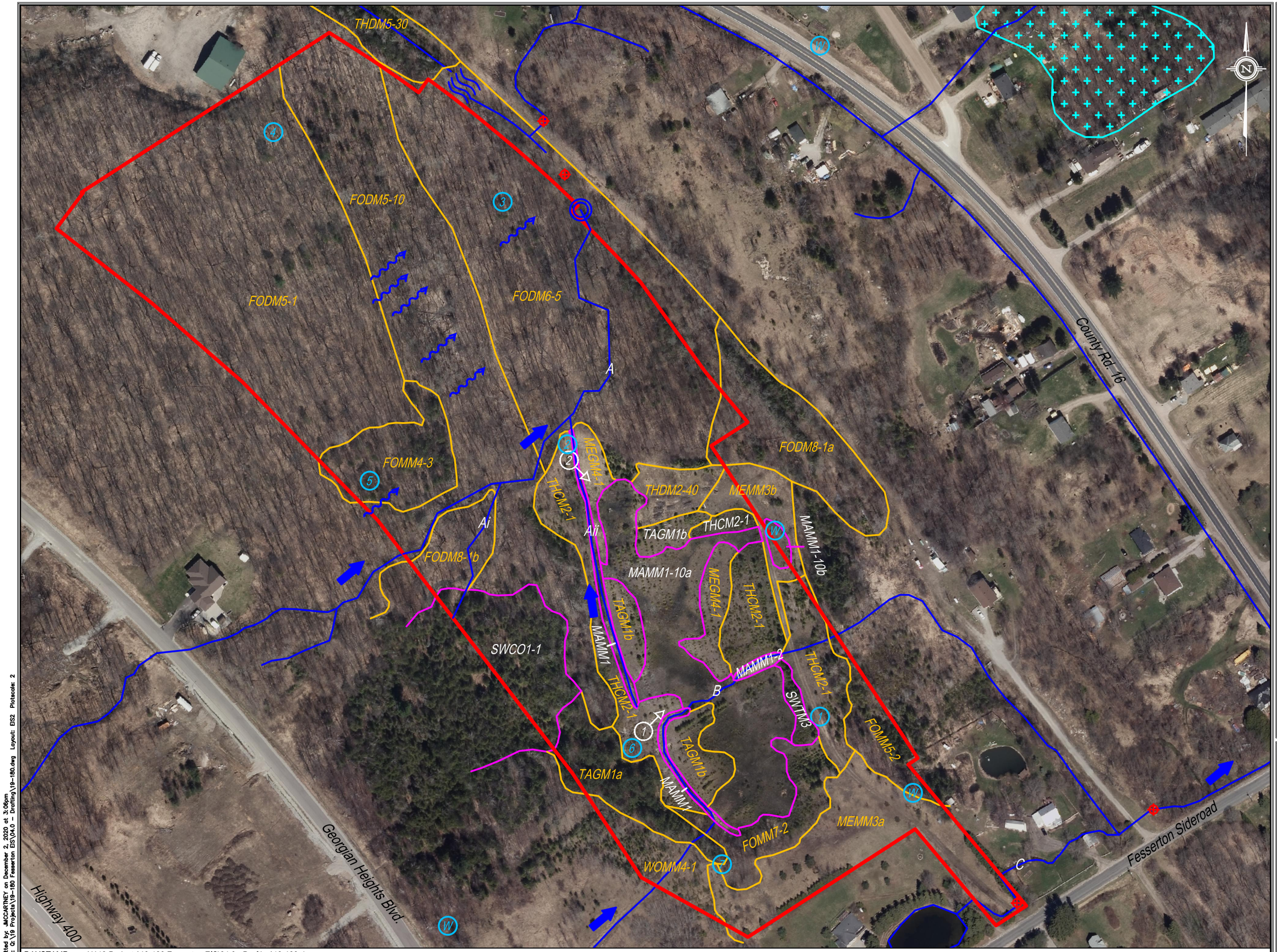
AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Property Location

2970 Fesserton Sideroad,
Fesserton, ON

DATE ISSUED: *May 2019*	Figure No.
CREATED BY: *JLM*	
PROJECT NO.: *19-180*	1
REFERENCE: *MNRF*	

Plotted by: JMCCARTNEY on May 21, 2020 at 2:28pm
File: Q:\19 Projects\19-180 Fesserton EIS\04.0 - Drafting\19-180.dwg Layout: Figure 1 Plotscale: 2



LEGEND:

- Approx. Property Boundary
- Watercourse
- Seeps/Drainage
- Flow Direction
- Watercourse goes Underground
- Barriers to Fish Passage
- Unevaluated Wetland
- Dawn Bird Point Count Station
- Nocturnal Bird Point Count Station
- Amphibian Stations and Direction (white)
- Wetland — Upland Communities

MEGM4-1	Open Graminoid Meadow Type
MEMM3a/b	Dry - Fresh Mixed Meadow Ecosite
THCM2-1	Fresh - Moist White Cedar Coniferous Thicket Type
THDM2-40	Dry - Fresh Black Locust Deciduous Thicket Type
THDM5-30	Fresh - Moist Nannyberry Deciduous Thicket Type
WOMM4-1	Fresh - Moist White Cedar-Hardwood Mixed Woodland Type
FOMM4-3	Dry - Fresh White Cedar-Hardwood Mixed Forest Type
FOMM5-2	Dry - Fresh Poplar Mixed Forest Type
FOMM7-2	Fresh - Moist White Cedar-Hardwood Mixed Forest Type
FODM5-1	Dry - Fresh Sugar Maple Deciduous Forest Type
FODM5-10	Dry - Fresh Sugar Maple-White Birch-Poplar Deciduous Forest Type
FODM6-5	Fresh - Moist Sugar Maple-Hardwood Deciduous Forest Type
FODM8-1a/b	Fresh - Moist Poplar Deciduous Forest Type
TAGM1a	Scotch Pine Coniferous Plantation
TAGM1b	White Spruce-White Cedar Coniferous Plantation
SWCO1-1	White Cedar Organic Coniferous Swamp Type
SWTM3	Willow Mineral Deciduous Thicket Swamp Type
MAMM1	Graminoid Mineral Meadow Marsh Ecosite
MAMM1-2	Cattail Graminoid Mineral Meadow Marsh Type
MAMM1-10a/b	Horsetail Graminoid Mineral Meadow Marsh Type

30m 0 60m

HORIZONTAL SCALE 1:2,000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

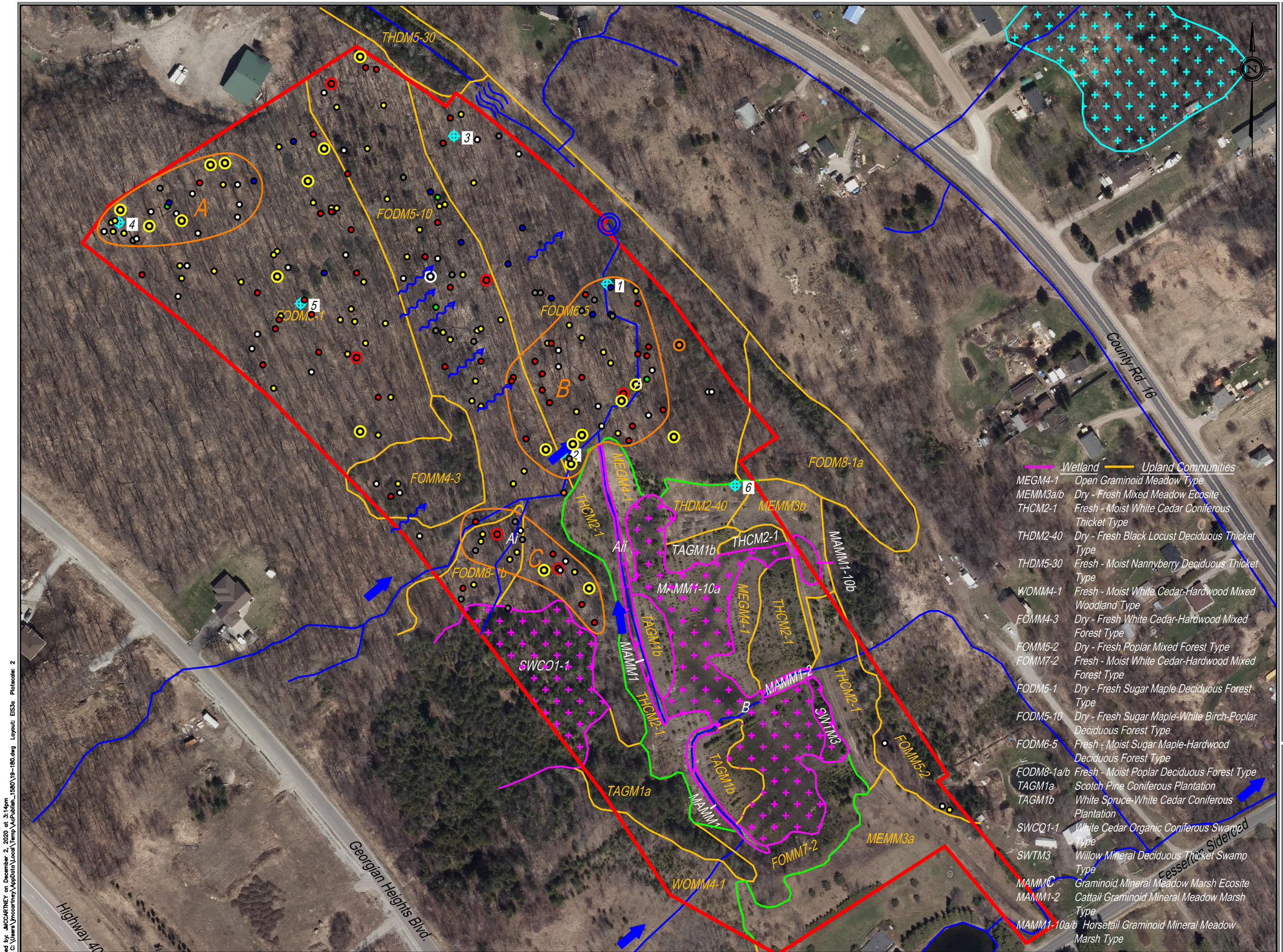
Environmental Features

2970 Fesserton Sideroad,
Fesserton, On

DATE ISSUED:	April 2020	Figure No.
CREATED BY:	JLM	2
PROJECT NO.:	19-180	
REFERENCE:	Simcoe County Maps	

DAYSTAMP: N:\19 Projects\19-180 Fesserton EIS\04.0 - Drafting\19-180.dwg

Plotted by: JMCCARTNEY on December 2, 2020 at 3:06pm
File: Q:\19 Projects\19-180 Fesserton EIS\04.0 - Drafting\19-180.dwg Layout: EIS2 Plotscale: 2



Wetland — Upland Communities

MEGM4-1	Open Graminoid Meadow Type
MEMM3a/b	Dry - Fresh Mixed Meadow Ecosite
THCM2-1	Fresh - Moist White Cedar Coniferous Thicket Type
THDM2-40	Dry - Fresh Black Locust Deciduous Thicket Type
THDM5-30	Fresh - Moist Nannyberry Deciduous Thicket Type
WOMM4-1	Fresh - Moist White Cedar-Hardwood Mixed Woodland Type
FOMM4-3	Dry - Fresh White Cedar-Hardwood Mixed Forest Type
FOMM5-2	Dry - Fresh Poplar Mixed Forest Type
FOMM7-2	Fresh - Moist White Cedar-Hardwood Mixed Forest Type
FODM5-1	Dry - Fresh Sugar Maple Deciduous Forest Type
FODM5-10	Dry - Fresh Sugar Maple-White Birch-Poplar Deciduous Forest Type
FODM6-5	Fresh - Moist Sugar Maple-Hardwood Deciduous Forest Type
FODM8-1a/b	Fresh - Moist Poplar Deciduous Forest Type
TAGM1a	Scotch Pine Coniferous Plantation
TAGM1b	White Spruce-White Cedar Coniferous Plantation
SWCO1-1	White Cedar Organic Coniferous Swamp Type
SWTM3	Willow Mineral Deciduous Thicket Swamp Type
MAMM1-C	Graminoid Mineral Meadow Marsh Ecosite
MAMM1-2	Cattail Graminoid Mineral Meadow Marsh Type
MAMM1-10a/b	Horsetail Graminoid Mineral Meadow Marsh Type

LEGEND:

- Approx. Property Boundary
- Watercourse
- Seeps/Drainage
- Flow Direction
- Watercourse goes Underground
- Unevaluated Wetland
- Wetland (Azimuth)
- Woodland (Azimuth)
- Bat Snag Clusters
- Bat Acoustic Monitor Locations

Bat Snag Decay Class

- Denotes High Quality *
- Denotes Non High Quality *

Bat Snag Decay Class

- Healthy
- Decay Class 1
- Decay Class 2
- Decay Class 3
- Decay Class 4
- Decay Class 5
- Decay Class 6

* with corresponding decay class colour

Note:

High quality snags have the following characteristics:

- Decay class 1, 2 or 3;
- Important snag feature(s) above 10m, or substantial snag feature(s) above 3m (on main trunk or large limb); and
- Open access to snag features (i.e., super-canopy tree, open canopy or open sub-canopy).

30m 0 60m

HORIZONTAL SCALE 1:2,000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

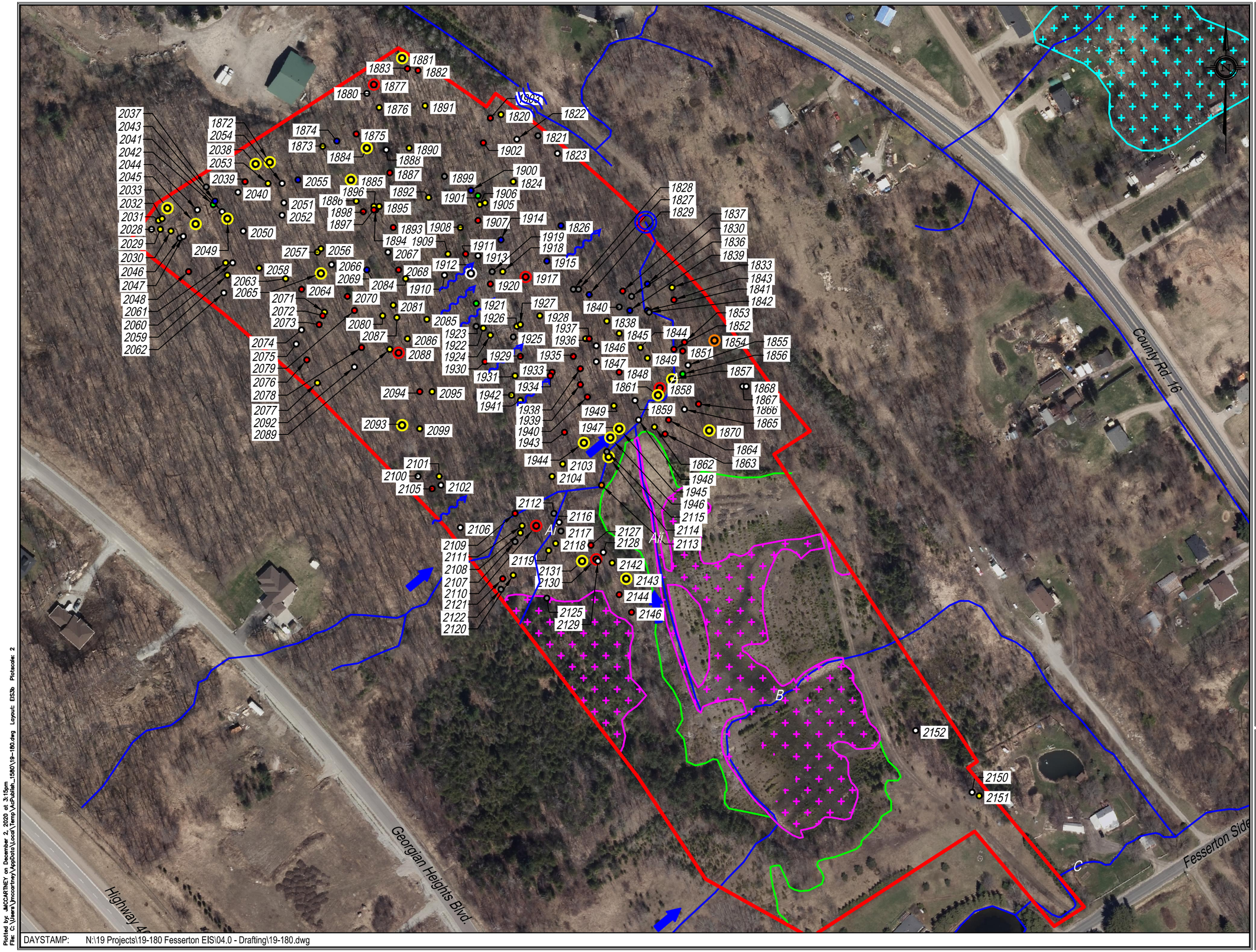
Detailed Snag Mapping with Clusters and Acoustic Monitor Locations

2970 Fesserton Sideroad, Fesserton, On

DATE ISSUED:	April 2020	Figure No.
CREATED BY:	JLM	3a
PROJECT NO.:	19-180	
REFERENCE:	Simcoe County Maps	

DAYSTAMP: N:\19 Projects\19-180 Fesserton EIS\04.0 - Drafting\19-180.dwg

Plotted by: JMCCARTHEY on December 2, 2020 at 3:14pm
File: C:\Users\jmccarthey\AppData\Local\Temp\AcPublish_1580\19-180.dwg Layout: EIS3a Plotscale: 2



LEGEND:

- Approx. Property Boundary
- Watercourse
- Seeps/Drainage
- Flow Direction
- Watercourse goes Underground
- Unevaluated Wetland
- Wetland (Azimuth)
- Woodland (Azimuth)

Bat Snag Decay Class

- Denotes High Quality *
- Denotes Non High Quality *

Bat Snag Decay Class

- Healthy
- Decay Class 1
- Decay Class 2
- Decay Class 3
- Decay Class 4
- Decay Class 5
- Decay Class 6

* with corresponding decay class colour

Note:

High quality snags have the following characteristics:

- Decay class 1, 2 or 3;
- Important snag feature(s) above 10m, or substantial snag feature(s) above 3m (on main trunk or large limb); and
- Open access to snag features (i.e., super-canopy tree, open canopy or open sub-canopy).

30m 0 60m

HORIZONTAL SCALE 1: 2,000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

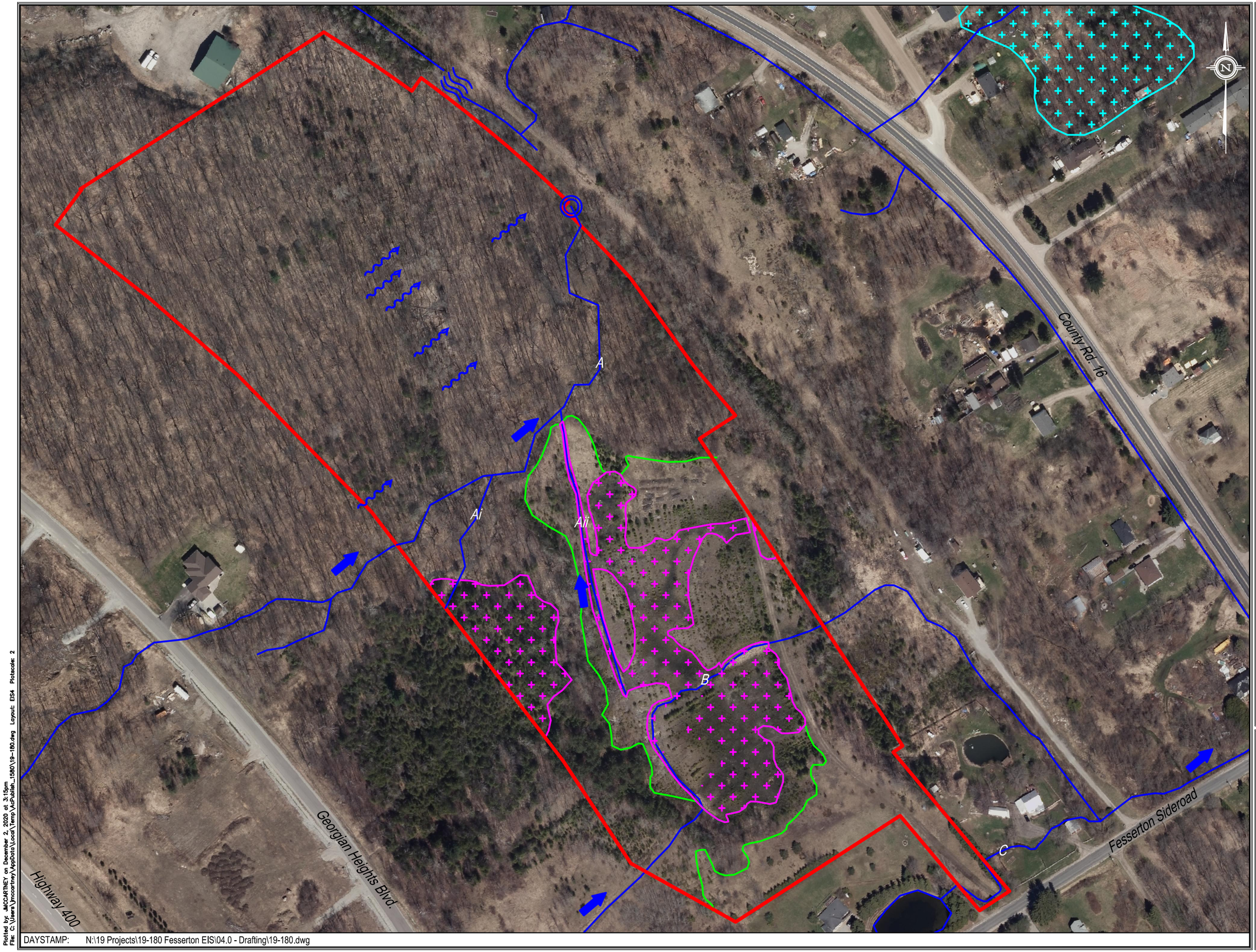
Detailed Snag Tree Mapping with Tree Numbers

2970 Fesserton Sideroad, Fesserton, On

DATE ISSUED:	April 2020	Figure No. 3b
CREATED BY:	JLM	
PROJECT NO.:	19-180	
REFERENCE:	Simcoe County Maps	

DAYSTAMP: N:\19 Projects\19-180 Fesserton EIS\04.0 - Drafting\19-180.dwg

Plotted by: JMCCARTNEY on December 2, 2020 at 3:15pm
File: C:\Users\jmccartney\AppData\Local\Temp\AcPublish_1580\19-180.dwg Layout: EIS3b Plotscale: 2



LEGEND:

- *Approx. Property Boundary*
- *Watercourse*
- *Seeps/Drainage*
- *Flow Direction*
- *Watercourse goes Underground*
- *Unevaluated Wetland*
- *Wetland (Azimuth)*
- *Woodland (Azimuth)*

30m 0 60m

HORIZONTAL SCALE 1: 2,000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

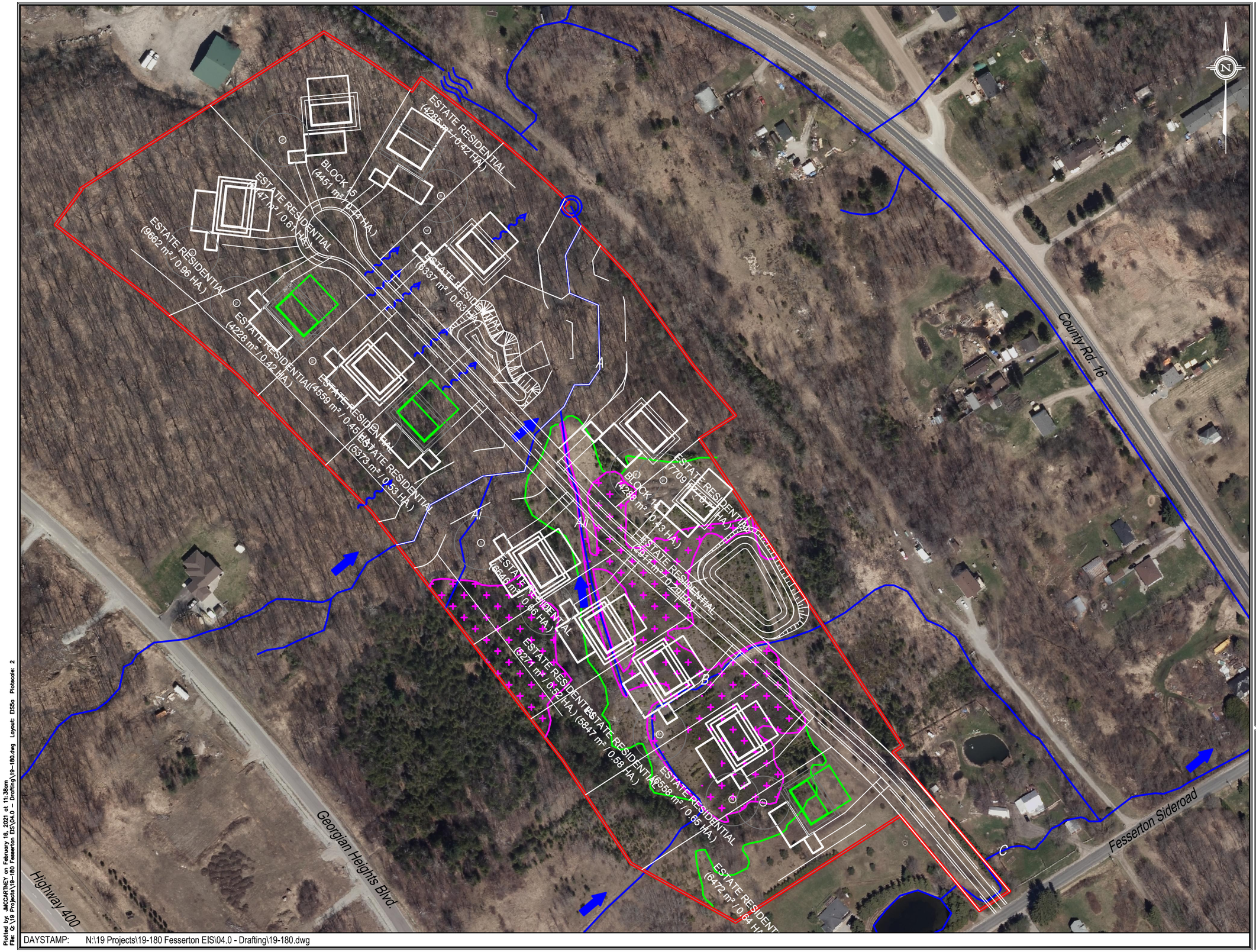
Environmental Features Summary

2970 Fesserton Sideroad, Fesserton, On

DATE ISSUED:	*April 2020*	Figure No. 4
CREATED BY:	*JLM*	
PROJECT NO.:	*19-180*	
REFERENCE:	*Simcoe County Maps*	

DAYSTAMP: N:\19 Projects\19-180 Fesserton EIS\04.0 - Drafting\19-180.dwg

Plotted by: JMCCARTNEY on December 2, 2020 at 3:15pm
File: C:\Users\jmccartney\AppData\Local\Temp\AcPublish_15580\19-180.dwg Layout: EIS4 Plotscale: 2



LEGEND:

- *Approx. Property Boundary*
- *Watercourse*
- *Seeps/Drainage*
- *Flow Direction*
- *Watercourse goes Underground*
- *Wetland (Azimuth)*
- *Woodland (Azimuth)*

30m 0 60m

HORIZONTAL SCALE 1: 2,000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

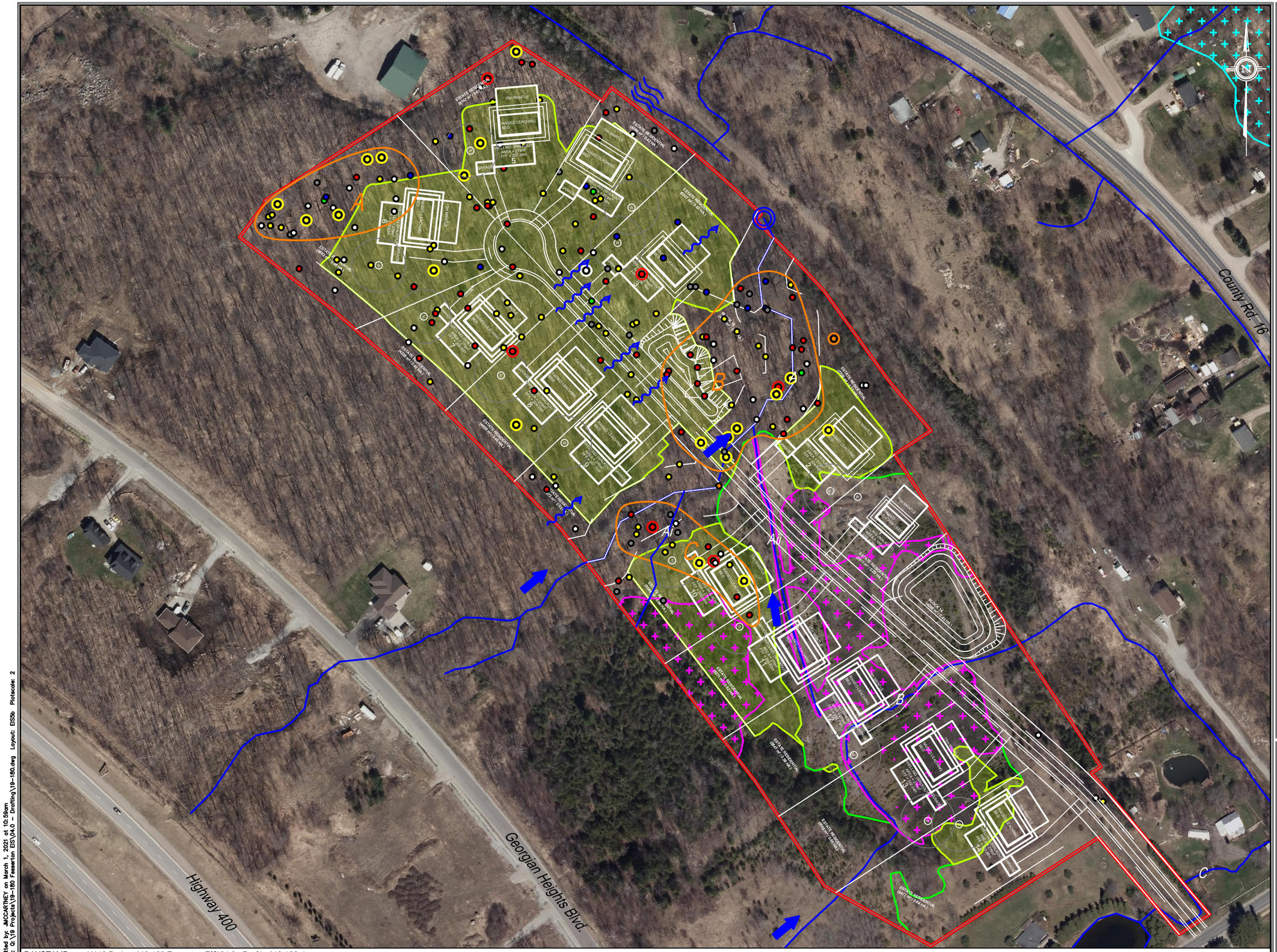
Proposed Development Plan

2970 Fesserton Sideroad,
Fesserton, On

DATE ISSUED:	*December 2020*	Figure No.
CREATED BY:	*JLM*	5a
PROJECT NO.:	*19-180*	
REFERENCE:	*Simcoe County Maps*	

DAYSTAMP: N:\19 Projects\19-180 Fesserton EIS\04.0 - Drafting\19-180.dwg

Plotted by: JMCCARTNEY on February 16, 2021 at 11:38am
File: Q:\19 Projects\19-180 Fesserton EIS\04.0 - Drafting\19-180.dwg Layout: EIS5a Plotscale: 2



LEGEND:

- Approx. Property Boundary
- Watercourse
- Seeps/Drainage
- Flow Direction
- Watercourse goes Underground
- Unevaluated Wetland
- Wetland (Azimuth)
- Woodland (Azimuth)
- Development Limit
- Woodland Lost (4.13ha)
- Bat Snag Clusters

Bat Snag Decay Class

- Denotes High Quality *
- Denotes Non High Quality *

Bat Snag Decay Class

- Healthy
- Decay Class 1
- Decay Class 2
- Decay Class 3
- Decay Class 4
- Decay Class 5
- Decay Class 6

* with corresponding decay class colour

Note:

High quality snags have the following characteristics:

- Decay class 1, 2 or 3;
- Important snag feature(s) above 10m, or substantial snag feature(s) above 3m (on main trunk or large limb); and
- Open access to snag features (i.e., super-canopy tree, open canopy or open sub-canopy).

30m 0 60m

HORIZONTAL SCALE 1:2,000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Proposed Development Limits with Snag Information

2970 Fesserton Sideroad, Fesserton, On

DATE ISSUED:	December 2020	Figure No. 5b
CREATED BY:	JLM	
PROJECT NO.:	19-180	
REFERENCE:	Simcoe County Maps	

Plotted by: JMCCARTNEY on March 1, 2021 at 10:59am
File: Q:\19 Projects\19-180 Fesserton EIS\04.0 - Drafting\19-180.dwg Layout: EIS5b Plotscale: 2

Ecological Land Classification						Ground Cover
System	Community Class	Community Series	Ecosite	Vegetation Type	Composition	
Terrestrial	ME, Meadow	MEG, Graminoid Meadow	MEGM4, Fresh - Moist Graminoid Meadow Ecosite	MEGM4-1, Open Graminoid Meadow Type	This small open "fresh" meadow polygon is dominated by graminoids with a few widely-spaced small trees to approximately 4 - 5m and some shrubs approx 2 - 3m. Tree species include American Elm, White Birch and Black Locust, with low numbers of Staghorn Sumac and Choke Cherry.	Many of the ground cover species here are non-native. Dominant species include Common Scouring Rush, Redtop, Rough Fleabane, Spotted Knapweed, Field Horsetail, Wild Carrot and Early Goldenrod.
Terrestrial	ME, Meadow	MEM, Mixed Meadow	MEMM3 (a), Dry - Fresh Mixed Meadow Ecosite		The south-eastern portion of this polygon appears to have occasionally been maintained (mowed), resulting in very few trees or shrubs, while the remainder of the polygon appears to have been left to regenerate naturally. This has allowed many more small trees and shrubs to grow. The disturbed, dry sandy soil has been conducive to the establishment of many non-native species. A small number of mature Trembling Aspen and Green Ash occur in the canopy (>10m), while most trees present are younger and smaller, including Trembling Aspen, Green Ash, White Cedar and Manitoba Maple. Small numbers of Staghorn Sumac and Red-Osier Dogwood also occur here, becoming more numerous towards the western edge of the polygon.	Grey Goldenrod and Poverty Oatgrass are the most dominant ground covers here, along with Wild Carrot, Spotted Knapweed, Wild Strawberry, Oxeye Daisy, Black-eyed Susan and Bladder Campion (Maiden's Tears).
Terrestrial	ME, Meadow	MEM, Mixed Meadow	MEMM3 (b), Dry - Fresh Mixed Meadow Ecosite		As with MEMM3(a), this polygon is the result of succession after significant cultural disturbance, which has allowed many non-native, "weedy" grass and forb species to establish. The few woody species here include White Cedar, White Birch and Trembling Aspen (to approximately 4 - 6m), along with Meadow Willow (1.5 - 2.5m).	Spotted Knapweed is the dominant forb here, along with many Early Goldenrod, Wild Strawberry, Rough Fleabane, Common Scouring-rush, Yellow Hawkweed and Poverty Oatgrass.
Terrestrial	TH, Thicket	THC, Coniferous Thicket	THCM2, Fresh - Moist Coniferous Thicket Ecosite	THCM2-1, Fresh Moist White Cedar Coniferous Thicket Type	There are four (4) separate, small incidences of this vegetation type. They all represent recent medium to dense growth of White Cedar (to approximately 1.5 - 2.5m tall) on previously disturbed areas. Infilling of White Cedar is generally natural succession with few instances of Cedars having been planted. Other woody species include Balsam Poplar, White Birch and White Spruce ranging from 2 - 6m tall.	Ground vegetation in these polygons is low in species diversity, but high in coverage. Areas are dominated by Variegated Horsetail and Scouring-rush , along with Rough-leaved Goldenrod, Oxeye Daisy and Purple Loosestrife.
Terrestrial	TH, Thicket	THD, Deciduous Thicket	THDM2, Dry - Fresh Deciduous Shrub Thicket Ecosite	THDM2-40, Dry - Fresh Black Locust Deciduous Thicket Type	This thicket polygon appears to be the result of cultural planting of some Black Locust (to 5m) onto piles of gravel, and the ensuing growth of many saplings and seedlings (1-3m tall) from those original trees. The highly sandy/gravelled soil is limiting insofar as the species that can grow here. Other woody species include Staghorn Sumac, Trembling Aspen and American Elm to approximately 5 - 6m.	Ground flora is dominated by mostly non-native and invasive species such as Spotted Knapweed, White Sweet Clover and Bird's-foot Trefoil, along with Canada Bluegrass, Wild Strawberry, Black Raspberry, Wild Carrot and Grey Goldenrod.
Terrestrial	TH, Thicket	THD, Deciduous Thicket	THDM5, Fresh - Moist Deciduous Thicket Ecosite	THDM5-30, Fresh - Moist Nannyberry Deciduous Thicket Type	This polygon occurs in the far north-eastern corner of the property between the base of the wooded slope to the west/south-west and the elevated rail bed to the north-east. Only a very small portion of the polygon encroaches onto the subject property. Canopy and sub-canopy are fairly open, with Green Ash, Balsam Poplar, American Elm and Trembling Aspen at around 8 - 10m in height. There is a dense shrub layer of Nannyberry, with some Staghorn Sumac, Common Buckthorn and Red-osier Dogwood.	Dominant forb and grass species here include a dense layer of Spotted Joe Pye Weed, Spotted Jewelweed and Tall Goldenrod above Scouring Rush, Fowl Mannagrass, Thicket Creeper, Poison Ivy and Graceful Sedge.
Terrestrial	WO, Woodland	WOM, Mixed Woodland	WOMM4, Fresh - Moist Mixed Woodland Ecosite	WOMM4-1, Fresh - Moist White Cedar-Hardwood Mixed Woodland Type	This polygon occurs at the south-wester corner of the subject property, towards the base of the slope extending down from Georgian Heights Blvd. Off-property to the west, the large cleared area appears to be regenerating with a similar species compliment. Dominant trees include open-spaced Trembling Aspen, White Cedar and Balsam Poplar, most averaging approximately 7 - 10 m tall, with many Red-osier Dogwood and a small compliment of Buffaloberry, Red Cedar and Green Ash in the shrub layer.	Black-eyed Susan and Wild Carrot are the dominant forbs here, with Field Horsetail and Poverty Oatgrass the dominant graminoids. Other common species include Grass-leaved Goldenrod, Granular Sedge, Wild Strawberry, Colt's-foot and Hooked Agrimony.
Terrestrial	FO, Forest	FOM, Mixed Forest	FOMM4, Dry - Fresh White Cedar-Mixed Forest Ecosite	FOMM4-3, Dry - Fresh White Cedar-Hardwood Mixed Forest Type	This polygon occurs mid-slope towards the western edge of the property. It is completely surrounded by Sugar Maple forest. With the exception of a portion of a small seep, the soil is generally dry. Canopy and Sub-canopy vegetation is dense, made up predominantly of White Cedar (6 - 10m tall) with a few Sugar Maple, White Ash, Large-toothed Aspen and White Birch scattered sporadically throughout. The shrub layer is noticeably sparse, comprised mostly of Alternate-leaved Dogwood with a few Sugar Maple and White Ash saplings.	Ground flora is particularly sparse, comprised only of several Christmas Ferns along with a small number of Sugar Maple, White Ash and Common Buckthorn seedlings.

Ecological Land Classification						Ground Cover
System	Community Class	Community Series	Ecosite	Vegetation Type	Composition	
Terrestrial	FO, Forest	FOM, Mixed Forest	FOMM5, Dry - Fresh White Birch-Poplar-Conifer Mixed Forest Ecosite	FOMM5-2, Dry - Fresh Poplar Mixed Forest Type	The majority of this polygon extends eastward and downslope off the subject property, where it appears to become more "Fresh". On-property, the dominant canopy trees (to approx. 12 m) are Trembling Aspen, Sugar Maple, Green Ash, Balsam Poplar and a few Red Oak, with the subcanopy composed of Trembling Aspen, White Birch, Sugar Maple and White Cedar. The woodland edge is semi-open, with vegetation becoming more dense several metres eastward into the forest.	Towards the sunny edge of this vegetation type, Staghorn Sumac is common, along with Red-osier Dogwood. Ground flora is dominated by Poison Ivy, Thicket Creeper, Grass-leaved Goldenrod, Self-heal, Riverbank Grape, Spreading Dogbane, Bracken and Arrow-leaved Aster.
Terrestrial	FO, Forest	FOM, Mixed Forest	FOMM7, Fresh - Moist White Cedar-Hardwood Mixed Forest Ecosite	FOMM7-2, Fresh - Moist White Cedar-Hardwood Mixed Forest Type	This vegetation type occurs at the southern end of the property, in the transitional space between the central Meadow Marsh and the upland Mixed Meadow. While there are some scattered mature Balsam Poplar, White Cedar, Trembling Aspen and White Birch Trees over 10m tall, most are in the 6 - 10m tall range of the sub-canopy, where White Cedar and Trembling Aspen are more dominant.	Ground cover is dominated by Smooth Brome, with Canada Bluegrass, Black Raspberry and Wild Strawberry, along with White Ash saplings, Redtop and Self-heal.
Terrestrial	FO, Forest	FOD, Deciduous Forest	FODM5, Dry - Fresh Sugar Maple Deciduous Forest Ecosite	FODM5-1, Dry - Fresh Sugar Maple Deciduous Forest Type	This vegetation type occurs at the uppermost portion of the slope on the western side of the property. It is comprised almost entirely of mature Sugar Maple, with occasional Large-toothed Aspen, Red Oak and White Ash in the canopy and sporadic Eastern Hop-hornbeam, Yellow Birch and White Cedar in the sub-canopy.	Shrub and ground layer vegetation is fairly rich throughout this vegetation community. Alternate-leaved Dogwood is the most common shrub, with Choke Cherry and Prickly Gooseberry in lesser amounts. Scouring-rush, while not plentiful, is the dominant ground cover, with a few Christmas Fern, Sensitive Fern, Poison Ivy and White Ash seedlings throughout.
Terrestrial	FO, Forest	FOD, Deciduous Forest	FODM5, Dry - Fresh Sugar Maple Deciduous Forest Ecosite	FODM5-10, Dry - Fresh Sugar Maple-White Birch-Poplar Deciduous Forest Type	This vegetation community occurs mid-slope, on a broad more-steeply-sloping section of the over-all hillside. Soils are mostly dry, but become more "Fresh" near the many seeps that occur here, which have a significant effect on the species composition. Sugar Maple and White Birch dominate the canopy and sub-canopy, along with White Ash and Basswood. Choke Cherry, White Ash, Sugar Maple and Alternate-leaved Dogwood are the most common species of the shrub layer.	Broad-leaved Enchanter's Nightshade is the dominant species of ground flora, along with White Trillium, Christmas Fern and White Ash seedlings.
Terrestrial	FO, Forest	FOD, Deciduous Forest	FODM6, Fresh - Moist Sugar Maple Deciduous Forest Ecosite	FODM6-5, Fresh - Moist Sugar Maple - Hardwood Deciduous Forest Type	This vegetation community lies towards the lowest portions of the hillside, and on the broad, flat "table" below the hillside. As such, with natural drainage, it is moister than slope-side woodland communities, and is much richer in species diversity and overall amount of ground flora. Dominant trees species in the canopy and sub-canopy are Sugar Maple, White Ash, American Beech and American Elm, with Alternate-leaved Dogwood and Downy Arrowwood quite common in the shrub layer.	Dominant species in the rich ground flora include Poison Ivy, Herb Robert, White Rattlesnake-root, Calico Aster, Cinnamon Fern, Blue Cohosh, Scouring-rush, Graceful Sedge and False Solomon's-seal, along with abundant seedlings of White Ash.
Terrestrial	FO, Forest	FOD, Deciduous Forest	FODM8, Fresh - Moist Poplar-Sassafras Successional Deciduous Forest Ecotype	FODM8-1 (a), Fresh - Moist Poplar Deciduous Forest Type	This Fresh-Moist Poplar forest occurs on the east side of the property at a lower elevation than the MAMM. Tree canopy (to approx. 10 - 14m) and sub-canopy are semi-open (composed of Balsam Poplar, Trembling Aspen, White Birch and White Ash), with Red-osier Dogwood in the shrub layer, along with saplings of Trembling Aspen and White Ash.	The ground layer flora is predominantly composed of Scouring-rush, Wild Strawberry and Star-flowered False Solomon's-seal, along with Canada Bluegrass, Spreading Dogbane and Wild Carrot.
Terrestrial	FO, Forest	FOD, Deciduous Forest	FODM8, Fresh - Moist Poplar-Sassafras Successional Deciduous Forest Ecotype	FODM8-1 (b), Fresh - Moist Poplar Deciduous Forest Type	This vegetation community occurs on the upper slope portion of the subject property, and is completely surrounded by Sugar Maple-dominated forest. The community is almost completely comprised of a dense canopy of mature Large-toothed Aspen, with few Sugar Maple and rare White Ash and White Cedar. Alternate-leaved Dogwood is the dominant woody species in the shrub layer.	Ground layer vegetation here is very sparse. It is composed mostly of occasional Christmas Fern, Riverbank Grape, Blue Cohosh, Red Baneberry and White Trillium.
Terrestrial	AG, Agriculture	TAG, Treed Agriculture	TAGM1 (a), Coniferous Plantation	TAGM1 (a), Scotch Pine Coniferous Plantation	This small vegetation community along the lower slope in the south-west corner of the property is dominated by early mid-aged planted Scotch Pine trees (approx. 5 - 10m tall). Trembling Aspen is also relatively common, with minor amounts of Red Oak and White Birch in the canopy and few White Cedar in the sub-canopy.	Ground cover is sparse, with Arrow-leaved Aster, Colt's-foot, Riverbank Grape and Field Horsetail dominating, along with lesser amounts of Common Buckthorn, Calico Aster, Poison Ivy and White Ash seedlings.
Terrestrial	AG, Agriculture	TAG, Treed Agriculture	TAGM1 (b), Coniferous Plantation	TAGM1 (b), White Spruce-White Cedar Coniferous Plantation	This cultural-origin vegetation community occurs in multiple locations in slightly drier and more upland areas around the perimeter of the central MAMM community. It is dominated by row-planted White Spruce and White Cedar (approximately 2 - 4m tall). While these species were planted throughout the south-central open area of the property, most of the area was too wet for successful establishment, leaving only the three slightly elevated and drier TAGM1 polygons where there was some successful establishment, although not in significant quantity or quality. Meadow Willow is also commonly found throughout these communities.	Scouring-rush is the dominant ground cover, along with plentiful Poison Ivy. Also common are Oxeye Daisy, Redtop, Wild Strawberry, Self-heal, Variegated Horsetail and Alpine Rush.

Ecological Land Classification						Ground Cover
System	Community Class	Community Series	Ecosite	Vegetation Type	Composition	
Wetland	SW, Swamp	SWC, Coniferous Swamp	SWCO1, White Cedar Organic Coniferous Swamp Ecosite	SWCO1-1, White Cedar Organic Coniferous Swamp Type	This organic swamp community occurs on the upper slope of the property and extends uphill towards Georgian Heights Blvd. It is hydrologically fed by a series of seeps uphill from, and within, the wetland, and is drained by a stream that has cut a deep valley further downhill. While the dominant tree species here is White Cedar, there is a small Black Ash-dominated portion of the swamp. Other trees present in relative abundance include American Elm, Basswood and Eastern Hemlock. Dominant shrubs include Bebb's Willow, Nannyberry, Red-osier Dogwood, Common Buckthorn and Choke Cherry.	Ground flora is lush and diverse here, with Cinnamon Fern, Sensitive Fern, Poison Ivy and Spotted Jewelweed dominating, along with Royal Fern, Spotted Joe Pye Weed and Colt's-foot.
Wetland	SW, Swamp	SWT, Thicket Swamp	SWTM3, Willow Mineral Deciduous Thicket Swamp Ecosite		This small thicket swamp vegetation community is situated between the central MAMM and the access roadway that leads toward the rear of the property. It is dominated by a variety of Willow shrub species, namely Heart-leaved Willow, Bebb's Willow and Meadow Willow, along with plentiful Red-osier Dogwood and early-age White Cedar.	Scouring-rush and Variegated Horsetail dominate the ground flora, along with Self-heal, Canada Bluegrass and Reed Canary Grass.
Wetland	MA, Marsh	MAM, Meadow Marsh	MAMM1, Graminoid Mineral Meadow Marsh Ecosite		This vegetation community occurs as two separate, but closely situated long, linear communities, formed within the base of drainage ditches created to direct the over-ground sheet-flow and ground water drainage emanating from the base of the hillside, and from small hillside watercourses. The dominant woody species include sporadic Heart-leaved Willow and Meadow Willow (to approx. 2.5m) and American Elm (to approx. 4m).	The dominant species of the ground layer is Yellow Sedge, which grows along most of the length of both communities. Colt's-foot, Arctic Rush and Variegated Horsetail are also quite common in the ground layer. Taller forb and graminoid species include Narrow-leaved Cattail, Purple Loosestrife and Dark-green Bulrush, all of which tend to be found more clustered than spread throughout.
Wetland	MA, Marsh	MAM, Meadow Marsh	MAMM1, Graminoid Mineral Meadow Marsh Ecosite	MAMM1-2, Cattail Graminoid Mineral Meadow Marsh Type	This small linear community is located in the drainage feature that bisects the MAMM1-10 community and leaves the property to the east. The two woody species here include Heart-leaved Willow and Meadow Willow.	This community is dominated by Narrow-leaved Cattail, along with Spotted Joe Pye Weed, Purple Loosestrife and Boneset in the upper layers, with Field Horsetail, Yellow Sedge, Alpine Rush and Marsh Bedstraw at the ground level.
Wetland	MA, Marsh	MAM, Meadow Marsh	MAMM1, Graminoid Mineral Meadow Marsh Ecosite	MAMM1-10 (a), Horsetail Graminoid Mineral Meadow Marsh Type	This vegetation community makes up the majority of the large south-central open space on this property. It appears that this area was once a borrow pit, and the medium sand/sandy-clay soils remaining have been inundated by groundwater runoff from the hillside. Woody vegetation here is comprised mainly of 1 - 3m tall White Cedars that were row-planted, along with ingrowth of some Meadow Willow, Heart-leaved Willow and Red-osier Dogwood.	Ground-level flora is dominated by dense mats of Variegated Horsetail and Scouring-rush, along with more widely spaced Yellow Sedge, Small-flowered Purple False Foxglove, Kalm's Lobelia, Self-heal, Green Sedge and Narrow-panicled Rush and Arctic Rush. These are occasionally overtopped by lesser amounts of Panicled Aster, Boneset, Purple Loosestrife, Grass-leaved Goldenrod and Rough-leaved Goldenrod,
Wetland	MA, Marsh	MAM, Meadow Marsh	MAMM1, Graminoid Mineral Meadow Marsh Ecosite	MAMM1-10 (b), Horsetail Graminoid Mineral Meadow Marsh Type	This small vegetation community is an extension of the main MAMM1-10 polygon, but lies across the access road to the east, in a shallow depression within the MEMM3 community. Woody species are few, but include White Cedar (to 4m), Red-osier Dogwood (to 2m) and Meadow Willow (to 2.5m).	

Table 2: Vascular Plant List, Fesserton

Surveyor: S. Martin

			Vegetation Communities[2]																					Conservation Rankings[3]		
FAMILY[1]	SCIENTIFIC NAME[1]	COMMON NAME[1]	MEGM4-1	MEMM3 (a)	MEMM3 (b)	THCM2-1	THDM2-40	THDM5-30	WOMM4-1	FOMM4-3	FOMM5-2	FOMM7-2	FODM5-1	FODM5-10	FODM6-5	FODM8-1 (a)	FODM8-1(b)	TAGM1(a)	TAGM1(b)	SWCO1-1	SWTM3	MAMM1	MAMM1-2	MAMM1-10(a)	MAMM1-10(b)	GRANK	SRANK	TRACK
Aceraceae	*Acer negundo*	Manitoba Maple		X			X																			G5	S5	N
Aceraceae	*Acer saccharinum*	Silver Maple												X				X								G5	S5	N
Aceraceae	*Acer saccharum*	Sugar Maple								X	X		X		X	X	X									G5	S5	N
Anacardiaceae	*Rhus typhina*	Staghorn Sumac	X	X			X	X			X															G5	S5	N
Anacardiaceae	*Toxicodendron rydbergii*	Rydberg's Poison Ivy		X				X			X		X	X	X	X		X	X	X					X	G5	S5	N
Apiaceae	*Daucus carota*	Wild Carrot	X	X	X		X		X		X					X					X					GNR	SE5	N
Apocynaceae	*Apocynum androsaemifolium*	Spreading Dogbane		X							X					X										G5	S5	N
Araceae	*Arisaema triphyllum*	Jack-in-the-pulpit						X							X											G5	S5	N
Araliaceae	*Aralia nudicaulis*	Wild Sarsaparilla																		X						G5	S5	N
Araliaceae	*Aralia recemosa*	American Spikenard																		X						G4G5	S5	N
Asclepiadaceae	*Asclepias incarnata*	Swamp Milkweed																						X		G5	S5	N
Asclepiadaceae	*Asclepias syriaca*	Common Milkweed			X		X																			G5	S5	N
Asteraceae	*Achillea millefolium*	Common Yarrow	X	X	X				X							X										G5	SE	N
Asteraceae	*Ambrosia artemisiifolia*	Annual Ragweed		X																						G5	S5	N
Asteraceae	*Centaurea stoebe*	Spotted Knapweed	X	X	X		X									X										GNR	SE5	N
Asteraceae	*Doellingeria umbellata var. umbellata*	Flat-top White Aster																		X				X		G5T5	S5	N
Asteraceae	*Erigeron canadensis*	Canada Horseweed		X												X										G5	S5	N
Asteraceae	*Erigeron philadelphicus*	Philadelphia Fleabane																							X	G5	S5	N
Asteraceae	*Erigeron strigosus*	Rough Fleabane	X	X	X		X									X										G5	S5	N
Asteraceae	*Eupatorium perfoliatum*	Common Boneset																		X		X	X	X		G5	S5	N
Asteraceae	*Euthamia graminifolia*	Grass-leaved Goldenrod					X		X		X									X				X	X	G5	S5	N
Asteraceae	*Eutrochium maculatum var. maculatum*	Spotted Joe Pye Weed				X		X												X			X	X		G5T5	S5	N
Asteraceae	*Leucanthemum vulgare*	Oxeye Daisy	X	X	X	X	X					X				X			X		X					GNR	SE5	N
Asteraceae	*Nabalus albus*	White Rattlesnake-root													X											G5	S5	N
Asteraceae	*Packera paupercula var. paupercula*	Balsam Groundsel																	X					X		G5T5	S5	N
Asteraceae	*Pilosella caespitosa*	Meadow Hawkweed			X											X										GNR	SE5	N
Asteraceae	*Rudbeckia hirta var. hirta*	Black-eyed Susan		X	X	X	X		X							X			X					X		G5T4T5	SU	N
Asteraceae	*Solidago altissima ssp. altissima*	Eastern Late Goldenrod							X																	GNR	S5	N
Asteraceae	*Solidago caesia*	Blue-stemmed Goldenrod									X															G5	S5	N
Asteraceae	*Solidago canadensis var. canadensis*	Canada Goldenrod	X	X																						G5T5	S5	N
Asteraceae	*Solidago gigantea var. gigantea*	Smooth Goldenrod						X																		G5	S5	N
Asteraceae	*Solidago juncea*	Early Goldenrod	X		X		X																			G5	S5	N
Asteraceae	*Solidago nemoralis ssp. nemoralis*	Gray-stemmed Goldenrod	X	X	X		X				X															G5T5	S5	N
Asteraceae	*Solidago rugosa var. rugosa*	Northern Rough-leaved Goldenrod				X												X		X				X		G5T5	S5	N
Asteraceae	*Symphyotrichum lanceolatum ssp. lanceolatum*	Panicled Aster		X																				X	X	G5T5	S5	N
Asteraceae	*Symphyotrichum lateriflorum*	Calico Aster					X						X	X	X			X		X						G5	S5	N

FAMILY[1]	SCIENTIFIC NAME[1]	COMMON NAME[1]	MEGM4-1	MEMM3 (a)	MEMM3 (b)	THCM2-1	THDM2-40	THDM5-30	WOMM4-1	FOMM4-3	FOMM5-2	FOMM7-2	FODM5-1	FODM5-10	FODM6-5	FODM8-1 (a)	FODM8-1(b)	TAGM1(a)	TAGM1(b)	SWCO1-1	SWTM3	MAMM1	MAMM1-2	MAMM1-10(a)	MAMM1-10(b)	GRANK	SRANK	TRACK
Asteraceae	*Symphyotrichum novae-angliae*	New England Aster		X																				X		G5	S5	N
Asteraceae	*Symphyotrichum puniceum*	Swamp Aster																		X						G5	S5	N
Asteraceae	*Symphyotrichum urophyllum*	Arrow-leaved Aster		X			X				X	X						X								G4G5	S4	N
Asteraceae	*Tussilago farfara*	Colt's-foot							X		X				X	X	X	X		X		X		X		GNR	SE5	N
Balsaminaceae	*Impatiens capensis*	Spotted Jewelweed						X							X					X						G5	S5	N
Berberidaceae	*Caulophyllum thalictroides*	Blue Cohosh											X		X		X									G4G5	S5	N
Betulaceae	*Betula alleghaniensis*	Yellow Birch											X							X						G5	S5	N
Betulaceae	*Betula papyrifera*	Paper Birch	X		X	X	X			X	X	X		X	X	X		X								G5	S5	N
Betulaceae	*Ostrya virginiana*	Eastern Hop-hornbeam											X		X											G5	S5	N
Boraginaceae	*Echium vulgare*	Common Viper's-bugloss		X	X		X																			GNR	SE5	N
Brassicaceae	*Alliaria petiolata*	Garlic Mustard												X												GNR	SE5	N
Brassicaceae	*Berteroa incana*	Hoary False-alyssum		X																						GNR	SE5	N
Brassicaceae	*Rorippa palustris ssp. palustris*	Marsh Yellowcress																						X		G5T5	S5?	N
Campanulaceae	*Lobelia kalmii*	Kalm's Lobelia	X																X		X			X	X	G5	S5	N
Caprifoliaceae	*Triosteum aurantiacum*	Orange-fruited Horse-gentian						X																		G5	S4S5	N
Caprifoliaceae	*Viburnum lantanoides*	Hobblebush						X																		G5	S5	N
Caprifoliaceae	*Viburnum lentago*	Nannyberry						X												X						G5	S5	N
Caprifoliaceae	*Viburnum rafinesquianum*	Downy Arrowwood													X											G5	S5	N
Caryophyllaceae	*Dianthus armeria*	Deptford Pink		X																						GNR	SE5	N
Caryophyllaceae	*Silene vulgaris*	Maiden's Tears		X							X															GNR	SE5	N
Celastraceae	*Celastrus scandens*	Climbing Bittersweet									X															G5	S5	N
Clusiaceae	*Hypericum perforatum*	Common St. John's-wort		X			X																			GNR	SE5	N
Cornaceae	*Cornus alternifolia*	Alternate-leaved Dogwood						X		X	X		X	X	X		X									G5	S5	N
Cornaceae	*Cornus racemosa*	Gray Dogwood					X																			G5?	S5	N
Cornaceae	*Cornus stolonifera*	Red-osier Dogwood		X	X	X	X	X	X		X	X			X	X			X	X	X			X	X	G5	S5	N
Cupressaceae	*Juniperus communis*	Ground Juniper		X			X									X										G5	S5	N
Cupressaceae	*Juniperus virginiana*	Eastern Red Cedar							X																	G5	S5	N
Cupressaceae	*Thuja occidentalis*	Eastern White Cedar		X	X	X	X		X	X	X	X	X			X	X	X	X	X	X			X		G5	S5	N
Cyperaceae	*Carex aurea*	Golden-fruited Sedge	X	X																						G5	S5	N
Cyperaceae	*Carex comosa*	Bristley Sedge																		X				X		G5	S5	N
Cyperaceae	*Carex crawfordii*	Crawford's Sedge																						X		G5	S5	N
Cyperaceae	*Carex crinita*	Fringed Sedge																		X						G5	S5	N
Cyperaceae	*Carex eburnea*	Ebony Sedge																		X						G5	S5	N
Cyperaceae	*Carex flava*	Yellow Sedge	X																			X	X	X		G5	S5	N
Cyperaceae	*Carex gracillima*	Graceful Sedge						X	X					X	X	X				X						G5	S5	N
Cyperaceae	*Carex granularis*	Meadow Sedge		X	X		X					X														G5	S5	N
Cyperaceae	*Carex hystericina*	Porcupine Sedge																				X	X	X		G5	S5	N
Cyperaceae	*Carex interior*	Inland Sedge																						X	X	G5	S5	N
Cyperaceae	*Carex intumescens*	Bladder Sedge																		X						G5	S5	N
Cyperaceae	*Carex pellita*	Woolly Sedge																						X		G5	S5	N

FAMILY[1]	SCIENTIFIC NAME[1]	COMMON NAME[1]	MEGM4-1	MEMM3 (a)	MEMM3 (b)	THCM2-1	THDM2-40	THDM5-30	WOMM4-1	FOMM4-3	FOMM5-2	FOMM7-2	FODM5-1	FODM5-10	FODM6-5	FODM8-1 (a)	FODM8-1(b)	TAGM1(a)	TAGM1(b)	SWCO1-1	SWTM3	MAMM1	MAMM1-2	MAMM1-10(a)	MAMM1-10(b)	GRANK	SRANK	TRACK
Cyperaceae	*Carex rosea*	Rosy Sedge													X											G5	S5	N
Cyperaceae	*Carex stipata*	Awl-fruited Sedge																		X						G5	S5	N
Cyperaceae	*Carex viridula*	Greenish Sedge																				X		X		G5	S5	N
Cyperaceae	*Carex vulpinoidea*	Fox Sedge																		X						G5	S5	N
Cyperaceae	*Eleocharis elliptica*	Elliptic Spike-rush																				X		X		G5	S5	N
Cyperaceae	*Eleocharis obtusa*	Blunt Spike-rush																						X	X	G5	S5	N
Cyperaceae	*Eleocharis palustris*	Creeping Spike-rush																						X		G5?	S5	N
Cyperaceae	*Rhynchospora alba*	White Beakrush																						X		G5	S5	N
Cyperaceae	*Scirpus atrovirens*	Dark-green Bulrush																		X		X		X		G5?	S5	N
Cyperaceae	*Scirpus cyperinus*	Cottongrass Bulrush																						X		G5	S5	N
Cyperaceae	*Scirpus microcarpus*	Red-tinge Bulrush																		X						G5	S5	N
Dennstaedtiaceae	*Pteridium aquilinum*	Bracken Fern									X									X						G5	S5	N
Dryopteridaceae	*Athyrium filix-femina var. angustum*	Northeastern Lady Fern											X	X						X						G5T5	S5	N
Dryopteridaceae	*Dryopteris cristata*	Crested Wood Fern						X							X											G5	S5	N
Dryopteridaceae	*Dryopteris intermedia*	Evergreen Wood Fern											X		X											G5	S5	N
Dryopteridaceae	*Dryopteris marginalis*	Marginal Wood Fern											X	X												G5	S5	N
Dryopteridaceae	*Matteuccia struthiopteris*	Ostrich Fern													X											G5	S5	N
Dryopteridaceae	*Onoclea sensibilis*	Sensitive Fern									X		X	X						X						G5	S5	N
Dryopteridaceae	*Polystichum acrostichoides*	Christmas Fern								X			X	X	X		X									G5	S5	N
Dryopteridaceae	*Polystichum lonchitis*	Northern Holly Fern												X												G5	S4	N
Equisetaceae	*Equisetum arvense*	Field Horsetail	X						X									X		X			X		X	G5	S5	N
Equisetaceae	*Equisetum hyemale*	Common Scouring-rush	X	X	X	X		X					X	X	X	X			X		X			X		G5	S5	N
Equisetaceae	*Equisetum palustre*	Marsh Horsetail																		X						G5	S5	N
Equisetaceae	*Equisetum pratense*	Meadow Horsetail																		X						G5	S5	N
Equisetaceae	*Equisetum variegatum*	Variegated Horsetail				X					X								X		X	X	X	X	X	G5	S5	N
Fabaceae	*Lotus corniculatus*	Garden Bird's-foot Trefoil	X	X			X					X				X										GNR	SE5	N
Fabaceae	*Medicago sativa*	Alfalfa		X																						GNR	SE5	N
Fabaceae	*Melilotus albus*	White Sweet-clover		X			X				X															G5	SE5	N
Fabaceae	*Robinia pseudoacacia*	Black Locust	X		X		X																			G5	SE5	N
Fabaceae	*Trifolium pratense*	Red Clover		X																						GNR	SE5	N
Fabaceae	*Vicia cracca*	Tufted Vetch		X	X		X				X					X					X					GNR	SE5	N
Fagaceae	*Fagus grandifolia*	American Beech											X		X											G5	S4	N
Fagaceae	*Quercus rubra*	Northern Red Oak									X		X			X		X								G5	S5	N
Geraniaceae	*Geranium robertianum*	Herb-Robert													X											G5	S5	N
Grossulariaceae	*Ribes cynosbati*	Prickly Gooseberry											X	X												G5	S5	N
Juglandaceae	*Juglans nigra*	Black Walnut		X																						G5	S4?	N
Juncaceae	*Juncus alpinoarticulatus*	Alpine Rush	X																X			X	X	X		G5	S5	N
Juncaceae	*Juncus articulatus ssp. articulatus*	Jointed Rush																						X		G5	S5	N
Juncaceae	*Juncus breviligulata*	Narrow-panicled Rush																	X			X	X	X		G5	S5	N
Juncaceae	*Juncus canadensis*	Canada Rush	X																			X		X	X	G5	S5	N

FAMILY[1]	SCIENTIFIC NAME[1]	COMMON NAME[1]	MEGM4-1	MEMM3 (a)	MEMM3 (b)	THCM2-1	THDM2-40	THDM5-30	WOMM4-1	FOMM4-3	FOMM5-2	FOMM7-2	FODM5-1	FODM5-10	FODM6-5	FODM8-1 (a)	FODM8-1(b)	TAGM1(a)	TAGM1(b)	SWCO1-1	SWTM3	MAMM1	MAMM1-2	MAMM1-10(a)	MAMM1-10(b)	GRANK	SRANK	TRACK
Juncaceae	*Juncus dudleyi*	Dudley's Rush																						X		G5	S5	N
Juncaceae	*Juncus effusus*	Soft Rush																						X		G5	S5	N
Juncaceae	*Juncus interior*	Inland Rush																						X	X	G4G5	S4	N
Juncaceae	*Juncus nodosus*	Knotted Rush																				X		X		G5	S5	N
Lamiaceae	*Clinopodium vulgare ssp. vulgare*	Field Basil		X			X									X										G5	S5	N
Lamiaceae	*Lycopus americanus*	American Water-horehound																		X						G5	S5	N
Lamiaceae	*Mentha arvensis*	Field Mint																	X	X						G5	S5	N
Lamiaceae	*Monarda fistulosa var. fistulosa*	Wild Bergamot		X																						G5T5?	SU	N
Lamiaceae	*Prunella vulgaris ssp. vulgaris*	Self-heal	X		X	X	X		X		X	X				X			X		X			X	X	G5TU	SE3	N
Liliaceae	*Maianthemum racemosum*	False Solomon's-seal													X			X								G5	S5	N
Liliaceae	*Maianthemum stellatum*	Star-flowered False Solomon's-seal													X	X				X						G5	S5	N
Liliaceae	*Trillium grandiflorum*	White Trillium											X	X			X									G5	S5	N
Lythraceae	*Lythrum salicaria*	Purple Loosestrife				X														X	X	X	X	X		G5	SE5	N
Oleaceae	*Fraxinus americana*	White Ash							X	X		X	X	X	X	X	X	X								G5	S4	N
Oleaceae	*Fraxinus nigra*	Black Ash						X							X					X						G5	S3	Y
Oleaceae	*Fraxinus pennsylvanica*	Green Ash		X				X			X		X							X				X		G5	S4	N
Onagraceae	*Circaea canadensis*	Broad-leaved Enchanter's Nightshade											X	X	X					X						G5T5	S5	N
Onagraceae	*Epilobium parviflorum*	Small-flowered Willowherb																		X						GNR	SE4	N
Onagraceae	*Oenothera biennis*	Common Evening Primrose		X			X																			G5	S5	N
Orchidaceae	*Epipactis helleborine*	Eastern Helleborine												X												GNR	SE5	N
Orchidaceae	*Spiranthes cernua*	Nodding Ladies'-tresses																	X					X		G5	S5	N
Osmundaceae	*Osmunda regalis*	Royal Fern																		X						G5	S5	N
Osmundaceae	*Osmundastrum cinnamomeum*	Cinnamon Fern						X							X					X						G5	S5	N
Pinaceae	*Picea glauca*	White Spruce				X			X										X							G5	S5	N
Pinaceae	*Pinus sylvestris var. sylvestris*	Scots Pine							X		X	X						X						X		GNR	SE5	N
Pinaceae	*Tsuga canadensis*	Eastern Hemlock																		X						G5	S5	N
Plantaginaceae	*Plantago lanceolata*	English Plantain		X																						G5	SE5	N
Plantaginaceae	*Plantago major*	Common Plantain														X										G5	SE5	N
Poaceae	*Agrostis gigantea*	Redtop	X		X							X							X					X		G4G5	SE5	N
Poaceae	*Avenella flexuosa*	Crinkled Hairgrass									X															G5	S5	N
Poaceae	*Bromus inermis*	Awnless Brome		X			X					X				X										G5TNR	SE5	N
Poaceae	*Dactylis glomerata*	Orchard Grass						X	X																	GNR	SE5	N
Poaceae	*Danthonia spicata*	Poverty Oatgrass		X	X		X		X		X	X														G5	S5	N
Poaceae	*Elymus hystrix*	Bottlebrush Grass													X											G5	S5	N
Poaceae	*Elymus repens*	Creeping Wildrye		X	X																					GNR	SE5	N
Poaceae	*Festuca rubra ssp. rubra*	Red Fescue		X	X		X																			G5T5	SE5	N
Poaceae	*Glyceria striata var. striata*	Fowl Mannagrass						X						X	X					X						G5	S5	N
Poaceae	*Leersia oryzoides*	Rice Cutgrass																		X						G5	S5	N
Poaceae	*Panicum capillare*	Common Panicgrass	X																							G5	S5	N
Poaceae	*Phalaris arundinaceae*	Reed Canary Grass																		X	X		X	X		G5	S5	N

FAMILY[1]	SCIENTIFIC NAME[1]	COMMON NAME[1]	MEGM4-1	MEMM3 (a)	MEMM3 (b)	THCM2-1	THDM2-40	THDM5-30	WOMM4-1	FOMM4-3	FOMM5-2	FOMM7-2	FODM5-1	FODM5-10	FODM6-5	FODM8-1 (a)	FODM8-1(b)	TAGM1(a)	TAGM1(b)	SWCO1-1	SWTM3	MAMM1	MAMM1-2	MAMM1-10(a)	MAMM1-10(b)	GRANK	SRANK	TRACK
Poaceae	*Phleum pratense*	Common Timothy							X																	GNR	SE5	N
Poaceae	*Phragmites australis ssp. australis*	European Reed																						X		G5T5	SE5	N
Poaceae	*Poa annua*	Annual Bluegrass		X																						GNR	SE5	N
Poaceae	*Poa compressa*	Canada Bluegrass	X	X	X		X		X			X				X			X		X					GNR	SE5	N
Primulaceae	*Lysimachia ciliata*	Fringed Loosestrife						X							X											G5	S5	N
Primulaceae	*Lysimachia terrestris*	Swamp Loosestrife																		X						G5	S5	N
Pyrolaceae	*Pyrola asarifolia*	Pink Pyrola																						X		G5	S5	N
Ranunculaceae	*Actaea rubra*	Red Baneberry												X			X									G5	S5	N
Ranunculaceae	*Anemone virginiana var. virginiana*	Virginia Anemone	X	X												X										G5T5	S5?	N
Ranunculaceae	*Clematis virginiana*	Virginia Virgin's-bower																		X						G5	S5	N
Ranunculaceae	*Thalictrum dioicum*	Early Meadow-rue											X													G5	S5	N
Rhamnaceae	*Rhamnus cathartica*	Common Buckthorn			X			X		X								X		X						GNR	SE5	N
Rosaceae	*Agrimonia gryposepala*	Hooked Agrimony							X			X	X		X											G5	S5	N
Rosaceae	*Dasiphora fruticosa*	Shrubby Cinquefoil																						X		G5	S5	Y
Rosaceae	*Fragaria virginiana*	Wild Strawberry	X	X	X				X			X				X			X							G5	S5	N
Rosaceae	*Geum aleppicum*	Yellow Avens																		X						G5	S5	N
Rosaceae	*Potentilla recta*	Sulphur Cinquefoil		X								X														GNR	SE5	N
Rosaceae	*Prunus virginiana*	Choke Cherry	X				X						X	X						X						G5	S5	N
Rosaceae	*Rubus allegheniensis*	Alleghany Blackberry					X		X																	G5	S5	N
Rosaceae	*Rubus occidentalis*	Black Raspberry					X					X														G5	S5	N
Rosaceae	*Rubus pubescens*	Dewberry													X											G5	S5	N
Rosaceae	*Sorbus aucuparia*	European Mountain-ash											X	X												G5	SE4	N
Rubiaceae	*Galium palustre*	Marsh Bedstraw																					X			G5	S5	Y
Salicaceae	*Populus balsamifera*	Balsam Poplar			X	X		X	X		X	X				X				X	X					G5	S5	N
Salicaceae	*Populus grandidentata*	Large-tooth Aspen								X			X				X									G5	S5	Y
Salicaceae	*Populus tremuloides*	Trembling Aspen		X	X		X	X	X		X	X				X		X								G5	S5	N
Salicaceae	*Salix amygdaloides*	Peach-leaved Willow																						X		G5	S5	N
Salicaceae	*Salix bebbiana*	Bebb's Willow																		X	X			X		G5	S5	N
Salicaceae	*Salix eriocephala*	Heart-leaved Willow									X										X	X	X	X	X	G5	S5	N
Salicaceae	*Salix humilis*	Prairie Willow					X																			G5	S5	N
Salicaceae	*Salix petiolaris*	Meadow Willow			X														X		X	X	X	X	X	G5	S5	N
Salicaceae	*Salix x pendulina*	(Salix babylonica X Salix euxina)		X																						GNA	SE1	N
Saxifragaceae	*Parnassia palustris*	Marsh Grass-of-parnassus																						X		G5	S5	N
Saxifragaceae	*Tiarella cordifolia*	Heart-leaved Foam-flower													X											G5	S5	N
Saxifragaceae	*Tiarella cordifolia*	Heart-leaved Foam-flower																		X						G5	S5	N
Scrophulariaceae	*Agalinis purpurea var. parviflora*	Small-flowered Purple False Foxglove																			X			X	X	G5	S4S5	Y
Scrophulariaceae	*Chelone glabra*	White Turtlehead																		X						G5	S5	N
Scrophulariaceae	*Verbascum thapsus*	Common Mullein		X	X		X																			GNR	SE5	N
Scrophulariaceae	*Veronica americana*	American Speedwell																X								G5	S5	N
Solanaceae	*Physalis heterophylla*	Clammy Ground-cherry		X																						G5	S4	N

FAMILY[1]	SCIENTIFIC NAME[1]	COMMON NAME[1]	MEGM4-1	MEMM3 (a)	MEMM3 (b)	THCM2-1	THDM2-40	THDM5-30	WOMM4-1	FOMM4-3	FOMM5-2	FOMM7-2	FODM5-1	FODM5-10	FODM6-5	FODM8-1 (a)	FODM8-1(b)	TAGM1(a)	TAGM1(b)	SWCO1-1	SWTM3	MAMM1	MAMM1-2	MAMM1-10(a)	MAMM1-10(b)	GRANK	SRANK	TRACK
Solanaceae	*Solanum dulcamara*	Climbing Nightshade																		X						GNR	SE5	N
Thelypteridaceae	*Parathelypteris noveboracensis*	New York Fern												X												G5	S4S5	Y
Thelypteridaceae	*Thelypteris palustris*	Eastern Marsh Fern																		X						G5	S5	N
Tiliaceae	*Tilia americana*	American Basswood											X	X	X					X						G5	S5	N
Typhaceae	*Typha angunstifolia*	Narow-leaved Cattail																				X	X	X		G5	SE5	N
Typhaceae	*Typha latifolia*	Broad-leaved Cattail																		X						G5	S5	N
Ulmaceae	*Ulmus americana*	American Elm	X				X	X							X				X	X		X				G5?	S5	N
Vitaceae	*Parthenocissus inserta*	Thicket Creeper		X				X			X	X	X	X	X	X				X						G5	S5	N
Vitaceae	*Vitis riparia*	Riverbank Grape		X	X		X	X			X	X	X	X		X	X	X			X					G5	S5	Y

1 Nomenclature based on Ministry of Natural Resources and Forestry (MNRF) Natural Heritage Information Centre (NHIC, 2019)

2 ELC Codes based on Ecological Land Classification for Southern Ontario manual (Lee et al., 1998)

3 Conservation Rankings: From Ontario Ministry of Natural Resources, Natural Heritage Information Centre (http://nhic.mnr.gov.on.ca/nhic_.cfm)

Table 3: Breeding Bird Survey and Incidentals, Fesserton

			Location[1,2]																Conservation Rankings[3]			
			1		2		3		4		5		6		7		Adjacent Lands	Incidental				
FAMILY	SCIENTIFIC NAME	COMMON NAME	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2			GRANK	SRANK	MNRF	TRACK
Picidae	*Colaptes auratus*	Northern Flicker	C													C		✓	G5	S4B		N
Picidae	*Sphyrapicus varius*	Yellow-bellied Sapsucker																✓	G5	S5B		N
Corvidae	*Corvus corax*	Common Raven																✓	G5	S5		N
Cuculidae	*Coccyzus erythropthalmus*	Black-billed Cuckoo		C														✓	G5	S5B		N
Tyrannidae	*Tyrannus tyrannus*	Eastern Kingbird	C																G5	S4B		N
Cardinalidae	*Cardinalis cardinalis*	Northern Cardinal		S		S		S											G5	S5		N
Picidae	*Melanerpes carolinus*	Red-bellied Woodpecker																✓	G5	S4		N
Anatidae	*Aix sponsa*	Wood Duck																✓	G5	S5		N
Corvidae	*Corvus brachyrhynchos*	American Crow	C	C	C		H		C	C		C			C	C	A-E	✓	G5	S5B		N
Sturnidae	*Sturnus vulgaris*	European Starling		H	H													✓	G5	SNA		N
Corvidae	*Cyanocitta cristata*	Blue Jay		C	C		C		C		C		C			C		✓	G5	S5		N
Gaviidae	*Gavia immer*	Common Loon																✓	G5	S5B,S5N	NAR	N
Fringillidae	*Spinus tristis*	American Goldfinch	C	C	C										C/H			✓	G5	S5B		N
Cathartidae	*Cathartes aura*	Turkey Vulture																✓	G5	S5B		N
Accipitridae	*Buteo platypterus*	Broad-winged Hawk																✓	G5	S5B		N
Icteridae	*Icterus galbula*	Baltimore Oriole		C											S			✓	G5	S4B		N
Icteridae	*Molothrus ater*	Brown-headed Cowbird														H			G5	S4B		N
Icteridae	*Quiscalus quiscula*	Common Grackle			C	C			H				H			H		✓	G5	S5B		N
Regulidae	*Regulus calendula*	Ruby-crowned Kinglet																✓	G5	S4B		N
Scolopacidae	*Scolopax minor*	American Woodcock																✓	G5	S4B		N
Caprimulgidae	*Chordeiles minor*	Common Nighthawk																✓	G5	S4B	SC	Y
Paridae	*Poecile atricapillus*	Black-capped Chickadee		S				S	S			S		S	S	S		✓	G5	S5		N
Parulidae	*Geothlypis trichas*	Common Yellowthroat												S		S	A-E	✓	G5	S5B		N
Parulidae	*Vermivora chrysoptera*	Golden-winged Warbler				S												✓	G4	S4B	SC	Y
Parulidae	*Oreothlypis ruficapilla*	Nashville Warbler			S										S			✓	G5	S5B		N
Parulidae	*Seiurus aurocapilla*	Ovenbird				S	C	S	S	S	S	S	S	S	S			✓	G5	S4B		N
Parulidae	*Setophaga pensylvanica*	Chestnut-sided Warbler											S		S				G5	S5B		N
Parulidae	*Setophaga ruticilla*	American Redstart						S										✓	G5	S5B		N
Parulidae	*Setophaga virens*	Black-throated Green Warbler							S		S								G5	S5B		N
Passerellidae	*Melospiza melodia*	Song Sparrow		S	S	S				S		S		P/H	S	A-W		✓	G5	S5B		N
Passerellidae	*Spizella passerina*	Chipping Sparrow													S	S		✓	G5	S5B		N
Passerellidae	*Zonotrichia albicollis*	White-throated Sparrow														S		✓	G5	S5B		N
Icteridae	*Agelaius phoeniceus*	Red-winged Blackbird																✓	G5	S4		N
Phasianidae	*Meleagris gallopavo*	Wild Turkey											H					✓	G5	S5		N
Picidae	*Dryocopus pileatus*	Pileated Woodpecker												C					G5	S5		N
Troglodytidae	*Troglodytes hiemalis*	Winter Wren																✓	G5	S5B		N
Picidae	*Picoides villosus*	Hairy Woodpecker							H					C					G5	S5		N
Icteridae	*Sturnella magna*	Eastern Meadowlark																✓	G5	S4B	THR	Y
Certhiidae	*Certhia americana*	Brown Creeper																✓	G5	S5B		N
Alcedinidae	*Megaceryle alcyon*	Belted Kingfisher		FO															G5	S4B		N
Sittidae	*Sitta carolinensis*	White-breasted Nuthatch							H		H							✓	G5	S5		N
Parulidae	*Mniotilta varia*	Black-and-white Warbler				S												✓	G5	S5B		N
Troglodytidae	*Troglodytes aedon*	House Wren	S		S	S			S	S	S	S	S		S	S	A-N		G5	S5B		N
Phasianidae	*Bonasa umbellus*	Ruffed Grouse																✓	G5	S4		N
Columbidae	*Zenaida macroura*	Mourning Dove																✓	G5	S5		N
Turdidae	*Turdus migratorius*	American Robin	S	S			C						S						G5	S5B		N

Table 3: Breeding Bird Survey and Incidentals, Fesserton

			Location[1,2]																Conservation Rankings[3]			
			1		2		3		4		5		6		7		Adjacent Lands	Incidental				
FAMILY	SCIENTIFIC NAME	COMMON NAME	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2			GRANK	SRANK	MNRF	TRACK
Tyrannidae	*Contopus virens*	Eastern Wood-pewee										S						✓	G5	S4B	SC	Y
Tyrannidae	*Myiarchus crinitus*	Great Crested Flycatcher		C				C	C					C	C			✓	G5	S4B		N
Anatidae	*Branta canadensis*	Canada Goose																✓	G5	S5		N
Vireonidae	*Vireo olivaceus*	Red-eyed Vireo		S	S	S	S	S	S	S	S	S		S	S	S		✓	G5	S5B		N
Mimidae	*Dumetella carolinensis*	Gray Catbird																✓	G5	S4B		N
Turdidae	*Catharus fuscescens*	Veery																✓	G5	S4B		N
Laridae	*Larus delawarensis*	Ring-billed Gull	FO																G5	S5B,S4N		N

[1] **Visit 1**: June 12, 2019, Observer: J.Broadfoot, Tempurature 9°C, Cloud Cover 5% , Wind: B0, Precipitation: Nil, Search Time 05:45 to 07:15; **Visit 2**: June 24, 2019, Observer: J. Broadfoot, Tempurature 13°C, Cloud Cover 70% , Wind: B1, Precipitation: Nil, Search Time 06:15 to 08:08;

[2] Breeding Bird Evidence Codes: X - Species observed, C - Call heard, FO - Flyover (Species presence); H - Species observed in its breeding season in suitable nesting habitat, S - Singing male (Possible Breeding); P - Pair observed , T - Territorial behaviour, A - Agitated behaviour or anxiety calls of adult, V - Visiting a probably nest site, N - Nest building or excavation of nest hole (Probable Breeding); DD - Distraction display or injury feigning, NU - Used Nest or egg shells, FY - Recently fledged young, AE - Adult leaving or entering nest sites, FS - Adult carrying fecal sac, CF - Adult

[3] Conservation Rankings: From Ontario Ministry of Natural Resources, Natural Heritage Information Centre (http://nhic.mnr.gov.on.ca/nhic_.cfm)

Table 4. Species at Risk Assessment, Fesserton

Taxa	Common Name[1]	ESA Status[2]	Habitat Requirements	Habitat on or Adjacent to Lands?	Observed?	Issue Related to Proposed Development?
Bird	Bank Swallow	THR	Nest in burrows it constructs in sand banks associated with valleylands and in fill piles/gravel pits having near vertical faces.	No	No	No
Bird	Barn Swallow	THR	Build nests in manmade structures like sheds, barns, etc. and under bridges/in culverts, *etc.*	Potential - adjacent	No	No
Bird	Bobolink	THR	Large grasslands	No	No	No
Bird	Eastern Meadowlark	THR	Large grasslands	No	Yes, Eastern Meadowlark observed incidentally on during early spring field surveys (April 16, 2020). Individual was likely passing through the area to suitable breeding habtiat as Eastern Meadowlark was not documented during either of the dawn breeding bird surveys in 2019.	No
Bird	Eastern Whip-poor-will	THR	Open woodlands, disturbed areas	Potential	Whip-poor-will surveys (3) were undertaken in 2019. No Whip-poor-will were documented to be utilizing the property.	No
Bird	Least Bittern	THR	Marsh wetlands with mix of open water and emergent vegetation (cattails)	No	No	No
Mammal	Little Brown Myotis	END	Mature woodlands (snag/cavity trees) and buildings (churches, older homes with attics, *etc.*)	Potential	Yes, Little Brown Myotis was confidently detected at three monitoring locations (04, 05 and 06; Figure 2a).	Yes
Mammal	Northern Myotis	END	Mature woodlands (snag/cavity trees)	Potential	Potentially; while this species was not confidently identified within the data set, hundreds of *Myotis* bats were recorded.	Yes
Mammal	Tri-coloured Bat	END	Mature woodlands (snag/cavity trees) and occasionally in barns or other buildings	Potential	No, Tri-colored Bat was not detected on the property.	No
Plant	American Ginseng	END	Mature deciduous forests	Potential	Not documented during Azimuth's 2019 vegetation surveys.	No
Plant	Butternut	END	Forests, woodlands, fencerows, open lands	Potential	Not documented during Azimuth's 2019 vegetation surveys.	No

Taxa	Common Name[1]	ESA Status[2]	Habitat Requirements	Habitat on or Adjacent to Lands?	Observed?	Issue Related to Proposed Development?
Reptile	Blanding's Turtle	THR	Wetlands with standing water	No	No, wetland conditions on the property do not provide suitable turtle habitat as it lacks sufficent water depth and typical structure associated with this species.	No
Reptile	Eastern Hog-nosed Snake	THR	Forests, woodlands, fencerows, open lands with sandy soils and wetlands providing an abundance of breeding amphibians (particularly American Toad)	Potential	No	No

Table 5: Significant Wildlife Habitat Assessment (Criteria Schedule for Ecoregion 6E)

Seasonal Concentrations of Areas of Animals

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Waterfowl Stopover and Staging Areas (Terrestrial) **Rationale:** Habitat important to migrating waterfowl.	American Black Duck Wood Duck Green-winged Teal Blue-winged Teal Mallard Northern Pintail Northern Shoveler American Wigeon Gadwall	CUM1 CUT1 Plus evidence of annual spring flooding from melt water or run-off within these Ecosites.	Fields with sheet water during Spring (mid-March to May). • Fields flooding during spring melt and run-off provide important invertebrate foraging habitat for migrating waterfowl. • Agricultural fields with waste grains are commonly used by waterfowl, these are not considered SWH unless they have spring sheet water available. Information Sources • Anecdotal information from the landowner, adjacent landowners or local naturalist clubs may be good information in determining occurrence. • Reports and other information available from Conservation Authorities • Sites documented through waterfowl planning processes (*e.g.* EHJV implementation plan) • Field Naturalist Clubs • Ducks Unlimited Canada • Natural Heritage Information Centre (NHIC) Waterfowl Concentration Area	Studies carried out and verified presence of an annual concentration of any listed species, evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" • Any mixed species aggregations of 100 or more individuals required. • The flooded field ecosite habitat plus a 100-300m radius area, dependant on local site conditions and adjacent land use is the significant wildlife habitat. • Annual use of habitat is documented from information sources or field studies (annual use can be based on studies or determined by past surveys with species numbers and dates). • SWHMiST Index #7 provides development effects and mitigation measures.	No fields with sheet water in the spring. No potential SWH function for Waterfowl Stopover and Staging Areas (terrestrial).
Waterfowl Stopover and Staging Areas (Aquatic) **Rationale:** Important for local and migrant waterfowl populations during the spring or fall migration or both periods combined. Sites identified are usually only one of a few in the eco-district.	Canada Goose Cackling Goose Snow Goose American Black Duck Northern Pintail Northern Shoveler American Wigeon Gadwall Green-winged Teal Blue-winged Teal Hooded Merganser Common Merganser Lesser Scaup Greater Scaup Long-tailed Duck Surf Scoter White-winged Scoter Black Scoter Ring-necked duck Common Goldeneye Bufflehead Redhead Ruddy Duck Red-breasted Merganser Brant Canvasback Ruddy Duck	MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7	• Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration. Sewage treatment ponds and storm water ponds do not qualify as a SWH, however a reservoir managed as a large wetland or pond/lake does qualify. • These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water). Information Sources • Environment Canada • Naturalist clubs often are aware of staging/stopover areas • OMNRF Wetland Evaluations indicate presence of locally and regionally significant waterfowl staging. • Sites documented through waterfowl planning processes (*e.g.* EHJV implementation plan) • Ducks Unlimited projects • Element occurrence specification by Nature Serve: http://www.natureserve.org • Natural Heritage Information Centre (NHIC) Waterfowl Concentration Areas	Studies carried out and verified presence of: • Aggregations of 100 or more of listed species for 7 days, results in > 700 waterfowl use days. • Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWH. • The combined area of the ELC ecosites and a 100m radius area is the SWH. • Wetland area and shorelines associated with sites identified within the SWHTG Appendix K are significant wildlife habitat. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • Annual Use of Habitat is Documented from Information Sources or Field Studies (Annual can be based on completed studies or determined from past surveys with species numbers and dates recorded). • SWHMiST Index #7 provides development effects and mitigation measures.	No suitable habitat on or adjacent to the property. No potential SWH function for Waterfowl Stopover and Staging Areas (Aquatic).

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Shorebird Migratory Stopover Area **Rationale:** High quality shorebird stopover habitat is extremely rare and typically has a long history of use.	Greater Yellowlegs Lesser Yellowlegs Marbled Godwit Hudsonian Godwit Black-bellied Plover American Golden-Plover Semipalmated Plover Solitary Sandpiper Spotted Sandpiper Semipalmated Sandpiper Pectoral Sandpiper White-rumped Sandpiper Baird's Sandpiper Least Sandpiper Purple Sandpiper Stilt Sandpiper Short-billed Dowitcher Red-necked Phalarope Whimbrel Ruddy Turnstone Sanderling Dunlin	BBO1 BBO2 BBS1 BBS2 BBT1 BBT2 SDO1 SDS2 SDT1 MAM1 MAM2 MAM3 MAM4 MAM5	• Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats. • Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores, are extremely important for migratory shorebirds in May to mid-June and early July to October. • Sewage treatment ponds and storm water ponds do not qualify as a SWH. Information Sources • Western hemisphere shorebird reserve network • Canadian Wildlife Service (CWS) Ontario Shorebird Survey • Bird Studies Canada • Ontario Nature • Local birders and naturalist clubs • Natural Heritage Information Center (NHIC) Shorebird Migratory Concentration Area	Studies confirming: • Presence of 3 or more of listed species and > 1000 shorebird use days during spring or fall migration period. (shorebird use days are the accumulated number of shorebirds counted per day over the course of the fall or spring migration period) • Whimbrel stop briefly (<24hrs) during spring migration, any site with >100 Whimbrel used for 3 years or more is significant. • The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100m radius area. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #8 provides development effects and mitigation measures.	No suitable shoreline habitat on or adjacent to the property. No potential SWH function related to Shorebird Migratory Stopover Area.
Raptor Wintering Area **Rationale:** Sites used by multiple species of individuals and used annually are most significant	Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl **Special Concern:** Short-eared Owl Bald Eagle	Hawks/Owls: Combination of ELC Community Series; need to have present one Community Series from each land class; Forest: FOD, FOM, FOC. Upland: CUM; CUT; CUS; CUW. Bald Eagle: Forest community Series: FOD, FOM, FOC, SWD, SWM or SWC on shoreline areas adjacent to large rivers or adjacent to lakes with open water (hunting area).	• The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. • Raptor wintering sites (hawk/owl) need to be > 20 ha with a combination of forest and upland. • Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15ha) with adjacent woodlands. • Field area of the habitat is to be windswept with limited snow depth or accumulation. • Eagle sites have open water, large trees and snags available for roosting. Information Sources: • OMNRF Ecologist or Biologist Field Naturalist Clubs • Natural Heritage Information Center (NHIC) Raptor Winter Concentration Area • Data from Bird Studies Canada • Results of Christmas Bird Counts Reports and other information available from Conservation Authorities.	Studies confirm the use of these habitats by: • One or more Short-eared Owls or; One or more Bald Eagles or; At least 10 individuals and two of the listed hawk/owl species. • To be significant a site must be used regularly (3 in 5 years) for a minimum of 20 days by the above number of birds. • The habitat area for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #10 and #11 provides development effects and mitigation measures.	Although woodland habitat is present on and adjacent to the property, this particular area does not appear to have the combination of fields and woodlands to be considered potential raptor wintering habitat. No potential SWH function related to Raptor Wintering Area.

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Bat Hibernacula **Rationale:** Bat hibernacula are rare habitats in all Ontario landscapes.	Big Brown Bat Tri-coloured Bat	Bat Hibernacula may be found in these ecosites: CCR1 CCR2 CCA1 CCA2 (Note: buildings are not considered to be SWH)	• Hibernacula may be found in caves, mine shafts, underground foundations and Karsts. • Active mine sites should not be considered as SWH • The locations of bat hibernacula are relatively poorly known. Information Sources • OMNRF for possible locations and contact for local experts • Natural Heritage Information Center (NHIC) Bat Hibernaculum Ministry of Northern • Development and Mines for location of mine shafts. • Clubs that explore caves (*e.g.* Sierra Club) • University Biology Departments with bat experts.	• All sites with confirmed hibernating bats are SWH. • The habitat area includes a 200m radius around the entrance of the hibernaculum, for most development types and 1000m for wind farms • Studies are to be conducted during the peak swarming period (Aug. – Sept.). Surveys should be conducted following methods outlined in the "Bats and Bat Habitats: Guidelines for Wind Power Projects. • SWHMiST Index #1 provides development effects and mitigation measures.	No caves, mine shafts, underground foundations and Karsts. No suitable SWH function related to Bat Hibernacula.
Bat Maternity Colonies **Rationale:** Known locations of forested bat maternity colonies are extremely rare in all Ontario landscapes.	Big Brown Bat Silver-haired Bat	Maternity colonies considered SWH are found in forested Ecosites. All ELC Ecosites in ELC Community Series: FOD FOM SWD SWM	• Maternity colonies can be found in tree cavities, vegetation and often in buildings (buildings are not considered to be SWH). • Maternity roosts are not found in caves and mines in Ontario. • Maternity colonies located in Mature deciduous or mixed forest stands with >10/ha large diameter (>25cm dbh) wildlife trees. • Female Bats prefer wildlife tree (snags) in early stages of decay, class 1-3 or class 1 or 2. • Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred. Information Sources • OMNRF for possible locations and contact for local experts • University Biology Departments with bat experts.	• Maternity Colonies with confirmed use by; o >10 Big Brown Bats o >5 Adult Female Silver-haired Bats • The area of the habitat includes the entire woodland or a forest stand ELC Ecosite or an Ecoelement containing the maternity colonies. • Evaluation methods for maternity colonies should be conducted following methods outlined in the "Bats and Bat Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #12 provides development effects and mitigation measures.	**Big Brown Bats and Silver-haired Bats were detected during acoustic monitor surveys at monitors 03, 04, 05 and 06. The lowest numbers of detections were at monitors 03 (Big Brown Bat – 1 pass; Silver-haired Bat – 1 pass) and 05 (Big Brown Bat – 20 passes; Silver-haired Bat – 1 pass). The most detections were at monitors 04 (Big Brown Bat – 57 passes; Silver-haired Bat – 12 passes) and 06 (Big Brown Bat – 112 passes; Silver-haired Bat – 56 passes). Monitor 06 was placed along the woodland edge adjacent to the wetland and thus activity was likely related to foraging. As such, forest habitat on the property has potential to provide suitable habitat for Big Brown and Silver-haired Bats.**
Turtle Wintering Areas **Rationale:** Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	Midland Painted Turtle **Special Concern:** Northern Map Turtle Snapping Turtle	Snapping and Midland Painted Turtles; ELC Community Classes; SW, MA, OA and SA, ELC Community Series; FEO and BOO Northern Map Turtle; Open Water areas such as deeper rivers or streams and lakes with current can also be used as over-wintering habitat.	• For most turtles, wintering areas are in the same general area as their core habitat. Water has to be deep enough not to freeze and have soft mud substrates. • Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate Dissolved Oxygen. • Man-made ponds such as sewage lagoons or storm water ponds should not be considered SWH. Information Sources • EIS studies carried out by Conservation Authorities. • Local field naturalists and experts, as well as university herpetologists may also know where to find some of these sites. • OMNRF Ecologist or Biologist • Field Naturalist clubs • Natural Heritage Information Center (NHIC)	• Presence of 5 over-wintering Midland Painted Turtles is significant. • One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significant. • The mapped ELC ecosite area with the over wintering turtles is the SWH. If the hibernation site is within a stream or river, the deep-water pool where the turtles are over wintering is the SWH. • Over wintering areas may be identified by searching for congregations (Basking Areas) of turtles on warm, sunny days during the fall (Sept. – Oct.) or spring (Mar. – May) • Congregation of turtles is more common where wintering areas are limited and therefore significant • SWHMiST Index #28 provides development effects and mitigation measures for turtle wintering habitat.	Water within the wetland habitat is not sufficiently deep to provide this function. No potential SWH for Turtle Wintering Areas.

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Reptile Hibernaculum **Rationale:** Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	**Snakes:** Eastern Gartersnake Northern Watersnake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake **Special Concern:** Milksnake Eastern Ribbonsnake **Lizard:** **Special Concern** (Southern Shield population)**:** Five-lined Skink	For all snakes, habitat may be found in any ecosite other than very wet ones. Talus, Rock Barren, Crevice, Cave, and Alvar sites may be directly related to these habitats. Observations or congregations of snakes on sunny warm days in the spring or fall is a good indicator. For Five-lined Skink, ELC Community Series of FOD and FOM and Ecosites: FOC1 FOC3	• For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural or naturalized locations. The existence of features that go below frost line; such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying candidate SWH. • Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line. • Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover. • Five-lined skink prefer mixed forests with rock outcrop openings providing cover rock overlaying granite bedrock with fissures. Information Sources • In spring, local residents or landowners may have observed the emergence of snakes on their property (*e.g.* old dug wells). • Reports and other information available from Conservation Authorities. • Field Naturalists clubs • University herpetologists • Natural Heritage Information Center (NHIC) • OMNRF ecologist or biologist may be aware of locations of wintering skinks	Studies confirming: • Presence of snake hibernacula used by a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. • Congregations of a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. near potential hibernacula (*e.g.* foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct) • Note: If there are Special Concern Species present, then site is SWH • Note: Sites for hibernation possess specific habitat parameters (*e.g.* temperature, humidity, *etc.*) and consequently are used annually, often by many of the same individuals of a local population (i.e. strong hibernation site fidelity). Other critical life processes (*e.g.* mating) often take place in close proximity to hibernacula. The feature in which the hibernacula is located plus a 30 m radius area is the SWH. • SWHMiST Index #13 provides development effects and mitigation measures for snake hibernacula. • Presence of any active hibernaculum for skink is significant. • SWHMiST Index #37 provides development effects and mitigation measures for five-lined skink wintering habitat.	No rock crevices, rock piles, stone fences, or foundations were documented during Azimuth's field investigations. Wetland on the property does not provide suitable conditions. No potential SWH function for Reptile Hibernaculum.
Colonially -Nesting Bird Breeding Habitat (Bank and Cliff) **Rationale:** Historical use and number of nests in a colony make this habitat significant. An identified colony can be very important to local populations. All swallow population are declining in Ontario.	Cliff Swallow Northern Rough-winged Swallow (this species is not colonial but can be found in Cliff Swallow colonies)	Eroding banks, sandy hills, borrow pits, steep slopes, and sand piles. Cliff faces, bridge abutments, silos, barns. Habitat found in the following ecosites: CUM1 CUT1 CUS1 BLO1 BLS1 BLT1 CLO1 CLS1 CLT1	• Any site or areas with exposed soil banks, undisturbed or naturally eroding that is not a licensed/permitted aggregate area. • Does not include man-made structures (bridges or buildings) or recently (2 years) disturbed soil areas, such as berms, embankments, soil or aggregate stockpiles. • Does not include a licensed/permitted Mineral Aggregate Operation. Information Sources • Reports and other information available from Conservation Authorities. • Ontario Breeding Bird Atlas • Bird Studies Canada; *NatureCounts* http://www.birdscanada.org/birdmon/ • Field Naturalist Clubs.	Studies confirming: • Presence of 1 or more nesting sites with 8or more cliff swallow pairs and/or rough-winged swallow pairs during the breeding season. • A colony identified as SWH will include a 50m radius habitat area from the peripheral nests. • Field surveys to observe and count swallow nests are to be completed during the breeding season. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #4 provides development effects and mitigation measures.	No exposed/eroding banks. No potential SWH function for Colonially – Nesting Bird Breeding Habitat (Bank and Cliff).

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Colonially-Nesting Bird Breeding Habitat (Tree/Shrubs) **Rationale:** Large colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Great Blue Heron Black-crowned Night-Heron Great Egret Green Heron	SWM2 SWM3 SWM5 SWM6 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7 FET1	• Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used. • Most nests in trees are 11 to 15 m from ground, near the top of the tree. Information Sources • Ontario Breeding Bird Atlas, colonial nest records. • Ontario Heronry Inventory 1991 available from Bird Studies Canada or NHIC (OMNRF). • Natural Heritage Information Center (NHIC) Mixed Wader Nesting Colony • Aerial photographs can help identify large heronries. • Reports and other information available from CAs. • MNRF District Offices • Local naturalist clubs	Studies confirming: • Presence of 5 or more active nests of Great Blue Heron or other listed species. • The habitat extends from the edge of the colony and a minimum 300m radius or extent of the Forest Ecosite containing the colony or any island <15.0ha with a colony is the SWH. • Confirmation of active heronries are to be achieved through site visits conducted during the nesting season (April to August) or by evidence such as the presence of fresh guano, dead young and/or eggshells. • SWHMiST Index #5 provides development effects and mitigation measures.	No potentially suitable habitat. No Heron or Egret nests observed on the property. No potential SWH function related to Colonially – Nesting Bird Breeding Habitat (Trees/Shrubs).
Colonially-Nesting Bird Breeding Habitat (Ground) **Rationale:** Colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Herring Gull Great Black-backed Gull Little Gull Ring-billed Gull Common Tern Caspian Tern Brewer's Blackbird	Any rocky island or peninsula (natural or artificial) within a lake or large river (two-lined on a 1;50,000 NTS map). Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird) MAM1 – 6; MAS1 – 3; CUM CUT CUS	• Nesting colonies of gulls and terns are on islands or peninsulas associated with open water or in marshy areas. • Brewers Blackbird colonies are found loosely on the ground in low bushes in close proximity to streams and irrigation ditches within farmlands. Information Sources • Ontario Breeding Bird Atlas , rare/colonial species records. • Canadian Wildlife Service • Reports and other information available from CAs. • Natural Heritage Information Center (NHIC) Colonial Waterbird Nesting Area • MNRF District Offices • Field Naturalist clubs	Studies confirming: • Presence of > 25 active nests for Herring Gulls or Ring-billed Gulls, >5 active nests for Common Tern or >2 active nests for Caspian Tern. • Presence of 5 or more pairs for Brewer's Blackbird. • Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant. • The edge of the colony and a minimum 150m radius area of habitat, or the extent of the ELC ecosites containing the colony or any island <3.0ha with a colony is the SWH. • Studies would be done during May/June when actively nesting. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #6 provides development effects and mitigation measures.	Not a rocky island or peninsula. No potential SWH function related to Colonially – Nesting Bird Breeding Habitat (Ground).

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Migratory Butterfly Stopover Areas **Rationale:** Butterfly stopover areas are extremely rare habitats and are biologically important for butterfly species that migrate south for the winter.	Painted Lady Red Admiral Special Concern Monarch	Combination of ELC Community Series; need to have present one Community Series from each land class: Field: CUM CUT CUS Forest: FOC FOD FOM CUP Anecdotally, a candidate site for butterfly stopover will have a history of butterflies being observed.	A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Ontario. • The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south. • The habitat should not be disturbed, fields/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat. • Staging areas usually provide protection from the elements and are often spits of land or areas with the shortest distance to cross the Great Lakes. Information Sources • OMNRF (NHIC) • Agriculture Canada in Ottawa may have list of butterfly experts. • Field Naturalist Clubs • Toronto Entomologists Association • Conservation Authorities	Studies confirm: • The presence of Monarch Use Days (MUD) during fall migration (Aug/Oct). MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/day, significant variation can occur between years and multiple years of sampling should occur. • Observational studies are to be completed and need to be done frequently during the migration period to estimate MUD. • MUD of >5000 **or** >3000 with the presence of Painted Ladies or Red Admiral's is to be considered significant. • SWHMiST Index #16 provides development effects and mitigation measures.	Property not located within 5km of Lake Ontario. No potential SWH function related to Migratory Butterfly Stopover Areas.
Landbird Migratory Stopover Areas **Rationale:** Sites with a high diversity of species as well as high numbers are most significant.	All migratory songbirds. Canadian Wildlife Service Ontario website. All migratory songbirds. Canadian Wildlife Service Ontario website:	All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD	Woodlots need to be >10 ha in size and within 5 km of Lake Ontario. • If multiple woodlands are located along the shoreline those Woodlands <2km from Lake Ontario are more significant. • Sites have a variety of habitats; forest, grassland and wetland complexes. • The largest sites are more significant. • Woodlots and forest fragments are important habitats to migrating birds, these features located along the shore and located within 5km of Lake Ontario are Candidate SWH . Information Sources • Bird Studies Canada • Ontario Nature • Local birders and naturalist club • Ontario Important Bird Areas (IBA) Program	Studies confirm: • Use of the habitat by >200 birds/day and with >35 spp with at least 10 bird spp. recorded on at least 5 different survey dates. This abundance and diversity of migrant bird species is considered above average and significant. • Studies should be completed during spring (Apr./May) and fall (Aug/Oct) migration using standardized assessment techniques. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #9 provides development effects.	Property not located within km of Lake Ontario. No potential SWH function related to Landbird Migratory Stopover Areas.

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Deer Yarding Areas **<u>Rationale:</u>** Winter habitat for deer is considered to be the main limiting factor for northern deer populations. In winter, deer congregate in "yards" to survive severe winter conditions. Deer yards typically have a long history of annual use by deer, yards typically represent 10-15% of an areas summer range.	White-tailed Deer	Note: OMNRF to determine this habitat. ELC Community Series providing a thermal cover component for a deer yard would include; FOM, FOC, SWM and SWC. Or these ELC Ecosites; CUP2 CUP3 FOD3 CUT	• Deer yarding areas or winter concentration areas (yards) are areas deer move to in response to the onset of winter snow and cold. This is a behavioural response and deer will establish traditional use areas. The yard is composed of two areas referred to as Stratum I and Stratum II. Stratum II covers the entire winter yard area and is usually a mixed or deciduous forest with plenty of browse available for food. Agricultural lands can also be included in this area. Deer move to these areas in early winter and generally, when snow depths reach 20 cm, most of the deer will have moved here. If the snow is light and fluffy, deer may continue to use this area until 30 cm snow depth. In mild winters, deer may remain in the Stratum II area the entire winter. • The Core of a deer yard (Stratum I) is located within the Stratum II area and is critical for deer survival in areas where winters become severe. It is primarily composed of coniferous trees (pine, hemlock, cedar, spruce) with a canopy cover of more than 60%. • OMNRF determines deer yards following methods outlined in "Selected Wildlife and Habitat Features: Inventory Manual". • Woodlots with high densities of deer due to artificial feeding are not significant.	No Studies Required: • Snow depth and temperature are the greatest influence on deer use of winter yards. Snow depths > 40cm for more than 60 days in a typically winter are minimum criteria for a deer yard to be considered as SWH. • Deer Yards are mapped by OMNRF District offices. Locations of Core or Stratum 1 and Stratum 2 Deer yards considered significant by OMNRF will be available at local MNRF offices or via Land Information Ontario (LIO). • Field investigations that record deer tracks in winter are done to confirm use (best done from an aircraft). Preferably, this is done over a series of winters to establish the boundary of the Stratum I and Stratum II yard in an "average" winter. MNRF will complete these field investigations. • If a SWH is determined for Deer Wintering Area or if a proposed development is within Stratum II yarding area then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • SWHMiST Index #2 provides development effects and mitigation measures.	According to provincial mapping, there are no deeryards mapped on or adjacent to the property. No SWH function associated with Deer Yarding Areas.
Deer Winter Congregation Areas **<u>Rationale:</u>** Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands to reduce or avoid the impacts of winter conditions.	White-tailed Deer	All Forested Ecosites with these ELC Community Series; FOC FOM FOD SWC SWM SWD Conifer plantations much smaller than 50 ha may also be used.	• Woodlots will typically be >100 ha in size. Woodlots <100ha may be considered as significant based on MNRF studies or assessment. • Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands . • If deer are constrained by snow depth refer to the Deer Yarding Area habitat within Table 1.1 of this Schedule. • Large woodlots > 100ha and up to 1500 ha are known to be used annually by densities of deer that range from 0.1-1.5 deer/ha. • Woodlots with high densities of deer due to artificial feeding are not significant. <u>Information Sources</u> • MNRF District Offices • LIO/NRVIS	Studies confirm: • Deer management is an MNRF responsibility, deer winter congregation areas considered significant will be mapped by MNRF. • Use of the woodlot by white-tailed deer will be determined by MNRF, all woodlots exceeding the area criteria are significant, unless determined not to be significant by MNRF. • Studies should be completed during winter (Jan/Feb) when >20cm of snow is on the ground using aerial survey techniques, ground or road surveys. or a pellet count deer density survey. • If a SWH is determined for Deer Wintering Area or if a proposed development is within Stratum II yarding area then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • SWHMiST Index #2 provides development effects and mitigation measures.	Not located within the southern area of Ecoregion 6E. Not applicable.

Rare Vegetation Communities

Rare Vegetation Community	Candidate SWH			Confirmed SWH	Assessment
	ELC Ecosite Code	Habitat Description	Detailed Information and Sources	Defining Criteria	
Cliffs and Talus Slopes **Rationale:** Cliffs and Talus Slopes are extremely rare habitats in Ontario.	Any ELC Ecosite within Community Series: TAO TAS TAT CLO CLS CLT	A Cliff is vertical to near vertical bedrock >3m in height. A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris.	Most cliff and talus slopes occur along the Niagara Escarpment. Information Sources • The Niagara Escarpment Commission has detailed information on location of these habitats. • OMNRF District • Natural Heritage Information Center (NHIC) has location information available on their website • Field Naturalist clubs • Conservation Authorities	• Confirm any ELC Vegetation Type for Cliffs or Talus Slopes • SWHMiST Index #21 provides development effects and mitigation measures.	No cliffs or talus slopes.
Sand Barren **Rationale;** Sand barrens are rare in Ontario and support rare species. Most Sand Barrens have been lost due to cottage development and forestry	ELC Ecosites: SBO1 SBS1 SBT1 Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicket-like (SBS1), or more closed and treed (SBT1). Tree cover always ≤ 60%.	Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. Usually located within other types of natural habitat such as forest or savannah. Vegetation can vary from patchy and barren to tree covered, but less than 60%.	A sand barren area >0.5ha in size. Information Sources • MNRF Districts • Natural Heritage Information Center (NHIC) has location information available on their website. • Field Naturalist clubs • Conservation Authorities	• Confirm any ELC Vegetation Type for Sand Barrens • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.) • SWHMiST Index #20 provides development effects and mitigation measures.	No Sand Barrens.
Alvar **Rationale;** Alvars are extremely rare habitats in Ecoregion 6E. Most alvars in Ontario are in Ecoregions 6E and 7E. Alvars in 6E are small and highly localized just north of the Palaeozoic-Precambrian contact.	ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1 CUW2 **Five Alvar Species:** 1) *Carex crawei* 2) *Panicum philadelphicum* 3) *Eleocharis compressa* 4) *Scutellaria parvula* 5) *Trichostema brachiatum* These indicator species are very specific to Alvars within Ecoregion 6E.	An alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil. The hydrology of alvars is complex, with alternating periods of inundation and drought. Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plants. Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animal species. Vegetation cover varies from patchy to barren with a less than 60% tree cover.	An Alvar site > 0.5 ha in size. Information Sources • Alvars of Ontario (2000), Federation of Ontario Naturalists. • Ontario Nature – Conserving Great Lakes Alvars. • Natural Heritage Information Center (NHIC) has location information available on their website • OMNRF Districts • Field Naturalist clubs • Conservation Authorities	• Field studies that identify four of the five **Alvar Indicator Species** at a Candidate Alvar site is Significant. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.). • The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses. • SWHMiST Index #17 provides development effects and mitigation measures.	No Alvar.

Rare Vegetation Community	Candidate SWH			Confirmed SWH	Assessment
	ELC Ecosite Code	Habitat Description	Detailed Information and Sources	Defining Criteria	
Old Growth Forest **Rationale:** Due to historic logging practices, extensive old growth forest is rare in the Ecoregion. Interior habitat provided by old growth forests is required by many wildlife species.	Forest Community Series: FOD FOC FOM SWD SWC SWM	Old Growth forests are characterized by heavy mortality or turnover of over-storey trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris.	Woodland areas 30 ha or greater in size or with at least 10 ha interior habitat assuming 100 m buffer at edge of forest. Information Sources • OMNRF Forest Resource Inventory mapping • OMNRF Districts. • Field Naturalist clubs • Conservation Authorities • Sustainable Forestry Licence (SFL) companies will possibly know locations through field operations. • Municipal forestry departments	Field Studies will determine: • If dominant trees species are >140 years old, then the area containing these trees is Significant Wildlife Habitat. • The forested area containing the old growth characteristics will have experienced no recognizable forestry activities (cut stumps will not be present). • The area of forest ecosites combined or an eco-element within an ecosite that contains the old growth characteristics is the SWH. • Determine ELC vegetation types for the forest area containing the old growth characteristics. • SWHMiST Index #23 provides development effects and mitigation measures.	Woodland on and adjacent to the property would not be considered old growth. No potential SWH function related to Old Growth Forest.
Savannah **Rationale:** Savannahs are extremely rare habitats in Ontario.	TPS1 TPS2 TPW1 TPW2 CUS2	A Savannah is a tallgrass prairie habitat that has tree cover between 25 – 60%.	No minimum size to site. Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. Information Sources • Natural Heritage Information Center (NHIC) has location information available on their website • OMNRF Districts • Field Naturalist clubs • Conservation Authorities	Field studies confirm one or more of the Savannah indicator species listed in Appendix N should be present. Note: Savannah plant spp. list from Ecoregion 6E should be used. • Area of the ELC Ecosite is the SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.). • SWHMiST Index #18 provides development effects and mitigation measures.	No Savannah.
Tallgrass Prairie **Rationale:** Tallgrass Prairies are extremely rare habitats in Ontario.	TPO1 TPO2	A Tallgrass Prairie has ground cover dominated by prairie grasses. An open Tallgrass Prairie habitat has < 25% tree cover.	No minimum size to site. Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. Information Sources • Natural Heritage Information Center (NHIC) has location information available on their website • OMNRF Districts • Field Naturalist clubs • Conservation Authorities	Field studies confirm one or more of the Prairie indicator species listed in Appendix N should be present. Note: Prairie plant spp. list from Ecoregion 6E should be used. • Area of the ELC Ecosite is the SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.). • SWHMiST Index #19 provides development effects and mitigation measures.	No Tallgrass Prairie.
Other Rare Vegetation Communities **Rationale:** Plant communities that often contain rare species which depend on the habitat for survival.	Provincially Rare S1, S2 and S3 vegetation communities are listed in Appendix M of the SWHTG. Any ELC Ecosite Code that has a possible ELC Vegetation Type that is Provincially Rare is Candidate SWH.	Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps.	ELC Ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in appendix M The OMNRF/NHIC will have up to date listing for rare vegetation communities. Information Sources • Natural Heritage Information Center (NHIC) has location information available on their website • OMNRF Districts • Field Naturalist clubs • Conservation Authorities	Field studies should confirm if an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of SWHTG. • Area of the ELC Vegetation Type polygon is the SWH. • SWHMiST Index #37 provides development effects and mitigation measures.	No rare vegetation communities.

Specialized Habitat for Wildlife

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Waterfowl Nesting Area **Rationale;** Important to local waterfowl populations, sites with greatest number of species and highest number of individuals are significant.	American Black Duck Northern Pintail Northern Shoveler Gadwall Blue-winged Teal Green-winged Teal Wood Duck Hooded Merganser Mallard	All upland habitats located adjacent to these wetland ELC Ecosites are Candidate SWH: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SWT1 SWT2 SWD1 SWD2 SWD3 SWD4 **Note: includes adjacency to Provincially Significant Wetlands**	A waterfowl nesting area extends 120 m from a wetland (> 0.5 ha) or a wetland (>0.5ha) and any small wetlands (0.5ha) within 120m or a cluster of 3 or more small (<0.5 ha) wetlands within 120 m of each individual wetland where waterfowl nesting is known to occur. • Upland areas should be at least 120 m wide so that predators such as racoons, skunks, and foxes have difficulty finding nests. • Wood Ducks and Hooded Mergansers utilize large diameter trees (>40cm dbh) in woodlands for cavity nest sites. Information Sources • Ducks Unlimited staff may know the locations of particularly productive nesting sites. • OMNRF Wetland Evaluations for indication of significant waterfowl nesting habitat. • Reports and other information available from Conservation Authorities.	Studies confirmed: • Presence of 3 or more nesting pairs for listed species excluding Mallards, or; • Presence of 10 or more nesting pairs for listed species including Mallards. • Any active nesting site of an American Black Duck is considered significant. • Nesting studies should be completed during the spring breeding season (April - June). Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • A field study confirming waterfowl nesting habitat will determine the boundary of the waterfowl nesting habitat for the SWH, this may be greater or less than 120 m from the wetland and will provide enough habitat for waterfowl to successfully nest. • SWHMiST Index #25 provides development effects and mitigation measures.	Wetland habitat is present on the property. Although the wetland does not provide suitable aquatic conditions for waterfowl (*ie.* Not suitable feeding (dabbling/short dives) or brood rearing habitat). A Wood Duck was observed in April 2020 but was then observed leaving the property. Wood Ducks have been documented within and adjacent to Matchedash Bay Wetland (PSW) which is situated >120m from the property and is an Important Birding Area for waterfowl in particular. Based on this information, there is no suitable SWH function associated with Waterfowl Nesting Area.
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat **Rationale;** Nest sites are fairly uncommon in Eco-region 6E and are used annually by these species. Many suitable nesting locations may be lost due to increasing shoreline development pressures and scarcity of habitat.	Osprey **Special Concern** Bald Eagle	ELC Forest Community Series: FOD, FOM, FOC, SWD, SWM and SWC directly adjacent to riparian areas – rivers, lakes, ponds and wetlands	Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water. • Osprey nests are usually at the top a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree’s canopy. • Nests located on man-made objects are not to be included as SWH (*e.g.* telephone poles and constructed nesting platforms). Information Sources • Natural Heritage Information Center (NHIC) compiles all known nesting sites for Bald Eagles in Ontario. • MNRF values information (LIO/NRVIS) will list known nesting locations. Note: data from NRVIS is provided as a point and does not represent all the habitat. • Nature Counts, Ontario Nest Records Scheme data. • OMNRF Districts • Check the Ontario Breeding Bird Atlas or Rare Breeding Birds in Ontario for species documented • Reports and other information available from Conservation Authorities. • Field Naturalists clubs	Studies confirm the use of these nests by: • One or more active Osprey or Bald Eagle nests in an area. • Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the SWH. • For an Osprey, the active nest and a 300 m radius around the nest or the contiguous woodland stand is the SWH, maintaining undisturbed shorelines with large trees within this area is important. • For a Bald Eagle the active nest and a 400-800 m radius around the nest is the SWH. Area of the habitat from 400-800m is dependent on site lines from the nest to the development and inclusion of perching and foraging habitat. • To be significant a site must be used annually. When found inactive, the site must be known to be inactive for > 3 years or suspected of not being used for >5 years before being considered not significant. • Observational studies to determine nest site use, perching sites and foraging areas need to be done from mid March to mid August. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • SWHMiST Index #26 provides development effects and mitigation measures.	Not located along lake, pond or river that would provide suitable habitat for Bald Eagle or Osprey. No nests observed. No suitable SWH function associated with Bald Eagle and Osprey Nesting, Foraging and Perching Habitat.

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SHW	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Woodland Raptor Nesting Habitat **<u>Rationale:</u>** Nests sites for these species are rarely identified; these area sensitive habitats and are often used annually by these species.	Northern Goshawk Cooper's Hawk Sharp-shinned Hawk Red-shouldered Hawk Barred Owl Broad-winged Hawk	May be found in all forested ELC Ecosites. May also be found in SWC, SWM, SWD and CUP3	All natural or conifer plantation woodland/forest stands >30ha with >10ha of interior habitat. Interior habitat determined with a 200m buffer • Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests within tops or crotches of trees. Species such as Coopers Hawk nest along forest edges sometimes on peninsulas or small off-shore islands. • In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest. <u>Information Sources</u> • OMNRF Districts. • Check the Ontario Breeding Bird Atlas or Rare Breeding Birds in Ontario for species documented. • Check data from Bird Studies Canada. • Reports and other information available from Conservation Authorities.	Studies confirm: • Presence of 1 or more active nests from species list is considered significant. • Red-shouldered Hawk and Northern Goshawk – A 400m radius around the nest or 28 ha area of habitat is the SWH . (The 28 ha habitat area would be applied where optimal habitat is irregularly shaped around the nest). • Barred Owl – A 200m radius around the nest is the SWH. • Broad-winged Hawk and Coopers Hawk– A 100m radius around the nest is the SWH. • Sharp-Shinned Hawk – A 50m radius around the nest is the SWH. • Conduct field investigations from mid-March to end of May. The use of call broadcasts can help in locating territorial. (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search area. • SWHMiST Index #27 provides development effects and mitigation measures.	Woodland is of sufficient size but does not contain the required 10ha of interior habitat with a 200m buffer. No raptor stick nests were observed during Azimuth's field investigations, in particular, during the spring snag surveys prior to leaf-out. No potential SWH function associated with Woodland Raptor Nesting Habitat.
Turtle Nesting Areas **<u>Rationale;</u>** These habitats are rare and when identified will often be the only breeding site for local populations of turtles.	Midland Painted Turtle <u>Special Concern Species</u> Northern Map Turtle Snapping Turtle	Exposed mineral soil (sand or gravel) areas adjacent (<100m) or within the following ELC Ecosites: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 BOO1 FEO1	• Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals. • For an area to function as a turtle-nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH. • Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used. <u>Information Sources</u> • Use Ontario Soil Survey reports and maps to help find suitable substrate for nesting turtles (well-drained sands and fine gravels). • Check the Ontario Herpetofaunal Summary Atlas records or other similar atlases for uncommon turtles; location information may help to find potential nesting habitat for them. • Natural Heritage Information Center (NHIC) • Field Naturalist clubs	Studies confirm: • Presence of 5 or more nesting Midland Painted Turtles. • One or more Northern Map Turtle or Snapping Turtle nesting is a SWH. • The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100m around the nesting area dependant on slope, riparian vegetation and adjacent land use is the SWH. • Travel routes from wetland to nesting area are to be considered within the SWH as part of the 30-100m area of habitat. • Field investigations should be conducted in prime nesting season typically late spring to early summer. Observational studies observing the turtles nesting is a recommended method. • SWHMiST Index #28 provides development effects and mitigation measures for turtle nesting habitat.	Wetland habitat on the property does not appear to provide suitable habitat for turtles. No suitable ELC ecosite. No potential SWH function associated with Turtle Nesting Areas.

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Seeps and Springs **<u>Rationale;</u>** Seeps/Springs are typical of headwater areas and are often at the source of coldwater streams.	Wild Turkey Ruffed Grouse Spruce Grouse White-tailed Deer Salamander spp.	Seeps/Springs are areas where ground water comes to the surface. Often they are found within headwater areas within forested habitats. Any forested Ecosite within the headwater areas of a stream could have seeps/springs.	Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream or river system. • Seeps and springs are important feeding and drinking areas especially in the winter will typically support a variety of plant and animal species. <u>Information Sources</u> • Topographical Map • Thermography • Hydrological surveys conducted by Conservation Authorities and MOE. • Field Naturalists clubs and landowners. • Municipalities and Conservation Authorities may have drainage maps and headwater areas mapped.	Field Studies confirm: • Presence of a site with 2 or more seeps/springs should be considered SWH. • The area of a ELC forest ecosite or an ecoelement within ecosite containing the seeps/springs is the SWH. The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation the habitat. • SWHMiST Index #30 provides development effects and mitigation measures.	**Seeps and springs present within woodland (Figure 2).**
Amphibian Breeding Habitat (Woodland). **<u>Rationale:</u>** These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations.	Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog	All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians.	• Presence of a wetland, pond or woodland pool (including vernal pools) >500m^2 (about 25m diameter) within or adjacent (within 120m) to a woodland (no minimum size). Some small wetlands may not be mapped and may be important breeding pools for amphibians. • Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat. <u>Information Sources</u> • Ontario Herpetofaunal Summary Atlas (or other similar atlases) for records. • Local landowners may also provide assistance as they may hear spring-time choruses of amphibians on their property. • OMNRF District • OMNRF wetland evaluations • Field Naturalist clubs • Canadian Wildlife Service • Amphibian Road Call Survey • Ontario Vernal Pool Association: http://www.ontariovernalpools.org	Studies confirm; • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog species with Call Level Codes of 3. • A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the woodland/wetlands. • The habitat is the wetland area plus a 230m radius of woodland area. If a wetland area is adjacent to a woodland, a travel corridor connecting the wetland to the woodland is to be included in the habitat. • SWHMiST Index #14 provides development effects and mitigation measures.	Amphibian surveys did not reveal the presence of frog species in sufficient numbers to be considered. No potential SWH function associated with Amphibian Breeding Habitat (Woodland).

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SHW	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Amphibian Breeding Habitat (Wetlands) **Rationale;** Wetlands supporting breeding for these amphibian species are extremely important and fairly rare within Central Ontario landscapes.	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	ELC Community Classes SW, MA, FE, BO, OA and SA. Typically these wetland ecosites will be isolated (>120m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (*e.g.* Bull Frog) may be adjacent to woodlands.	• Wetlands>500m^2 (about 25m diameter), supporting high species diversity are significant; some small or ephemeral habitats may not be identified on MNRF mapping and could be important amphibian breeding habitats. • Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators. • Bullfrogs require permanent water bodies with abundant emergent vegetation. <u>Information Sources</u> • Ontario Herpetofaunal Summary Atlas (or other similar atlases) • Canadian Wildlife Service Amphibian Road Surveys and Backyard Amphibian Call Count. • OMNRF Districts and wetland evaluations • Reports and other information available from Conservation Authorities	Studies confirm: • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog/toad species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog/toad species with Call Level Codes of 3. **or;** Wetland with confirmed breeding Bullfrogs are significant. • The ELC ecosite wetland area and the shoreline are the SWH. • A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the wetlands. • If a SWH is determined for Amphibian Breeding Habitat (Wetlands) then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • SWHMiST Index #15 provides development effects and mitigation measures.	No isolated wetland habitat present on or adjacent to the property. No Bull Frogs documented during amphibian surveys. No potential SWH function related to Amphibian Breeding Habitat (Wetlands).
Woodland Area-Sensitive Bird Breeding Habitat **Rationale:** Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats for area sensitive interior forest song birds.	Yellow-bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler Ovenbird Scarlet Tanager Winter Wren **Special Concern:** Cerulean Warbler Canada Warbler	All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD	Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs old) forest stands or woodlots >30 ha. • Interior forest habitat is at least 200 m from forest edge habitat. <u>Information Sources</u> • Local bird clubs. • Canadian Wildlife Service (CWS) for the location of forest bird monitoring. • Bird Studies Canada conducted a 3-year study of 287 woodlands to determine the effects of forest fragmentation on forest birds and to determine what forests were of greatest value to interior species. • Reports and other information available from Conservation Authorities.	Studies confirm: • Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. • Note: any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH. • Conduct field investigations in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • SWHMiST Index #34 provides development effects and mitigation measures.	Yellow-bellied Sapsucker, Veery, Black-throated Green Warbler, Ovenbird and Winter Wren were documented on the property. Probable breeding only confirmed for Ovenbird that was documented during each of the dawn breeding bird surveys. No potential SWH function related to Woodland Area-Sensitive Bird Breeding Habitat.

Habitat for Species of Conservation Concern (Not including Endangered or Threatened Species)

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Marsh Breeding Bird Habitat **Rationale;** Wetlands for these bird species are typically productive and fairly rare in Southern Ontario landscapes.	American Bittern Virginia Rail Sora Common Moorhen American Coot Pied-billed Grebe Marsh Wren Sedge Wren Common Loon Sandhill Crane Green Heron Trumpeter Swan **Special Concern:** Black Tern Yellow Rail	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SAS1 SAM1 SAF1 FEO1 BOO1 For Green Heron: All SW, MA and CUM1 sites.	• Nesting occurs in wetlands. • All wetland habitat is to be considered as long as there is shallow water with emergent aquatic vegetation present. • For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently, it may be found in upland shrubs or forest a considerable distance from water. Information Sources • OMNRF District and wetland evaluations. • Field Naturalist clubs • Natural Heritage Information Center (NHIC) Records. • Reports and other information available from Conservation Authorities. • Ontario Breeding Bird Atlas	Studies confirm: • Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or 1 pair of Sandhill Cranes; **or** breeding by any combination of 5 or more of the listed species. • Note: any wetland with breeding of 1 or more Black Terns, Trumpeter Swan, Green Heron or Yellow Rail is SWH. • Area of the ELC ecosite is the SWH. • Breeding surveys should be done in May/June when these species are actively nesting in wetland habitats. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • SWHMiST Index #35 provides development effects and mitigation measures.	Wetland habitat on the property does not provide suitable habitat for marsh birds. No marsh birds were observed during Azimuth’s field investigations. No potential SWH function related to Marsh Breeding Bird Habitat.
Open Country Bird Breeding Habitat Sources Defining Criteria **Rationale;** This wildlife habitat is declining throughout Ontario and North America. Species such as the Upland Sandpiper have declined significantly the past 40 years based on CWS (2004) trend records.	Upland Sandpiper Grasshopper Sparrow Vesper Sparrow Northern Harrier Savannah Sparrow **Special Concern** Short-eared Owl	CUM1 CUM2	Large grassland areas (includes natural and cultural fields and meadows) >30 ha. • Grasslands not Class 1 or 2 agricultural lands, and not being actively used for farming (i.e. no row cropping or intensive hay or livestock pasturing in the last 5 years). • Grassland sites considered significant should have a history of longevity, either abandoned fields, mature hayfields and pasturelands that are at least 5 years or older. • The Indicator bird species are area sensitive requiring larger grassland areas than the common grassland species. Information Sources • Agricultural land classification maps, Ministry of Agriculture. • Local bird clubs. • Ontario Breeding Bird Atlas • Reports and other information available from Conservation Authorities.	Field Studies confirm: • Presence of nesting or breeding of 2 or more of the listed species. • A field with 1 or more breeding Short-eared Owls is to be considered SWH. • The area of SWH is the contiguous ELC ecosite field areas. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • SWHMiST Index #32 provides development effects and mitigation measures.	No large grasslands habitat. No potential SWH function related to Open Country Bird Breeding Habitat.
Shrub/Early Successional Bird Breeding Habitat **Rationale;** This wildlife habitat is declining throughout Ontario and North America. The Brown Thrasher has declined significantly over the past 40 years based on CWS (2004) trend records.	Indicator Spp: Brown Thrasher Clay-coloured Sparrow Common Spp. Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher **Special Concern:** Yellow-breasted Chat Golden-winged Warbler	CUT1 CUT2 CUS1 CUS2 CUW1 CUW2 Patches of shrub ecosites can be complexed into a larger habitat for some bird species	Large field areas succeeding to shrub and thicket habitats>10ha in size. • Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (*i.e.* no row-cropping, haying or live-stock pasturing in the last 5 years). • Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species. • Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands. Information Sources • Agricultural land classification maps, Ministry of Agriculture. • Local bird clubs • Ontario Breeding Bird Atlas • Reports and other information available from Conservation Authorities.	Field Studies confirm: • Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species. • A habitat with breeding Yellow-breasted Chat or Golden-winged Warbler is to be considered as Significant Wildlife Habitat. • The area of the SWH is the contiguous ELC ecosite field/thicket area. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • SWHMiST Index #33 provides development effects and mitigation measures.	No large areas of thicket shrub habitat. Black-billed Cuckoo observed but probable breeding was not confirmed. No potential SWH function related to Shrub/Early Successional Bird Breeding Habitat.

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Terrestrial Crayfish **Rationale:** Terrestrial Crayfish are only found within SW Ontario in Canada and their habitats are very rare.	Chimney or Digger Crayfish; (*Fallicambarus fodiens*) Devil Crayfish or Meadow Crayfish; (*Cambarus Diogenes*)	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SWD SWT SWM CUM1 with inclusions of above meadow marsh or swamp ecosites can be used by terrestrial crayfish.	Wet meadow and edges of shallow marshes (no minimum size) should be surveyed for terrestrial crayfish. • Constructs burrows in marshes, mudflats, meadows, the ground can't be too moist. Can often be found far from water. • Both species are a semi-terrestrial burrower which spends most of its life within burrows consisting of a network of tunnels. Usually the soil is not too moist so that the tunnel is well formed. Information Sources • Information sources from "Conservation Status of Freshwater Crayfishes" by Dr. Premek Hamr for the WWF and CNF March 1998.	Studies Confirm: • Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable meadow marsh, swamp or moist terrestrial sites. • Area of ELC ecosite or an ecoelement area of meadow marsh or swamp within the larger ecosite area is the SWH. • Surveys should be done April to August in temporary or permanent water. Note the presence of burrows or chimneys are often the only indicator of presence, observance or collection of individuals is very difficult. • SWHMiST Index #36 provides development effects and mitigation measures.	No crayfish or crafish chimneys observed. No potential SWH function.
Special Concern and Rare Wildlife Species **Rationale:** These species are quite rare or have experienced significant population declines in Ontario.	All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species. Lists of these species are tracked by the Natural Heritage Information Centre.	All plant and animal element occurrences (EO) within a 1 or 10km grid. Older element occurrences were recorded prior to GPS being available, therefore location information may lack accuracy.	When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or provincially Rare species; linking candidate habitat on the site needs to be completed to ELC Ecosites Information Sources • Natural Heritage Information Centre (NHIC) will have Special Concern and Provincially Rare (S1-S3, SH) species lists with element occurrences data. • NHIC Website "Get Information" : http://nhic.mnr.gov.on.ca • Ontario Breeding Bird Atlas • Expert advice should be sought as many of the rare spp. have little information available about their requirements.	Studies Confirm: • Assessment/inventory of the site for the identified special concern or rare species needs to be completed during the time of year when the species is present or easily identifiable. • The area of the habitat to the finest ELC scale that protects the habitat form and function is the SWH, this must be delineated through detailed field studies. The habitat needs be easily mapped and cover an important life stage component for a species *e.g.* specific nesting habitat or foraging habitat. • SWHMiST Index #37 provides development effects and mitigation measures.	Azimuth's field investigations revealed the presence of Common Nighthawk, Golden-winged Warbler and Eastern Wood-Pewee. Each of these species are listed as Special Concern by the province.

Animal Movement Corridors

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite	Habitat Criteria and Information Sources	Defining Criteria	
Amphibian Movement Corridors **Rationale;** Movement corridors for amphibians moving from their terrestrial habitat to breeding habitat can be extremely important for local populations.	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	Corridors may be found in all ecosites associated with water. • Corridors will be determined based on identifying the significant breeding habitat for these species in Table 1.1	Movement corridors between breeding habitat and summer habitat. • Movement corridors must be determined when Amphibian breeding habitat is confirmed as SWH from Table 1.2.2 (**Amphibian Breeding Habitat –Wetland)** of this Schedule. Information Sources • MNRF District Office • Natural Heritage Information Center (NHIC) • Reports and other information available from Conservation Authorities. • Field Naturalist Clubs	• Field Studies must be conducted at the time of year when species are expected to be migrating or entering breeding sites. • Corridors should consist of native vegetation, with several layers of vegetation. • Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant. • Corridors should have at least 15m of vegetation on both sides of waterway or be up to 200m wide of woodland habitat and with gaps <20m. • Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat. • SWHMiST Index #40 provides development effects and mitigation measures.	No Amphibian Breeding Habitat - Wetland confirmed on the property. No potential SWH associated with Amphibian Movement Corridors.
Deer Movement Corridors **Rationale:** Corridors important for all species to be able to access seasonally important life-cycle habitats or to access new habitat for dispersing individuals by minimizing their vulnerability while travelling.	White-tailed Deer	Corridors may be found in all forested ecosites. A Project Proposal in Stratum II Deer Wintering Area has potential to contain corridors.	Movement corridor must be determined when **Deer Wintering Habitat** is confirmed as SWH from Table 1.1 of this schedule. • A deer wintering habitat identified by the OMNRF as SWH in Table 1.1 of this Schedule will have corridors that the deer use during fall migration and spring dispersion. • Corridors typically follow riparian areas, woodlots, areas of physical geography (ravines, or ridges). Information Sources • MNRF District Office • Natural Heritage Information Center (NHIC). • Reports and other information available from Conservation Authorities. • Field Naturalist Clubs	• Studies must be conducted at the time of year when deer are migrating or moving to and from winter concentration areas. • Corridors that lead to a deer wintering habitat should be unbroken by roads and residential areas. • Corridors should be at least 200m wide with gaps <20m and if following riparian area with at least 15m of vegetation on both sides of waterway. • Shorter corridors are more significant than longer corridors. • SWHMiST Index #39 provides development effects and mitigation measures.	Deer Wintering Habitat not present on the property. No potential SWH function related to Deer Movement Corridors.

APPENDICES

Appendix A: Planning Information
Appendix B: Provincial Information
Appendix C: Detailed Snag Information
Appendix D: Site Plan

APPENDIX A

Planning Information

County of Simcoe
Planning Department
1110 Highway 26,
Midhurst, Ontario L9X 1N6

Main Line (705) 726-9300
Toll Free (866) 893-9300
Fax (705) 727-4276
simcoe.ca

PLANNING

July 16, 2018

*****VIA EMAIL*****

Andrea Woodrow, MCIP, RPP
Director of Planning
Severn Township
1024 Hurlwood Lane
Orillia, ON L3V 6J3

RE: Applications for Draft Plan of Subdivision and Zoning By-law Amendment
Proponent: Sandy Sussman Mortgage Funding Inc.
Agent: Jones Consulting Group Ltd. c/o Brandi Clement
Location: 2970 Fesserton Sideroad, Severn Township
Related Files: 92003, 92004 (Morden & Raseta)

Dear Mrs. Woodrow,

Thank you for inviting County staff to the meeting held at the Township offices on June 4, 2018 to discuss the draft plan of subdivision and zoning by-law amendment applications for lands located in the settlement area of Fesserton.

It is our understanding that the subdivision proposal consists of 14 single detached lots and a 0.72 hectare parcel of parkland, all with access from Fesserton Sideroad. The lots are proposed to be developed on private septic and water systems.

A copy of the Preliminary Concept Plan prepared by Jones Consulting Group Inc. dated April 17, 2018 is attached.

This letter is intended to provide the Township and the Owner with the County's preliminary comments based on the information available to staff regarding the proposal.

Current Severn Township Land Use Designations and Zoning

The property is designated 'Country Residential' as per Schedule A7 to the Severn Township Official Plan. The property is zoned 'Estate Residential' and 'Environmental Protection' as per Zoning By-law 2010-65. The applicant has proposed a change of zoning to 'Residential One Zone' (R1) to implement the draft plan.

County of Simcoe Official Plan

The area of the proposed subdivision is designated "Settlement" on Schedule 5.1 Land Use Designations to the County of Simcoe Official Plan. It is noted that lands are impacted by a mapping error to County Official Plan Schedule 5.1 - Land Use Designations, which designates a portion of the

lands as Rural. It is anticipated that this error will be addressed through a future housekeeping amendment to the County Official Plan.

From a County of Simcoe Official Plan perspective, Settlement Areas and the lands within the Settlement designation are to be the focus of population and employment growth within the County. Compact urban form that promotes the efficient use of land and provision of water, sewer, transportation and other services, is supported.

County Official Plan policy 4.8.42 (b) states the following:

> *Development* proposals by plan of subdivision shall include age-friendly and *transit-supportive* urban design elements such as:
>
> - A system of walkways and bicycle paths linking the subdivision internally and externally to other public areas;
> - Community design that emphasizes *active transportation* and safety;
> - Discouraging reverse lotting along local and County roads; and
> - Encouraging medium and higher density *development* in proximity to arterial roads.

County planning staff recommend that the development be designed such that it is pedestrian-friendly, and supports active transportation.

In addition to the Settlement policies (Section 3.5) of the County of Simcoe Official Plan, the General Subdivision and Development Policies (Section 3.3) and Infrastructure (Section 4.7) would apply to this development. Residential subdivisions are a permitted use subject to the submission of appropriate technical/environmental studies and satisfaction of the applicable policies of Section 3.3.

The property is located outside of a delineated built boundary and is considered 'designated Greenfield area'. County Official Plan policy 3.5.23 states that Severn Township is to achieve 32 residents/jobs per hectare within designated Greenfield areas.

County Waste Collection Services

As you are aware, the County of Simcoe provides curbside waste collection services for residential lots fronting municipal roads throughout the County. To provide these services, the County will require a minimum 13 metre paved turning radius for the cul-de-sac bulb**.**

Draft Plan of Subdivision

The following is required in support of a complete draft plan of subdivision application:

- A $6,800 application review/processing fee applies to draft plans in settlement areas. Please refer to the County of Simcoe Fees and Charges By-law No. 6424, as amended

- Two (2) original completed and signed Plan of Subdivision Application Forms. The application is available on the County of Simcoe website at http://www.simcoe.ca/dpt/pln/applications/index.htm

- Fifteen (15) full and fifteen (15) reduced sized (11" x 17") paper copies of the proposed draft plan plus a digital copy of the plan in AutoCAD and PDF formats. Include a County Signing Block which states

Approved subject to conditions in accordance with
section 51(31) of the Planning Act, RSO, Chap. P.13, as amended,

This _____ day of _____, 20____

_____
Director of Planning, Development and Tourism, County of Simcoe

- Six (6) hard copies and a digital copy of each of the following reports will be required in support of a complete application:

    1. Planning Justification Report
    2. Functional Servicing Information (including water supply & sanitary servicing details)
    3. Well Capacity Analysis
    4. Stormwater Management Report
    5. Hydrogeological - Geotechnical Study
    6. Stage 1-2 Archaeological Assessment
    7. Environmental Impact Statement (EIS)
    8. Public Consultation Strategy
    9. Traffic Impact Study

- A copy of the registered Deed of Title for the subject lands.

All future applications and development on the subject property will be subject to all applicable Provincial, County and local planning policies and by-laws at the time of submission.

If you have any questions or require further information, please do not hesitate to contact the undersigned at 705-726-9300 Ext.1360 or maryann.hunt@simcoe.ca.

Sincerely,
The Corporation of the County of Simcoe

M. Hunt

Maryann Hunt, M.Sc.Pl
Planner III

cc: Brandi Clement, Partner – Jones Consulting Group Inc. (Email)
Nathan Westendorp, Manager of Development Planning – County of Simcoe (Email)

PRECONSULTATION MEETING ON FESSERTON LANDS
TOWNSHIP OF SEVERN
JUNE 5, 2018

Attendees: Katie Mandeville (Township Planner), Andrea Woodrow (Township Planning Director), Maryann Hunt (County Planner), Peter Campbell, Brandi Clement

- PC gave background information on site and owner
- MH noted that in all documents she saw Block 18 was labelled as future development, not sure why it was not developed with rest of subdivision
- MH reviewed her file and found no reports or background on subdivision lands
- KM also reviewed file and found nothing with respect to reports
- BC asked if they could review to see if consultants that worked on file could be identified so owner could contact them for further information – both will do so and get back to us if they find anything
- KM noted that taxes are in arrears for Block 18 which needs to be dealt with right away
- BC gave background on the development and zoning that we would be seeking for site
- MH felt density was appropriate for the area even though the density targets in the County OP are much higher. This should be further explained in the PJR
- KM pointed out section C8.5.3(h) in the Township OP with respect to density and approximate lot sizes. Although some lot sizes are smaller than what is noted the word approximate is used and most are the size of or exceeding so do not foresee an OPA for this reason
- Zoning By-law Amendment required for the R1 zoning
- MH suggested that road ROW width and turning radii for cul-de-sac should be reviewed to see if it is meeting county standards for waste management
- AW asked about park area and what intent was for it. BC noted that it would be a passive parkland area with remaining required dedication to be in cash-in-lieu. She will confirm the direction Township would prefer in terms of cash-in-lieu or dedication and let us know
- Township consulting engineer is Deardon Stanton. AW will check with them to see if they remember who worked on subdivision lands
- Submission is to County for Subdivision but Township for ZBLA. Submit all required copies and application materials to County for Subdivision and 1 copy of the ZBLA submission for files. Submit all required copies and application materials to Township for ZBLA and 1 copy of other submission materials to County
- Township requires a mandatory open house in front of planning committee and then a statutory public meeting for a total of 2 public meetings. They also strongly encourage that the applicant have their own open house prior to this in the community where the development is proposed. Can help notice for this event
- No public meetings held in July/August in Township
- Requirements for submission include:
    - Planning Justification Report
    - Functional Servicing Report
    - Stormwater Management Report
    - Traffic Impact Study (to be scoped with County and MTO)
    - HydroG Report
    - Geotechnical Report
    - Environmental Impact Study
    - Plan of Subdivision

    - ZBLA Schedule and Text
- Town and County seemed generally receptive to development on these lands

Approximate Location of Property

For land use designations refer to South of Division Road Secondary Plan in the Township of Severn Official Plan and refer to Section 3.7.13 of this Plan

Refer to Schedule 5.1a and Section 3.14 Special Development Area: Big Bay Point

Information outside Simcoe County is shown on this schedule for illustrative purposes to display inter-regional linkages

N W E S

1:250,000

0 5 10 Km

GEOGRAPHICAL INFORMATION SYSTEMS

COUNTY OF SIMCOE
For the Greater Good

SCHEDULE 5.1

To the County of Simcoe Official Plan

LAND USE DESIGNATIONS

Designations

- Settlements
- Greenlands
- Agricultural
- Rural
- Strategic Settlement Employment Areas and Economic Employment Districts
- Lands not subject to this plan
- Settlement Area Boundary Under Appeal
- Portion of Settlement Boundary Area Under Appeal
- (1) General Location of Site-Specific Appeals
- Lands Subject to Non-Decision

Reference Data

- Settlement Area Boundary
- Built Boundaries
- Special Development Area: Big Bay Point

Greenbelt Plan - Protected Countryside
(Refer to Schedule 5.3.3 For Details)

Niagara Escarpment Plan Area
(Refer to Schedule 5.3.1 For Details)

Oak Ridges Moraine Conservation Plan Area
(Refer to Schedule 5.3.2 For Details)

- Provincial Highway
- County Road
- Trans Canada Pipeline
- Lake Simcoe Protection Plan - Watershed Boundary

** Greenbelt Plan – Protected Countryside, Oak Ridges Moraine Conservation Plan Area and Niagara Escarpment Plan Area are included within the Greenbelt Plan Area*

This schedule must be referred to in conjunction with the text of the County of Simcoe Official Plan. - Revised November 25, 2008

Approved by OMB Order dated December 29, 2016

Printed: 2017/01/03

Township of Severn
Schedule A7
Fesserton Settlement Area

μ

0 125 250
Meters

Legend

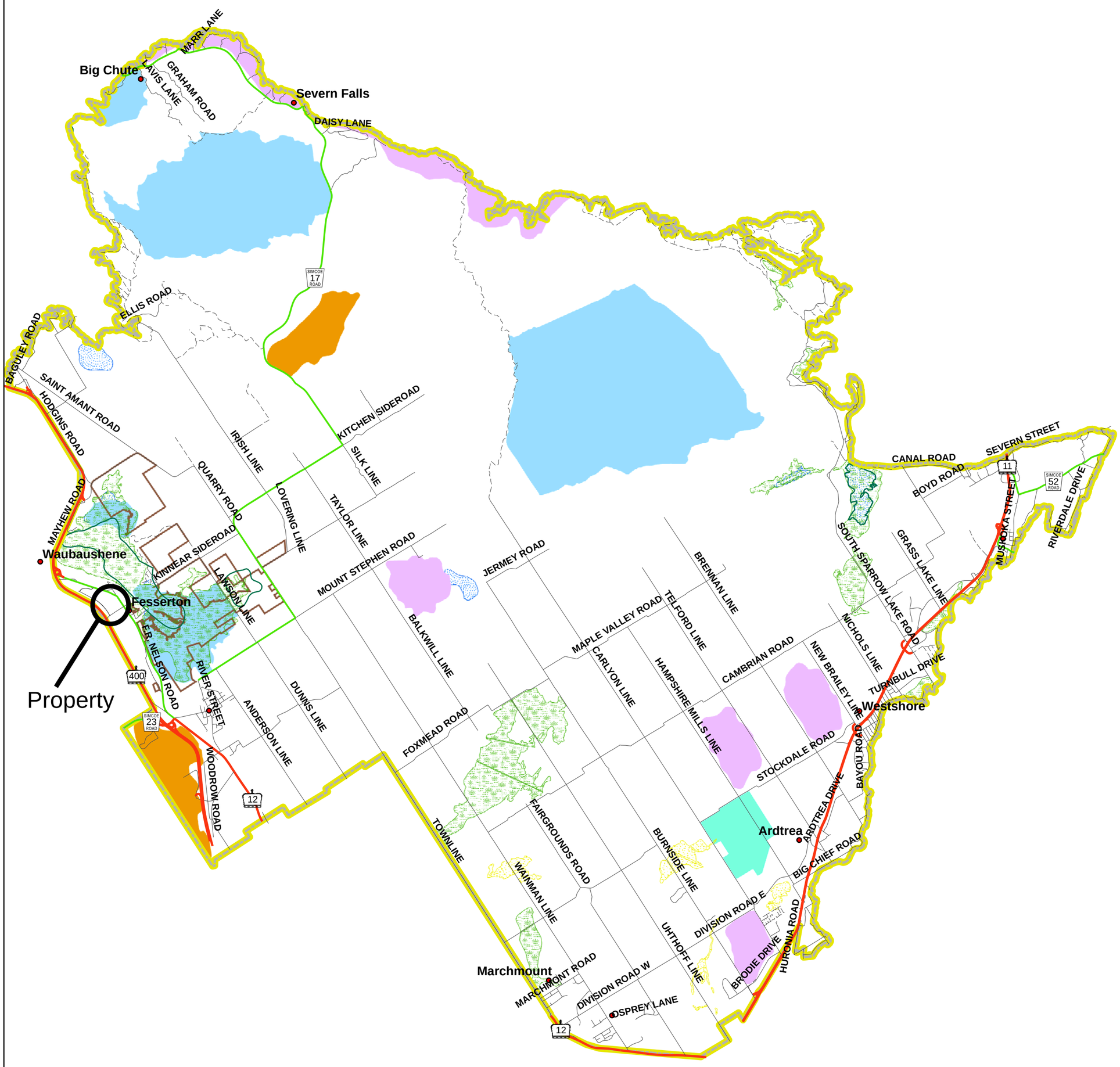
- PROVINCIAL HIGHWAY
- COUNTY ROAD
- LOCAL ROAD
- PRIVATE ROAD
- Settlement Boundary
- Country Residential
- Settlement Employment Area
- Highway Employment
- Settlement Living Area
- Major Recreation Area
- Resort Commercial
- Rural
- Shoreline Residential
- Settlement Employment SP Area
- Settlement Living SP Area
- Agricultural Land
- Greenlands

Classified Wetlands

- Provincial

*** SP = Special Policy**

Township of Severn
Schedule F
Environmentally Sensitve Areas



N

W E

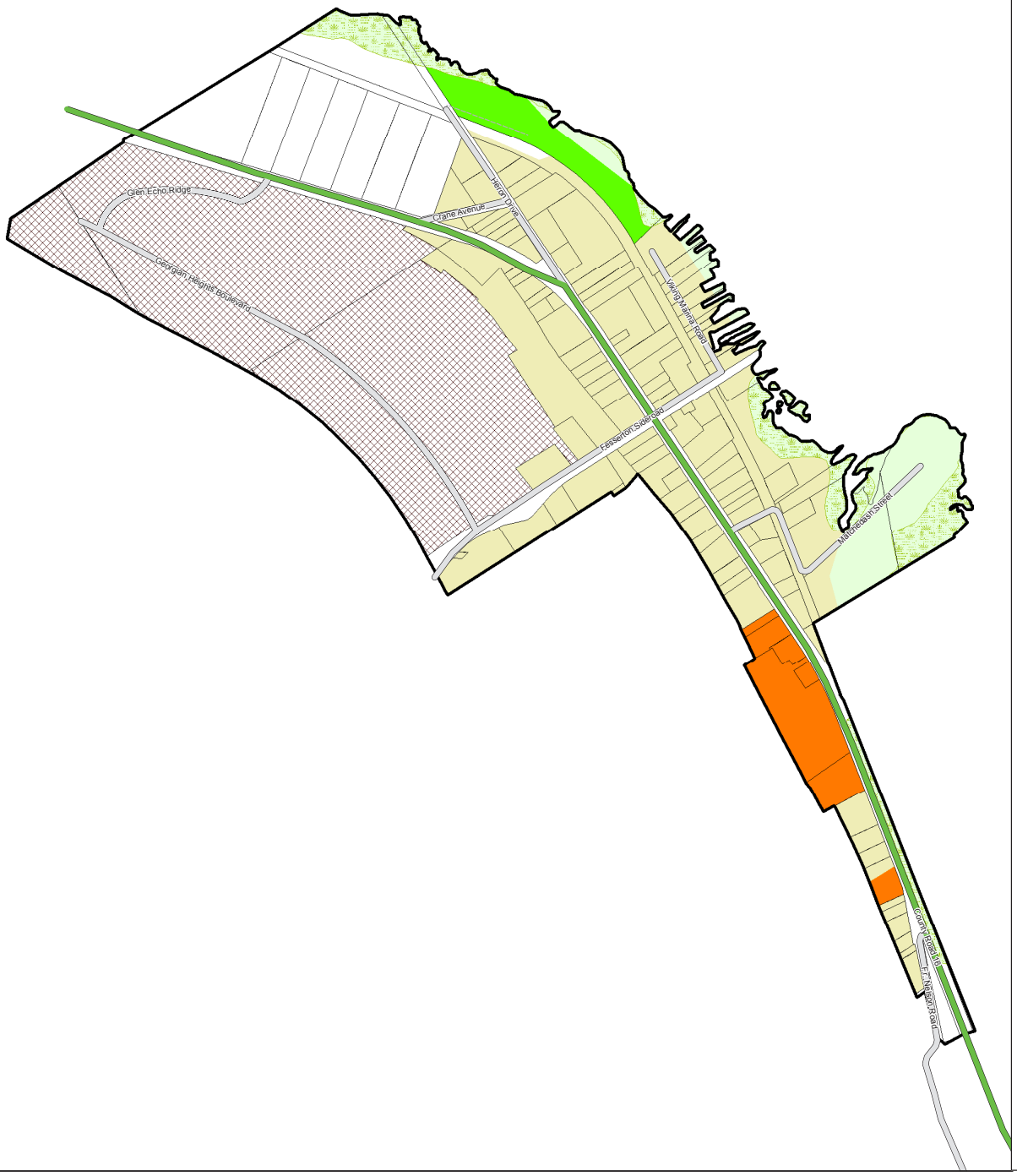
S

0 2.5 5 Kilometers

Legend

- PROVINCIAL HIGHWAY
- COUNTY ROAD
- LOCAL ROAD
- PRIVATE ROAD
- Municipal Border
- ANSI Provincial Life Science
- ANSI Provincial Earth Science
- ANSI Regional Life Science
- ANSI Regional Earth Science
- Provincial Wildlife Management Area
- Waterfowl Staging Area
- Waterfowl Nursery Area
- Deer Wintering Area
- Local Wetlands
- Provincial Wetlands

Township of Severn
Schedule A7
Fesserton Settlement Area



0 125 250 Meters

Legend

- PROVINCIAL HIGHWAY
- COUNTY ROAD
- LOCAL ROAD
- PRIVATE ROAD
- Settlement Boundary
- Country Residential
- Settlement Employment Area
- Highway Employment
- Settlement Living Area
- Major Recreation Area
- Resort Commercial
- Rural
- Shoreline Residential
- Settlement Employment SP Area
- Settlement Living SP Area
- Agricultural Land
- Greenlands

Classified Wetlands

- Provincial

*** SP = Special Policy**

APPENDIX B

Provincial Information

Information Request

Date: May 16, 2019 **Project Reference:** AEC 19-180

Azimuth Contact: Cassandra Fligg, Ecologist
cfligg@azimuthenvironmental.com
(705) 721-8451 ext. 229

Attachments: Figure 1 – Property Location
Figure 2 – Environmental Features

Project Location: 2970 Fesserton Sideroad in the Township of Severn, County of Simcoe (Figure 1)

Activity Description: The proponent wishes to develop the property for residential purposes (*i.e.* multiple single-family dwelling and associated infrastructure).

The following sources were queries for natural heritage information related to the general location of the property:

- Species at Risk Ontario (*i.e.* Ontario Regulation 230/08);
- Land Information Ontario;
- Natural Heritage Information Centre (Squares);
- Ontario Breeding Bird Atlas (Square);
- Ontario Reptile and Amphibian Atlas (Square 17PJ26);
- Ontario Butterfly Atlas;
- Fisheries and Oceans Canada Aquatic SAR Map;
- Fish ON-Line; and
- Atlas of the Mammals of Ontario (Dobbyn, J. 1994. Federation of Ontario Naturalists).

Candidate Natural Heritage for the Property and Adjacent Lands:

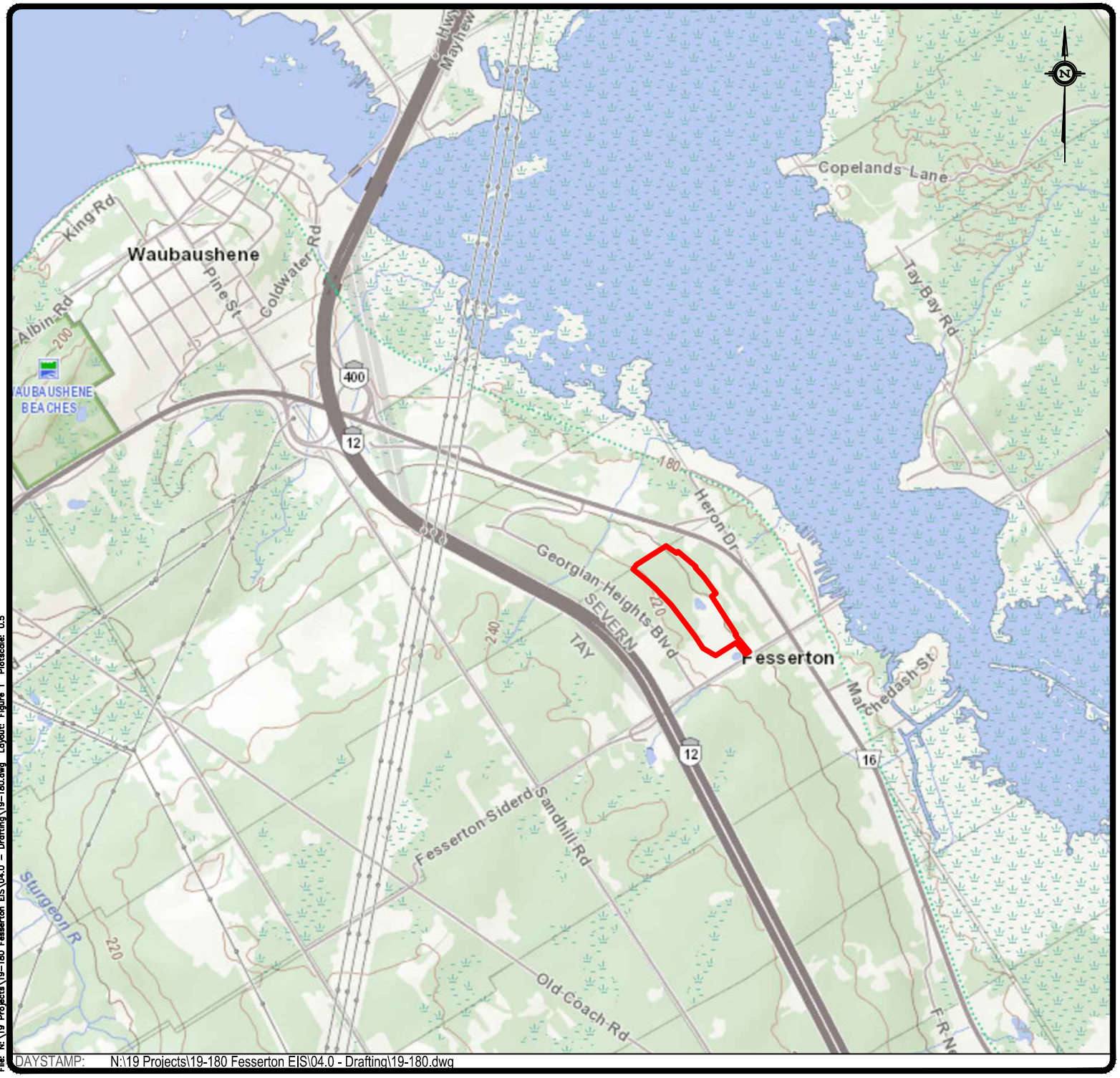
- Woodland (Figure 2);
- Wetland (Figure 2);
- Watercourse, pond and seeps/drainage features (Figure 2); and
- Candidate Species at Risk (SAR) habitat (see below).

Consolidated SAR List of Concern for the Property and Adjacent Lands:

- Birds: Red-headed Woodpecker (SC), Eastern Wood-pewee (SC), Wood Thrush (SC), Golden-winged Warbler (SC) and Canada Warbler (SC);
- Insects: Monarch Butterfly (SC);

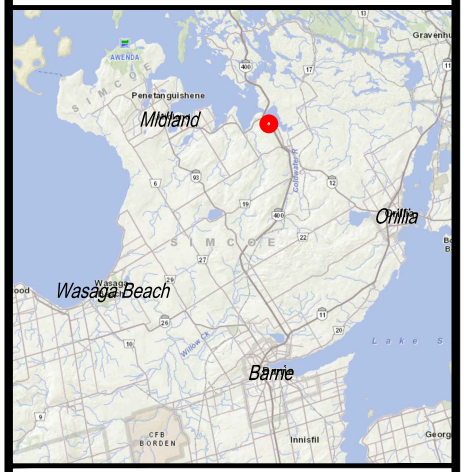
- Mammals: Little Brown Myotis (END), Northern Myotis (END) and Tri-colored Bat (END);
- Plants: Butternut (END); and
- Reptiles: Snapping Turtle (SC), Blanding's Turtle (THR), Eastern Musk Turtle (SC), Eastern Ribbonsnake (SC) and Eastern Hog-nosed Snake (THR).

Based on our review, the property has potential of providing functioning habitat for the above-listed species.



LEGEND:

Approx. Property Boundary



REG MAP

250m 0 750m

HORIZONTAL SCALE 1: 25,000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

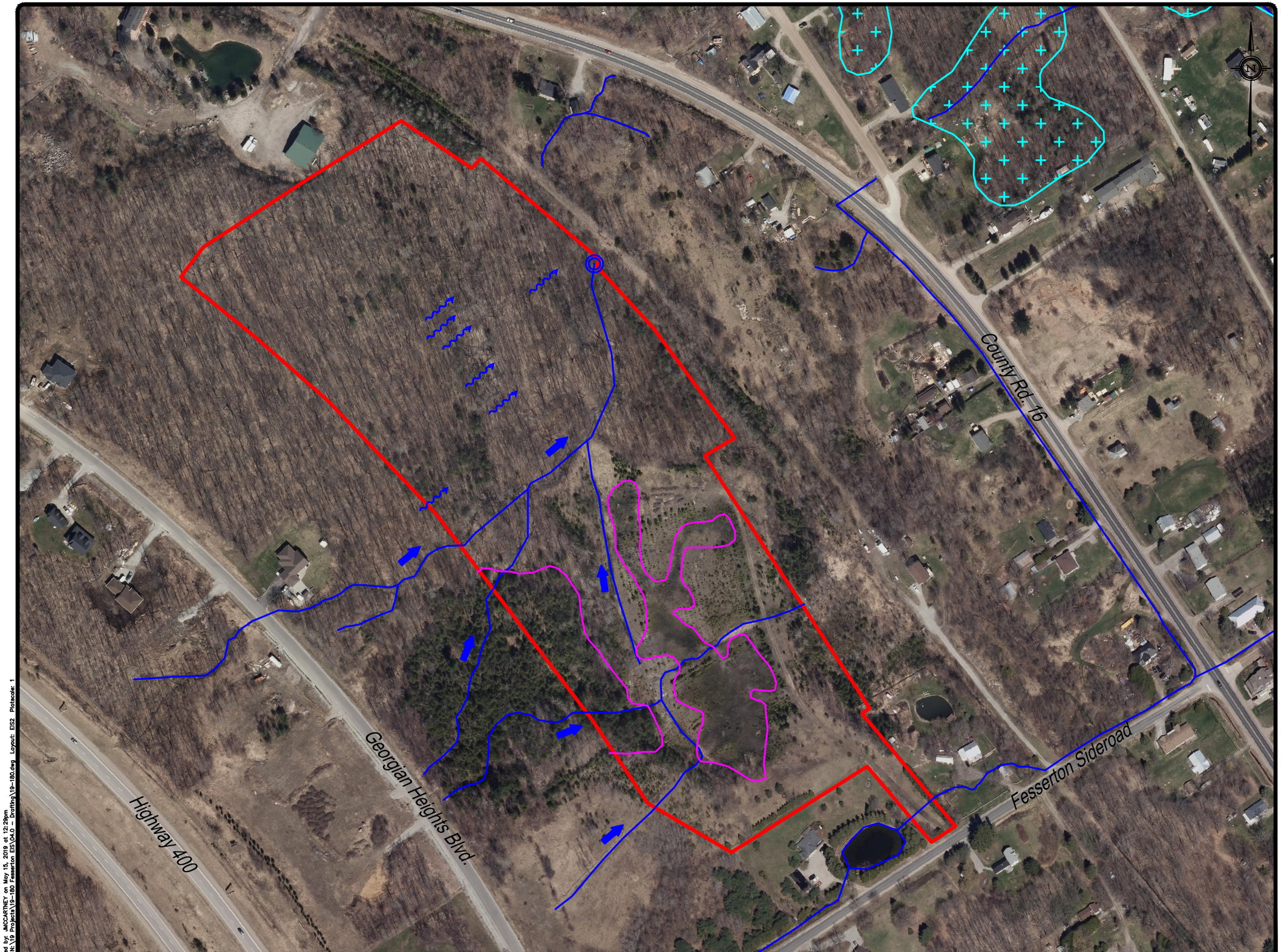
Study Area Location

2970 Fesserton Sideroad,
Fesserton, ON

DATE ISSUED: *May 2019*	Figure No.
CREATED BY: *JLM*	
PROJECT NO.: *19-180*	1
REFERENCE: *MNRF*	

DAYSTAMP: N:\19 Projects\19-180 Fesserton EIS\04.0 - Drafting\19-180.dwg

Plotted by: JMCCARTNEY on May 13, 2019 at 12:56pm
File: N:\19 Projects\19-180 Fesserton EIS\04.0 - Drafting\19-180.dwg Layout: Figure 1 Plotscale: 0.5



LEGEND:

- *Approx. Property Boundary*
- *Watercourse*
- *Seeps/Drainage*
- *Flow Direction*
- *Watercourse goes Underground*
- *Unevaluated Wetland*
- *Wetland (Azimuth)*

25m 0 75m

HORIZONTAL SCALE 1:2,500

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Environmental Features & Preliminary Environmental Constraints

2970 Fesserton Sideroad, Fesserton, On

DATE ISSUED:	*May 2019*	Figure No.
CREATED BY:	*JLM*	2
PROJECT NO.:	*19-180*	
REFERENCE:	*Simcoe County Maps*	

DAYSTAMP: N:\19 Projects\19-180 Fesserton EIS\04.0 - Drafting\19-180.dwg

Plotted by: JMCCARTNEY on May 15, 2019 at 12:29pm
File: N:\19 Projects\19-180 Fesserton EIS\04.0 - Drafting\19-180.dwg Layout: EIS2 Photoscale: 1

Lisa Moran

From: Eplett, Megan (MECP) [Megan.Eplett@ontario.ca]
Sent: July-08-20 1:47 PM
To: Lisa Moran
Subject: RE: 19-180 Fesserton SAR Information Request

Hello Lisa,

Apologies for the long delay in response regarding this information request. I have reviewed the information against our species at risk information and have no further species at risk to add. There are records of Barn Swallow and Bank Swallow in the vicinity of the property however it does not appear that the site offers habitat for either of those species.

Any additional natural heritage information will have to be sought from MNRF.

Should you identify any species at risk or their habitats during your field investigations or you anticipate the proposed development on site will impact species at risk, please contact MECP for further guidance.

Thank you,

Megan

Megan Eplett | Management Biologist | Permissions and Compliance | Species at Risk Branch | Ontario Ministry of Environment, Conservation and Parks
50 Bloomington Road, Aurora, Ontario, L4G 0L8 | Phone: 289-221-1794 | Email: megan.eplett@ontario.ca

---

From: Lisa Moran <Lisa@Azimuthenvironmental.Com>
Sent: Thursday, May 21, 2020 9:40 AM
To: Species at Risk (MECP) <SAROntario@ontario.ca>
Subject: FW: 19-180 Fesserton SAR Information Request

Good morning,

We emailed an information request last year but never received a response.

Please see request below.

Regards,

Lisa Moran
Terrestrial Ecologist

Azimuth Environmental Consulting, Inc
642 Welham Road
Barrie, ON, L4N 9A1
ph: (705) 721-8451 ext 202
cell: (705) 331-1479
lisa@azimuthenvironmental.com
www.azimuthenvironmental.com

*Providing services in **hydrogeology**, **terrestrial** and **aquatic ecology** & **environmental engineering***

At this time, I am working remotely. The Azimuth office is currently closed to the public but I can be reached on my cell or email.

From: Cassandra Fligg
Sent: May-21-20 9:38 AM
To: Lisa Moran
Subject: FW: 19-180 Fesserton SAR Information Request

From: Cassandra Fligg
Sent: Thursday, May 16, 2019 11:33 AM

To: SAROntario@ontario.ca
Subject: 19-180 Fesserton SAR Information Request

To whom it may concern,

Azimuth has been retained to complete an Environmental Impact Study for a property located at 2970 Fesserton Sideroad in the Township of Severn, County of Simcoe (Figure 1).

We ask that you review the information package attached and confirm that the consolidated list of SAR expected to occur on the property and/or adjacent lands (*i.e.* up to 120m) includes all SAR of concern to the MECP. Additionally, we would like to take this opportunity to request any additional information related to natural heritage (including SAR and fisheries) on the property and adjacent lands that has not been made publically available.

If SAR of concern are deemed "Restricted", Azimuth will protect the species identity within our report that could potentially be made publically available.

Thank you and should you have any questions, do not hesitate to contact.

Kind regards,

Cassandra Fligg, M.Sc.
Ecologist

Azimuth Environmental Consulting, Inc.
642 Welham Road
Barrie, Ontario, L4N 9A1

Office: (705) 721-8451 ext. 229
Cell: (705) 321-1561
Fax: (705) 721-8926
www.azimuthenvironmental.com

Ontario

Ministry of Natural Resources and Forestry

Make-a-Map: Natural Heritage Areas

AEC19-180 Block 18 Fesserton EIS

Map created: 8/13/2020

Notes: Enter map notes

Legend

- Assessment Parcel
- Woodland
- Conservation Reserve
- Provincial Park
- Natural Heritage System
- Ecoregion

Wetland

- Provincially Significant Wetland Evaluated
- Non - Provincially Significant Wetland Evaluated
- Unevaluated Wetland

Area of Natural Heritage & Scientific Interest (ANSI)

- Provincially Significant Life Science ANSI
- Provincially Significant Earth Science ANSI

Greenbelt Plan

- Boundary
- Greenbelt External Connections

Land Use Designations

- Protected Countryside
- Greenbelt Towns and Villages
- Greenbelt Hamlets
- Urban River Valley
- Greenbelt Specialty Crop Area

Niagara Escarpment Plan (NEP)

- Boundary
- Parks and Open Space System

Land Use Designations

- Escarpment Natural Area
- Escarpment Protection Area
- Escarpment Rural Area
- Mineral Resource Extraction Area
- Escarpment Recreation Area
- Urban Area
- Minor Urban Centre

Oak Ridges Moraine Conservation Plan (ORM)

- Boundary

Land Use Designations

- Natural Core Area
- Natural Linkage Area
- Countryside Area
- Rural Settlement
- Palgrave Estates Residential Community
- Settlement Area

0.3 0 0.16 0.3 Kilometers

This map should not be relied on as a precise indicator of routes or locations, nor as a guide to navigation. The Ontario Ministry of Natural Resources and Forestry(OMNRF) shall not be liable in any way for the use of, or reliance upon, this map or any information on this map.

This map may not display all features listed in the legend because the feature layer was not turned on at the time the map was made; the features do not exist in the geographic range; or features have not been mapped. Absence of a feature in the map does not mean they do not exist in this area.

APPENDIX C

Detailed Snag Information

Hole Class: a - shallow superficial (i.e. Downy Woodpecker) b - large superficial (i.e. Pileated Woodpecker)
c - small hole connected to a small cavity d - large cavity connected to internal network

Canopy: OSP - open super-canopy OC - open canopy OSB - open subcanopy
Features present on: T - Trunk L - Limb B - Branch

FEATURES

Tree Number	Species	DBH	Dead Limb			Hollow			Hole			Dead Branches			Loose Bark			Cracks			Decay Class	CavityTree? (field notes; Y/N)	High Quality Features? (field notes; Y/N)	Canopy	Comments
			<3m	3-10m	>10m	<3m	3-10m	>10m	<3m	3-10m	>10m	<3m	3-10m	>10m	<3m	3-10m	>10m	<3m	3-10m	>10m					
1820	FAGGRAN	50		x	x				d						T	L	L	T			2	Y	N		3 stems
1821	ULMAMER	33													T			T	T		5	Y	N		hairline cracks
1822	ACESASA	47		x															L		-	Y	N	OSB	
1823	BETPAPY	30													T	T					-	Y	N	OC	
1824	FAGGRAN	46	x	x	x				a,c	a						L		T	L		2	Y	N	OC, OSB	multi stem
1826	FRAAMER	46	x	x	x										T	L	L				4	Y	N	OC	
1827	TILAMER	36								a	a				T	T					5	Y	N	OSB	
1828	POP Sp.	32													T	T					5	Y	N		
1829	ULMAMER	27													T	T	T				4	Y	N		
1830	PRUSERO	29								a						T	T	T	T		4	Y	N		
1831	POPTREM	33		x							a					L			L		2	Y	N		
1832	POPTREM	39		x												L			L		1	Y	N	OC	
1833	FRANIGR	40		x		x										L		T			2	Y	N	OC	
1836	ACESASA	28													T	T		T	T		5	Y	N		hairline cracks
1837	ULMAMER	62		x	x											L	L				1	Y	N		
1838	PRUSERO	35		x			x		c							L			L,T		2	Y	N		
1839	ACESASA	32		x	x										T	T,L			T		4	Y	N	OC	hairline cracks
1840	ACESASA	29								a					T			T			5	Y	N		open shallow wound 0-3m
1841	ACESASA	61		x		x	x		d	c					T	T					4	Y	N	OC	~4m tall, multi holes
1842	ACESASA	75				x	x		c	a,c,d					T			T			5	Y	N		
1843	ACESASA	50				x	x			d								T			1	Y	N		
1844	PRUSERO	39		x	x										T						2	Y	N		
1845	ACESASA	80	x	x			x			a,c						L		T	L		2	Y	N		multiple holes
1846	ACESASA	49					x											T	L		-	Y	N	OSB	wound at base
1847	ACESASA	39		x						c									T		-	Y	N	OSB	
1848	ACESASA	57		x		x												T	L		1	Y	N	OSB	large wound/crack/hollow at base
1849	PRUSERO	30													T						2	Y	N	OSB	
1851	ACESASA	36				x				a								x			1	Y	N		
1852	BETALLE	30		x		x									T	T		T			1	Y	N		plating bark
1853	BETALLE	37		x						a						L			L		1	Y	N	OSB	2 stems
1854	ULMAMER	33		x	x										T	T	T		T		3	Y	Y	OC, OSB	hairline cracks
1855	ACESASA	33				x	x		d	c											-	Y	N		
1856	FAGGRAN	44													T						6	Y	N		~2m tall
1857	TILAMER	54		x	x	x	x		d							L	L		L,T		2	Y	Y	OC, OSB	
1858	BETPAPY	39			x												L		T	T	1	Y	Y	OC, OSB	wound healed over at base
1859	ACESASA	63	x	x			x		a,c	c											-	Y	N	OC, OSB	multiple holes
1861	TILAMER	50								c	a,c						T				2	Y	Y	OC, OSB	multiple holes
1862	BETALLE	35		x											T	T					2	Y	N	OSB	plating bark
1863	BETALLE	43			x		x								T	T	L		T		1	Y	N		plating bark
1864	BETALLE	37		x											T	T					1	Y	N	OSB	
1865	BETALLE	37		x											T	T					-	Y	N	OSB	
1866	BETALLE	34		x											T	L,T					1	Y	N	OSB	

			FEATURES																				
Tree Number	Species	DBH	Dead Limb			Hollow			Hole			Dead Branches			Loose Bark			Cracks			Decay Class	CavityTree? (field notes; Y/N)	High Quality Features? (field notes; Y/N)	Canopy	Comments
			<3m	3-10m	>10m	<3m	3-10m	>10m	<3m	3-10m	>10m	<3m	3-10m	>10m	<3m	3-10m	>10m	<3m	3-10m	>10m					
1867	BETALLE	28		x						c											-	Y	N	OSB	
1868	BETALLE	33													T	T					-	Y	N		plating bark
#REF!	BETALLE	39		x			x			a,d					T	L,T			T		2	Y	Y	OSB	
1872	TILAMER	61		x		x	x		c	a,b,d								T			2	Y	Y		multiple cracks, holes, hollows
1873	TILAMER	33	x	x											T	T	L				2	Y	N		3 stems
1874	FRAPENN	35		x	x										T	T	L		L		4	Y	N	OC	
1875	FRAPENN	49		x												L					1	Y	N	OC	
1876	FRAPENN	34		x											T						2	Y	N		
1877	ACESASA	80		x		x	x		c	c						L		T	L		1	Y	Y	OSB	
1878	FAGGRAN	80	x			x										L,T		T			3	Y	Y	OC	
1880	FRAPENN	29														T					-	Y	N	OC	wound with feature ~4m
1881	ACESASA	104	x	x		x	x		a,c,d	a,c,d								T	T		2	Y	Y	OC, OSB	multiple holes
1882	FRAPENN	30													T						1	Y	N	OC, OSB	
1883	FRAPENN	37		x											T	T,L					1	Y	N	OC, OSB	
1884	TILAMER	39				x	x		a,c,d	c									T		2	Y	Y	OC	
1885	TILAMER	46				x	x											T	T		2	Y	Y	OSB	
1886	FRAAMER	45		x												L					2	Y	N	OSB	
1887	BETPAPY	29		x											T	T					1	Y	N		
1888	PINSTRO	43	x	x						a						L			L		-	Y	N	OC, OSB	
1890	FRAPENN	30																	T		2	Y	N	OC, OSB	
1891	TILAMER	32		x		x			c							L					2	Y	N		
1892	POPBALS	31		x	x												L				2	Y	N	OC	
1893	TILAMER	63	x	x						a						L		T			1	Y	N	OSB	
1894	TILAMER	32								a	a					T					5	Y	N	OSB	multiple holes
1895	FRAPENN	55		x						c						L					2	Y	N	OSB	
1896	TILAMER	41		x						c											2	Y	N	OSB	
1897	FRAAMER	42		x		x				c					T						1	Y	N		2 stems
1898	ACESASA	47		x			x												T		1	Y	N	OSB	
1899	POP SP	34				x	x		a,c	a,c					T	T					5	Y	N		
1900	ULMAMER	30								c					T	L,T			L,T		4	Y	N	OC	hairline cracks, multiple holes
1901	ULMAMER	31													T			T			6	Y	N		hairline cracks, ~4m tall
1902	ACESASA	61		x						a,c						L					1	Y	N	OSB	
1903	ACESASA	74		x			x			c						L					1	Y	N	OSB	
1905	POPBALS	50		x		x										L		T			2	Y	N	OC, OSB	
1906	ULMAMER	35			x												L				2	Y	N	OC	
1907	FRAPENN	29		x												L					1	Y	N	OC, OSB	
1908	FRAPENN	63		x		x										L		T			2	Y	N	OC	
1909	BETPAPY	46		x		x			d							L					2	Y	N		
1910	FRAAMER	52								c											-	Y	N		
1911	TILAMER	45					x			c											1	Y	N	OC	wound at base
1912	BETPAPY	47		x											T	T	L		T		-	Y	Y	OC	plating bark
1913	ACESASA	51	x	x												L		L,T			-	Y	N		
1914	BETPAPY	28								a					T	T			T		4	Y	N	OSB	
1915	FAGGRAN	43	x	x					a						L,T	L		L	L		4	Y	N	OC	multi stem, hairline crack
1917	FRAAMER	66					x			d						T					1	Y	Y	OC	

			FEATURES																				
Tree Number	Species	DBH	Dead Limb			Hollow			Hole			Dead Branches			Loose Bark			Cracks			Decay Class	CavityTree? (field notes; Y/N)	High Quality Features? (field notes; Y/N)	Canopy	Comments
			<3m	3-10m	>10m	<3m	3-10m	>10m	<3m	3-10m	>10m	<3m	3-10m	>10m	<3m	3-10m	>10m	<3m	3-10m	>10m					
1918	POPBALS	46		x	x											L	L				2	Y	N		
1919	POP SP	36														T					5	Y	N		~5m, main stem broken
1920	BETPAPY	32		x						a					T	L,T					1	Y	N		3 stems
1921	Unknown	26					x			c								T	T		6	Y	N	OSB	~6m, hairline cracks
1922	FRAAMER	60		x						a,c						L					2	Y	N		
1923	BETALLE	28													T			T			5	Y	N	OSB	
1924	BETPAPY	38		x					c						T	L,T					2	Y	N	OC, OSB	multiple holes
1925	POP Sp	35		x			x			d	a				T	T					5	Y	N	OC	
1926	POPTREM	50		x	x											L			L		2	Y	N	OC, OSB	
1927	BETPAPY	26		x	x										T	T					2	Y	N		
1928	FRAAMER	29		x	x											L					2	Y	N		
1929	FRAAMER	36		x		x												T			1	Y	N		
1930	FRAAMER	37	x						a,c	a											1	Y	N		
1931	POP Sp.	30		x														T			2	Y	N		
1933	PRUSERO	37	x	x												L		L			1	Y	N		
1934	PRUSERO	29		x												L					1	Y	N		
1935	ACESASA	29		x	x		x			a,c						L	L				1	Y	N	OSB	
1936	FAGGRAN	41	x	x					c							L		L			2	Y	N	OSB	
1937	ACESASA	62		x					c	a									L		1	Y	N	OSB	2 stems, multi holes
1938	ACESASA	38		x	x		x									L			T		1	Y	N	OSB	
1939	ACESASA	42		x						a						L			L		1	Y	N	OSB, OC	
1940	ACESASA	81		x						b											1	Y	N	OC, OSB	
1941	ACESASA	32		x			x									L			T		2	Y	N		
1942	PRUSERO	28	x	x												L					2	Y	N	OC	
1943	BETPAPY	38		x	x												L		L		1	Y	N		2 stems
1944	FAGGRAN	65		x		x	x		d	c,d					T	L		T			2	Y	Y	OC, OSB	
1945	POP Sp.	39			x		x			c	a,c										2	Y	Y		multi holes
1946	TILAMER	40		x			x			c,d	b					L					2	Y	Y	OC	
1947	TILAMER	36		x	x						a,c						L				2	Y	N	OC	multi holes
1948	ACESASA	69								b									T		-	Y	N	OC	
1949	TILAMER	31								c	a								T		2	Y	N	OSB	
2026	ACESASA	63		x	x	x	x			c						L	L	T	L		2	Y	Y	OSB	2 stems, multiple holes
2027	FAGGRAN	59		x		x	x		c,d	c						L		T	L,T		2	Y	Y	OSB	
2028	ACESASA	62		x					c	c						L					-	Y	N	OSB	multi holes
2029	ACESASA	40	x	x											L	L		T	L		2	Y	N	OSB	3 stems
2030	ACESASA	57		x		x				c								T	L		2	Y	N	OC, OSB	
2031	FAGGRAN	42		x					a							L			L		2	Y	N		
2032	FAGGRAN	49				x	x		c									T	T		2	Y	N	OC	2 stems
2033	ACESASA	49		x						a,c,d						T			T		2	Y	Y	OC, OSB	2 stems
2034	ACESASA	85		x		x	x		d	c,d						L					1	Y	N	OC, OSB	2 stems
2035	FAGGRAN	57				x			d						T			T			2	Y	N		huge hole and hollow
2036	BETPAPY	63		x			x		c,d	c,d					T	L,T		T	L,T		4	Y	N		plating loose bark
2037	FAGGRAN	37				x	x			a,c					T	T		T			5	Y	N		2 stems
2038	FAGGRAN	90		x		x	x		a,c	a,c					T	T			T		2	Y	Y	OC, OSB	
2039	ACESASA	57		x	x					c									L		1	Y	N	OC, OSB	

FEATURES

Tree Number	Species	DBH	Dead Limb			Hollow			Hole			Dead Branches			Loose Bark			Cracks			Decay Class	CavityTree? (field notes; Y/N)	High Quality Features? (field notes; Y/N)	Canopy	Comments
			<3m	3-10m	>10m	<3m	3-10m	>10m	<3m	3-10m	>10m	<3m	3-10m	>10m	<3m	3-10m	>10m	<3m	3-10m	>10m					
2040	ACESASA	44		x												L			L		-	Y	N	OSB	
2041	ACESASA	35																T			-	Y	N	OC, OSB	
2042	FAGGRAN	38							a,b	a,b					T	T					6	Y	N		~7m tall
2043	FAGGRAN	39		x	x	x									T	L,T	L	T	T		4	Y	N	OC	
2044	ACESASA	62				x			d										T		-	Y	N	OC	hole at base
2045	FAGGRAN	41	x		x	x	x			c					T	T	L	T	T	T	2	Y	Y	OC, OSB	3 stems, multiple holes
2046	FAGGRAN	45				x			c,d						T	T		T			5	Y	N	OSB	
2047	ACESASA	65								c					T						-	Y	N	OC, OSB	
2048	ACESASA	46		x												L					1	Y	N	OSB	2 stems
2049	FAGGRAN	34		x	x										T	L,T	L			L,T	2	Y	Y	OC	2 stems
2050	ACESASA	50					x												T		-	Y	N	OSB	
2051	ACESASA	38		x						a						L					-	Y	N	OSB	
2052	BETPAPY	38		x	x	x				d					T	T		T			-	Y	N	OSB	2 stems, 1 dead
2053	ACESASA	29								c	c										2	Y	N	OSB	multiple holes
2054	ACESASA	64		x	x											L	L				-	Y	N	OSB	
2055	FRAAMER	59		x	x						a					L	L		L		4	Y	N	OC, OSB	
2056	TILAMER	33		x	x											T	L				2	Y	N	OSB	
2057	PRUSERO	35	x	x					c							T		L	L		2	Y	N		multiple holes
2058	ACESASA	49		x	x											L			L		2	Y	N	OSB	
2059	FRAAMER	36					x			a									T		2	Y	N	OSB	2 stem, 1 broken; multiple holes
2060	ACESASA	47		x						c						L					-	Y	N	OSB	multiple holes
2061	ACESASA	32								c									T		2	Y	N	OSB	
2062	BETPAPY	37		x	x										T	T,L			L		-	Y	N	OSB	
2063	TILAMER	36			x					c									T		2	Y	N	OC, OSB	
2064	BETPAPY	34		x	x					a					T	T					1	Y	N		
2065	TILAMER	39		x	x			x			c					L				L	2	Y	Y	OSB	
2066	BETPAPY	28		x	x										T	T					-	Y	N		vine growing on tree
2067	BETPAPY	28		x											T	T					-	Y	N		
2068	TILAMER	54		x	x	x	x		c	c									L		1	Y	N		2 stems, multiple holes
2069	ULMAMER	26													T	T	L	T	T		4	Y	N	OC	hairline cracks
2070	ACESASA	32		x						a						L					1	Y	N	OSB	multiple holes
2071	PRUSERO	26		x												L					2	Y	N	OSB	
2072	TILAMER	36					x			d											1	Y	N	OSB	
2073	ACESASA	37		x						a						L			T		1	Y	N	OSB	multiple holes
2074	ACESASA	32				x												T			-	Y	N	OSB	
2075	ACESASA	50		x					a							L					-	Y	N		
2076	FRAAMER	44		x						a,c											1	Y	N	OSB	
2077	FRAAMER	44		x	x				a	a,c											2	Y	N	OSB	2 stems
2078	FRAAMER	71		x		x	x		c,d	a,c						L		T	T		1	Y	N	OC, OSB	2 stems, multiple holes
2079	FRAAMER	37		x						a						L					1	Y	N	OSB	
2080	OSTVIRG	34		x					a							L			L		2	Y	N	OSB	
2081	FRAAMER	29		x						c						L					2	Y	N		multiple holes
2084	FRAAMER	36		x	x											L,T			T		2	Y	N		
2085	FRAAMER	48		x												L					2	Y	N		
2086	PRUSERO	33		x											T						2	Y	N		

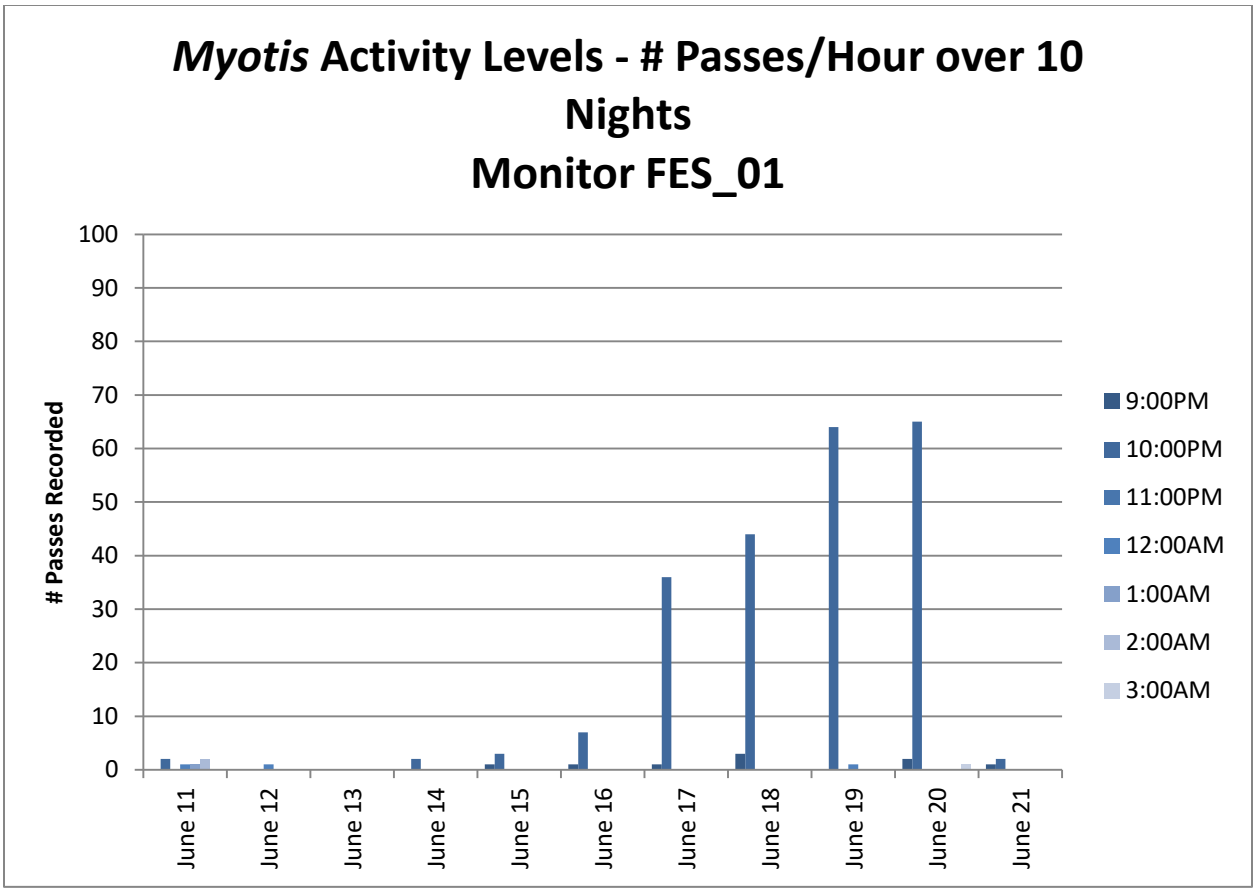
FEATURES

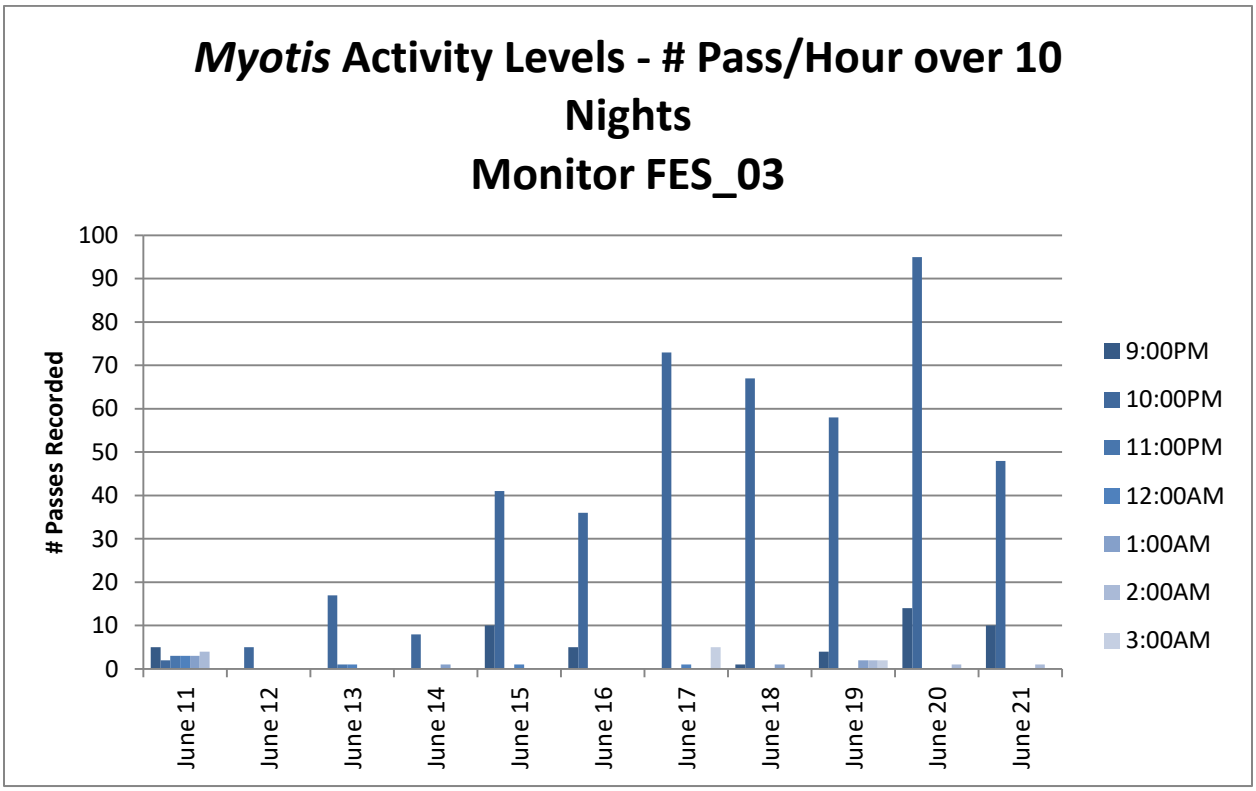
Tree Number	Species	DBH	Dead Limb			Hollow			Hole			Dead Branches			Loose Bark			Cracks			Decay Class	CavityTree? (field notes; Y/N)	High Quality Features? (field notes; Y/N)	Canopy	Comments
			<3m	3-10m	>10m	<3m	3-10m	>10m	<3m	3-10m	>10m	<3m	3-10m	>10m	<3m	3-10m	>10m	<3m	3-10m	>10m					
2087	FRAAMER	31		x	x	x			c							L		T			2	Y	N	OSB	
2088	ACESASA	67	x	x	x		x		c	a					L	L		L	T		1	Y	Y	OSB	
2089	FRAAMER	42		x	x											L					2	Y	N	OSB	
2092	ACESASA	44		x												L			L		-	Y	N		
2093	ACESASA	49	x	x	x		x			c,d	c,d					L		L			2	Y	Y	OC	2 stems
2094	FRAAMER	40		x												L					1	Y	N		
2095	FRAAMER	58		x	x					a						L	L				2	Y	N		vine growing, multiple holes
2099	FRAAMER	52		x												L			L		2	Y	N		hairline cracks
2100	ACESASA	62		x												L					-	Y	N	OSB	
2101	FRAAMER	37		x												L					2	Y	N		
2102	FRAAMER	33		x												L					-	Y	N		
2103	FAGGRAN	64		x						a,c						L			L,T		2	Y	N	OC	hairline cracks
2104	ACESASA	53	x	x		x	x			d						L		T	T		2	Y	N	OC	
2105	FRAAMER	41		x												L					1	Y	N		2 stems
2106	BETPAPY	33													T	T					-	Y	N		significant loose bark
2107	FAGGRAN	67				x			c,d	c,d						T					5	Y	N		
2108	FAGGRAN	29	x						c						L	L					2	Y	N		2 stems
2109	POPGRAN	30		x												L					1	Y	N	OSB	
2110	POPGRAN	40			x		x			d											1	Y	Y	OSB	
2111	FAGGRAN	45		x				x		a	c										2	Y	N		
2112	POPGRAN	29								a					T	T					5	Y	N		~5m tall
2113	TSUCANA	34	x	x						a					T	T			T		3	Y	N		hairline cracks
2114	ACESASA	51		x			x			d						L					2	Y	Y	OC	
2115	FAGGRAN	38					x			a,c					T	T			T		5	Y	N	OC	multiple holes, hairline cracks
2116	POPGRAN	45				x			d												-	Y	N		
2117	POPGRAN	27							a	b,c					T	T					5	Y	N		~7m tall, multiple holes
2118	POPGRAN	37				x	x		c,d	b,c					T	T					2	Y	N	OC	2 stems, 1 dead
2119	POPGRAN	49		x	x		x		a,c	c					T	L					2	Y	N	OSB	2 stems, 1 dead
2120	OSTVIRG	25		x		x			d						T	L		T			2	Y	N	OC	
2121	ACESASA	33		x		x			c,d												1	Y	N	OC	
2122	BETALLE	31							a	a,b					T	T					5	Y	N		~4m tall
2123	ACESASA	54			x		x			c,d	a						L				2	Y	Y	OC	
2124	ACESASA	34							a	c					T	T					5	Y	N	OSB	multiple holes, ~7m tall
2125	Unknown	36							c	a,c					T						5	Y	N		multiple stems (3)
2127	TILAMER	48				x												T			1	Y	N	OC	
2128	ACESASA	40				x															-	Y	N	OC	
2129	ACESASA	58	x	x						c					L	L					-	Y	N	OC	multiple holes
2130	ACESASA	33					x			d											1	Y	Y	OSB	multiple holes
2131	ACESASA	40		x	x						d					L	L		L		2	Y	Y	OC	
2142	POPTREM	29			x						a						T			T	2	Y	N	OC	
2143	ACESASA	85	x	x			x			c,d					L			L	T		2	Y	Y	OC	
2144	POPTREM	28																T	T		1	Y	N	OC	
2145	POPTREM	37					x												T		1	Y	N	OC	
2146	POPTREM	35		x	x											L					1	Y	N	OC	
2150	POPTREM	50		x			x									L			T		-	Y	N	OC	

			FEATURES																				
Tree Number	Species	DBH	Dead Limb			Hollow			Hole			Dead Branches			Loose Bark			Cracks			Decay Class	CavityTree? (field notes; Y/N)	High Quality Features? (field notes; Y/N)	Canopy	Comments
			<3m	3-10m	>10m	<3m	3-10m	>10m	<3m	3-10m	>10m	<3m	3-10m	>10m	<3m	3-10m	>10m	<3m	3-10m	>10m					
2151	ACENEGU	40	x	x											L	L					2	Y	N	OC	vine growing
2152	THUOCCI	43				x	x		c	c											-	Y	N	OC	
																	TOTAL					224	31		

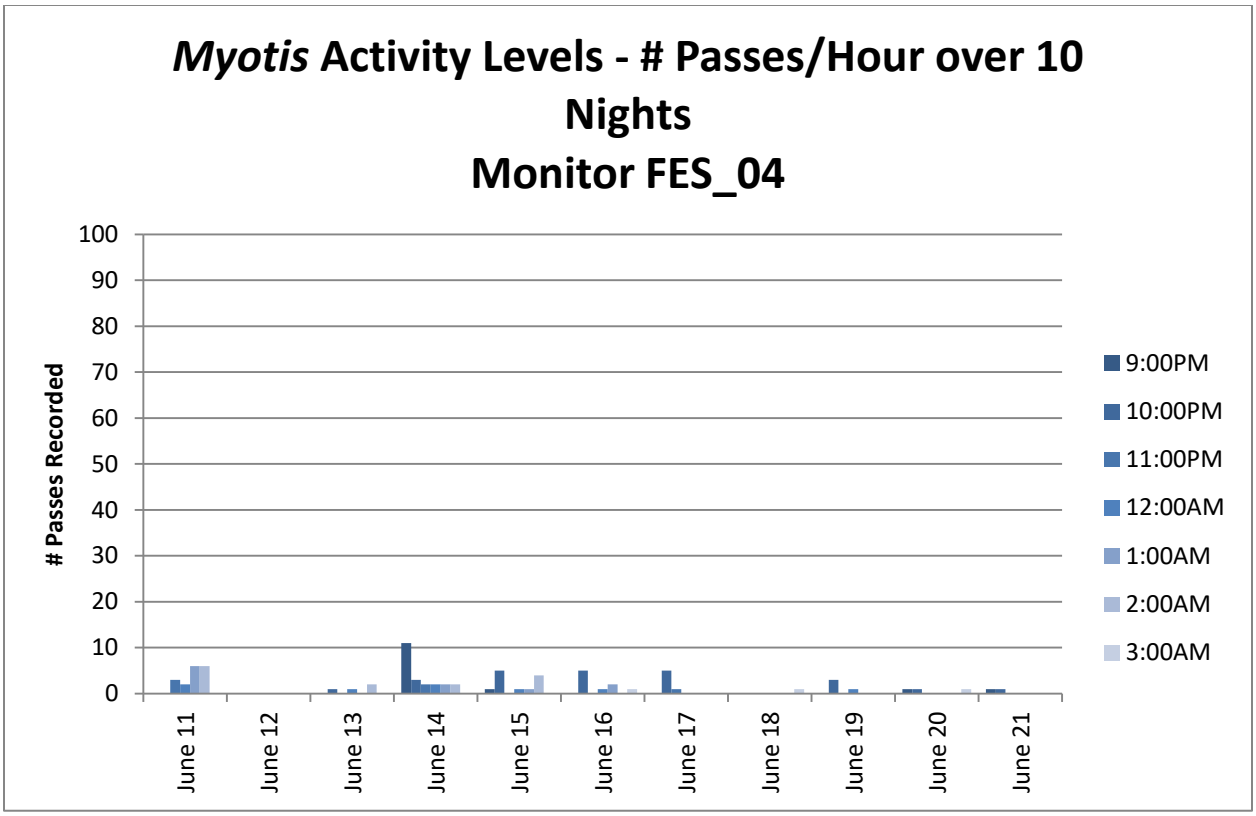
High Quality Snag Tree

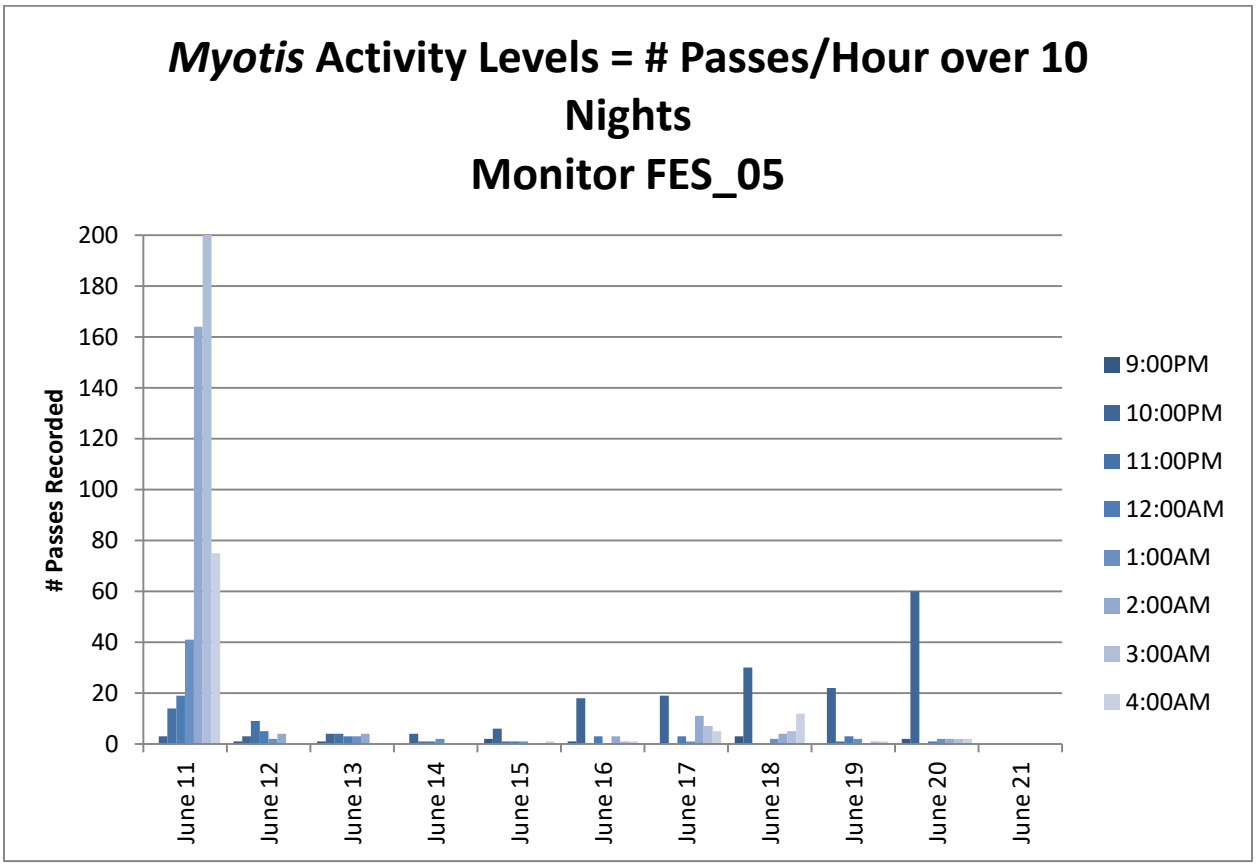
Appendix C: *Myotis* Activity Levels



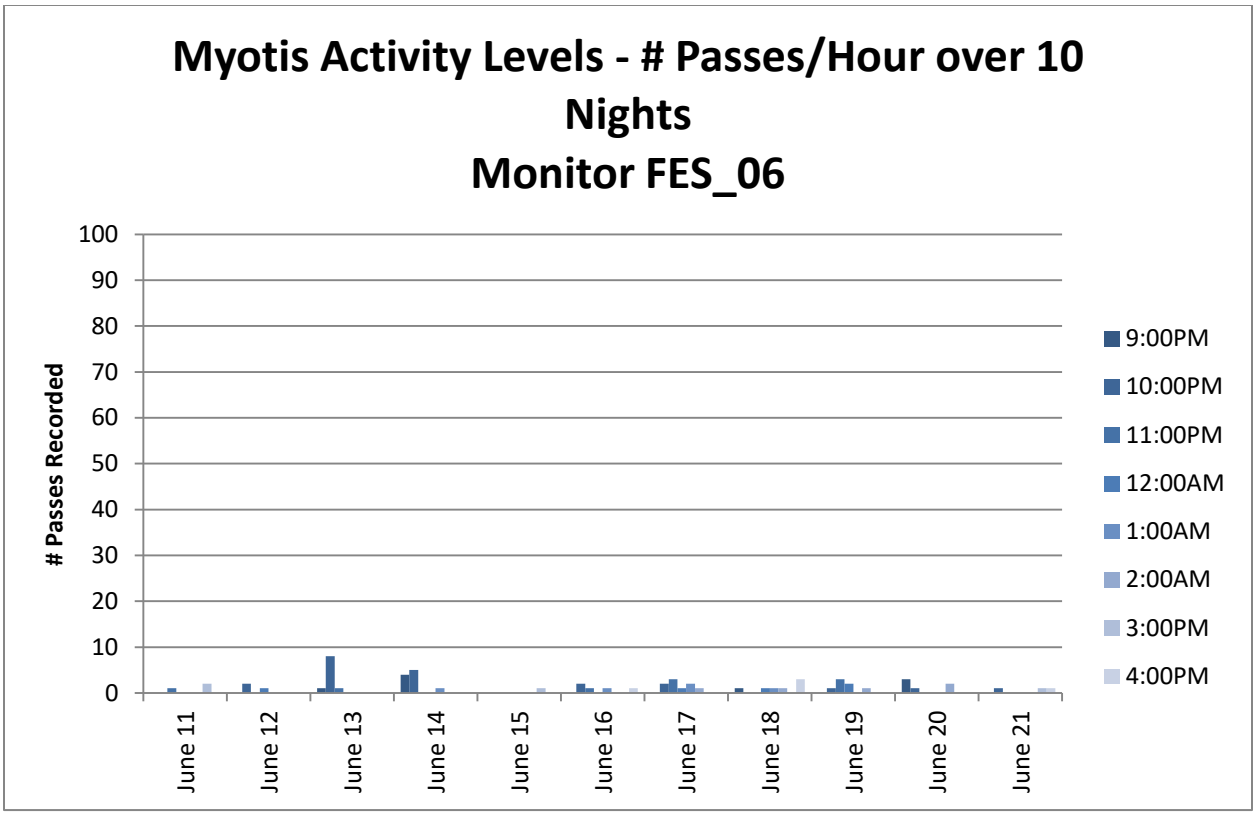


Appendix C: *Myotis* Activity Levels





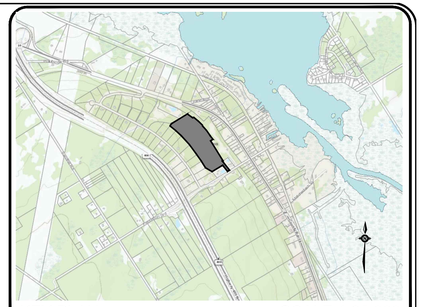
Appendix C: *Myotis* Activity Levels



APPENDIX D

Site Plan

DRAFT PLAN OF SUBDIVISION
VILLAGE OF FESSERTON



KEY PLAN SCALE 1:25,000

Draft Plan of Subdivision

Block 18 on Registered Plan 51M-917
Township of Severn
County of Simcoe
2020

OWNER'S CERTIFICATE

I, THE UNDERSIGNED, BEING THE REGISTERED OWNER OF THE SUBJECT LANDS, HEREBY AUTHORIZE THE JONES CONSULTING GROUP LTD., TO PREPARE THIS DRAFT PLAN OF SUBDIVISION AND TO SUBMIT SAME TO THE COUNTY OF SIMCOE FOR APPROVAL.

DATE OWNER

SURVEYOR'S CERTIFICATE

I CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED AND THEIR RELATIONSHIP TO ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN.

DECEMBER 14, 2020 — DATE

Douglas E. Hunt O.L.S.,M.B.A., B.Sc.
Hunt Surveys Inc.

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT

a) SHOWN ON DRAFT PLAN
b) SHOWN ON DRAFT PLAN
c) SHOWN ON KEY PLAN
d) RESIDENTIAL, EP & STORMWATER MANAGEMENT
e) SHOWN ON DRAFT PLAN
f) SHOWN ON DRAFT PLAN
g) SHOWN ON DRAFT PLAN
h) MUNICIPAL PIPED WATER TO BE PROVIDED
i) SANDY/CLAY LOAM
j) SHOWN ON DRAFT PLAN
k) ALL SERVICES TO BE PRIVATE
l) SHOWN ON DRAFT PLAN

STATISTICS	AREA (ha.)	UNITS
ESTATE RESIDENTIAL (LOTS 1 - 14)	8.20 ha.	14 units
STORMWATER MANAGEMENT (BLOCK 15 & 16)	0.87 ha.	
ROAD (STREET 'A')	1.16 ha.	
TOTAL	10.23 ha.	14 units

SCHEDULE OF REVISIONS

DATE	DESCRIPTION	DRAWN

0 10 50 100M
SCALE 1 : 1000 (A1)

PROPOSED DRAFT PLAN OF SUBDIVISION

Brandi L Clement
REGISTERED PROFESSIONAL PLANNER
R.P.P.

Date Issued:	DEC. 7, 2020
Checked By:	BC
Project No.:	SUS-18023
Drawn By:	m.c.r.
Drawing Name:	SUS-18023 DP-1a.dwg

JONES CONSULTING GROUP LTD.
PLANNERS & ENGINEERS
229 Mapleview Drive East, Unit 1, Barrie, Ontario, L4N 0W5
Phone: 705-734-2538 Fax: 705-734-1056
www.jonesconsulting.com