Existing Conditions and Species at Risk (SAR) Assessment

PLAN of SUBDIVISION DEVELOPMENT for:
989 YONGE SREET (PART OF ½ LOT 16, CONCESSION 11)
CITY of BARRIE, SIMCOE COUNTY

prepared for

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by

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OEC

Ontario Environmental Consultants

July 2019

OEC PROJECT # 19-11

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1.0 INTRODUCTION

Ontario Environmental Consultants (OEC) have been retained by Mr. Paul Neals of Orion Environmental Solutions and Mr. Abdullah Assaf Guirguis of ASA Development Inc to conduct an Existing Conditions and Species at Risk (SAR) Assessment for the legal parcel at 989 Yonge Street (Part of ½ Lot 16, Concession 11) City of Barrie, Simcoe County. A Key Plan showing the location of the property in a regional context is presented in **Figure 1**.

OEC has conducted a background review of the proposed works and has completed field investigations which included surveying for flora and fauna species and their associated habitats within the proposed development envelope and immediately adjacent lands. This report provides an overview of the existing site conditions and applicable environmental designations and provides recommendations with respect to the proposed project. A consolidation of the data is presented below.

1.1 DEVELOPMENT PROPOSAL

ASA Development Inc. proposes to construct a medium to high density Residential Plan of Subdivision. The entire development envelope is proposed to be located within existing open tilled agricultural land. **Photo 1** displays the area proposed for development.

Photo 1: ASA Development Inc. lands proposed for Plan of Subdivision development. Looking south.

County of Simcoe - 989 Yonge Street - Key Plan

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0 0.75 1.5 3 km

1:36,112

July 2, 2019

2.0 METHODOLOGIES

2.1 ASSESSMENT METHODOLOGIES

This Existing Conditions and Species at Risk Assessment is designed to assess the potential impacts of the proposed changes to terrestrial natural heritage elements. The purpose of the Assessment is to:

- Explain the nature of the proposed development;
- Identify the existing conditions of the site;
- Conduct field surveys for SAR flora and fauna including SAR bats;
- Identify, locate, delineate and comment on Species at Risk individuals, habitat and habitat features;
- Identify and discuss the expected impacts of the proposed works in relation to the Endangered Species Act (2007).

2.2 PROTOCOL FOR VEGETATION COMMUNITY AND STRUCTURE ANALYSIS

The geographical extent, composition, structure and function of vegetation communities within the study area were first identified through air photo interpretation and then confirmed through field investigation. Air photos were interpreted to determine the limits and characteristics of vegetation communities.

Vegetation communities were classified according to the Southern Ontario Ecological Land Classification Vegetation Type List (Lee et al. 2008). The communities were sampled using a plotless method for the purpose of determining general composition and structure of the flora and the vegetation communities within the subject property. An extensive vascular plant list was compiled, as well as the height and cover of each layer and the dominant species in each layer. Plant species status was reviewed for Ontario according to the Natural Heritage Information Centre Vascular Plant List (NHIC 2018). Vascular plant nomenclature follows NHIC (2018).

2.3 WILDLIFE AND WILDLIFE HABITAT

Wildlife species and habitat data were collected via field investigation and knowledge of the Ecological Land Classification (ELC) vegetation communities present on the site. Ecological Land Classification was utilized to describe wildlife habitat, where appropriate. Wildlife species were identified through direct observation, vocalizations, or evidence such as tracks, scat and browse. Special focus was placed upon searching for Species at Risk individuals, habitat and habitat features such as vernal pools, dens, burrows (small and large), snake thermoregulation areas, tree cavities and basking sites.

2.4 SPECIES AT RISK SURVEY (SAR) METHODS

Field surveys were carried out to determine the potential population and distribution of SAR individuals and to delineate the habitat and habitat features within the study area. The survey was carried out to provide detailed and reliable information on SAR presence or absence, suitable habitat, habitat features, location, distance from the proposed development, population size, management concerns and to ensure that the proposed development does not contravene the *Endangered Species Act, 2007.*

The search efforts were focused on inspecting sites and features with a high probability of supporting SAR. When documenting each SAR specimen/population, habitat or habitat feature the following data was recorded on paper and on a Global Positioning System (GPS):

- Species (scientific name);
- habitat or habitat feature;
- location (Universal Transverse Mercator (UTM) co-ordinates); and,
- relative abundance.

2.4.1 Species at Risk Bat Habitat Survey

A SAR bat maternity roost survey was conducted using the MNRF Protocol for Maternity Roost Surveys in Treed Habitats (2017). The purpose of the SAR bat maternity roost survey was to determine potential breeding habitat on the subject property for endangered species of bats such as Little Brown Myotis (*Myotis lucifugus*) and Northern Myotis (*Myotis septentrionalis*). The methodology for the surveys is described in the sections below.

2.4.1.1 Phase 1: Identification of Potential Maternity Roost Habitat

An analysis of the ELC communities within the subject property was conducted to determine if there is potential SAR bat habitat as per MNRF Protocol (2017). The protocol states that SAR bat habitat can be found in Deciduous Forests (FOD), Mixed-wood Forests (FOM), Coniferous Forests (FOC), Deciduous Swamps (SWD), Mixed-wood Swamps (SWM), and Coniferous Swamps (SWC) *"that includes trees at least 25cm diameter-at-breast height (DBH) should be considered suitable maternity roost habitat"* (MNRF, 2017).

2.4.1.2 Phase 2: Detailed Mapping of Trees / Snags

2.4.1.2.1 **Leaf-Off Survey**

A leaf-off survey was conducted to determine possible maternity roost trees for Northern Myotis and Little Brown Myotis. Attributes such as diameter at breast height (DBH), decay class, as well as the presence of cavities, loose bark, cracks and knot holes were noted for each snag. For the purpose of the leaf-off survey, a *"snag"* was considered to be *"any standing live or dead tree ≥25cm DBH with cracks, crevices, hollows, cavities, and/or loose or naturally exfoliating bark" (MNRF, 2017),* that would be suitable for bats. Surveys were conducted on days with no precipitation and not after recent snowfall, so as not to obscure the features on the suitable trees and snags.

The snags and trees that were assessed were ranked according to the following criteria (in order of importance):

1. Tallest snag/cavity tree;
2. Exhibits cavities or crevices most often originating as cracks, scars, knot holes or woodpecker cavities;
3. Has the largest diameter breast height (>25cm diameter at breast height);
4. Is within the highest density of snags/cavity trees (e.g. cluster of snags);
5. Has a large amount of loose, peeling bark;

6. Cavity or crevice is high in snag/cavity tree (>10m);
7. Tree species that provide good cavity habitat (e.g. white pine, maple, aspen, ash, oak);
8. Canopy is more open (to determine canopy cover, determine the percentage of the ground covered by a vertical projection of the outermost perimeter of the natural spread of the foliage of trees); and
9. Exhibits early stages of decay (decay Class 1-3; refer to Watt and Caceres, 1999).

2.4.1.2.2 Snag Density Calculation

Snag density calculations were then performed on the area that was assessed as potential maternity roost habitat in Phase 1. The following formula was used to calculate snag density:

$$Snag\ Density = \frac{Number\ of\ Snags}{Total\ Area\ of\ Suitable\ Communities}$$

As per OMNRF guidelines (2017), an area with more than 10 snags per hectare is considered to be high quality potential SAR bat maternity roost habitat.

2.4.1.2.3 Snag Tree Mapping and Additional Studies

The locations of all snags were recorded by OEC biologists using a handheld GPS. A Tree Inventory/Removal Plan was prepared by JDB Associates Incorporated. The snag trees identified by OEC were recorded and co-related to the Tree ID numbers presented in the plan prepared by JBD Associates Inc. The Tree Inventory/Removal Plan will be submitted under separate cover.

3.0 EXISTING CONDITIONS

3.1 FIELD SURVEY DATES AND WEATHER CONDITIONS

See **Table 1** (below) for details on the local temperatures and weather conditions at the subject property during field investigations.

TABLE 1:SURVEY FIELD DATES AND WEATHER CONDITIONS

Date	Type of Surveys	Temperature (°C)	Cloud Cover (%)	Beaufort Wind Scale[1]	Precipitation Code[2]	Surveyor Names
April 13, 2019	Leaf-off Bat Habitat Assessment	12	5	6	0	Jennifer Neill
April 13, 2019	Incidental Wildlife Survey 1	12	5	6	0	Gregory Neill
June 9, 2019	ELC, Flora and SAR Flora Survey	17	10	1	0	Jennifer Neill
June 9, 2019	Incidental Wildlife Survey 2	17	10	1	0	Gregory Neill

[1]Beaufort Wind Scale: 0 (calm); 1 (light air); 2 (light breeze); 3 (gentle breeze); 4 (moderate breeze); 5 (fresh breeze); 6 (strong breeze).
[2]Precipitation Codes: 0 (clear); 1 (fog); 2 (light drizzle); 3 (light rain); 4 (moderate rain); 5 (heavy rain); 6 (thunder or lighting).

3.2 NATURAL HERITAGE FEATURES

The MNRF - Make a Map: Natural Heritage Areas internet application indicates that the eastern property boundary supports a narrow hedgerow feature. Approximately 75 m east of the subject property, an evaluated non-provincially significant wetland known as St. Paul's Swamp and additional woodland exists. The woodland surrounds most of St. Paul's Swamp and starts approximately 28 m east of the subject property. The Hewitt's Secondary Plan Natural Heritage System incorporates the aforementioned features. A branch of the Canadian National (CN) Railway and active Go Transit separates the subject property with the natural features to the east. The natural heritage features can be seen in **Figure 2.**

3.3 PHYSIOGRAPHY AND SOILS

According to the Ontario Soils Survey, Report No. 29 (Hoffman, Wicklund, & Richards, 1962) and the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) on-line interactive 'Ag Maps' application the soil within the legal parcel is composed of Dundonald Sandy Loam (Ds) and Bondhead Sandy Loam (Bs). Dundonald Sandy Loam is a stone free slightly acidic soil and is present on the northern ¾ of the property. Bondhead Sandy Loam has a neutral pH and is present on the southern ¼ of the property. Both classes are considered 'Moderately Well Drained' soils.

3.4 HYDROLOGY

The subject property does not contain any wetlands, ponds or lakes. No vernal pools or other hydrological features were observed onsite. The evaluated non-provincially significant wetland (St. Paul's Swamp) is located approximately 75 m to the east of the subject property. The Lake Simcoe Conservation Area (LSRCA) interactive floodplain map viewer indicates that the subject property is not regulated (**Figure 3**).

3.5 TOPOGRAPHY

The topography associated with the legal parcel is considered to be Tableland. According to Lee et al. (1998): Tableland is a "*Site on a more or less level plain, no associated with any marked topographic feature*." The Tableland is consistent for the majority of the subject property within the legal parcel.

Ontario

Ministry of Natural Resources and Forestry

Make-a-Map: Natural Heritage Areas

989 Yonge Street - Natural Heritage Features

Notes: Yellow Line = Legal Parcel
Ontario Environmental Consultants (OEC)

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
- River Valley Connections

Land Use Designations
- Protected Countryside
- Towns and Villages
- Hamlets
- Urban River Valley
- 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.

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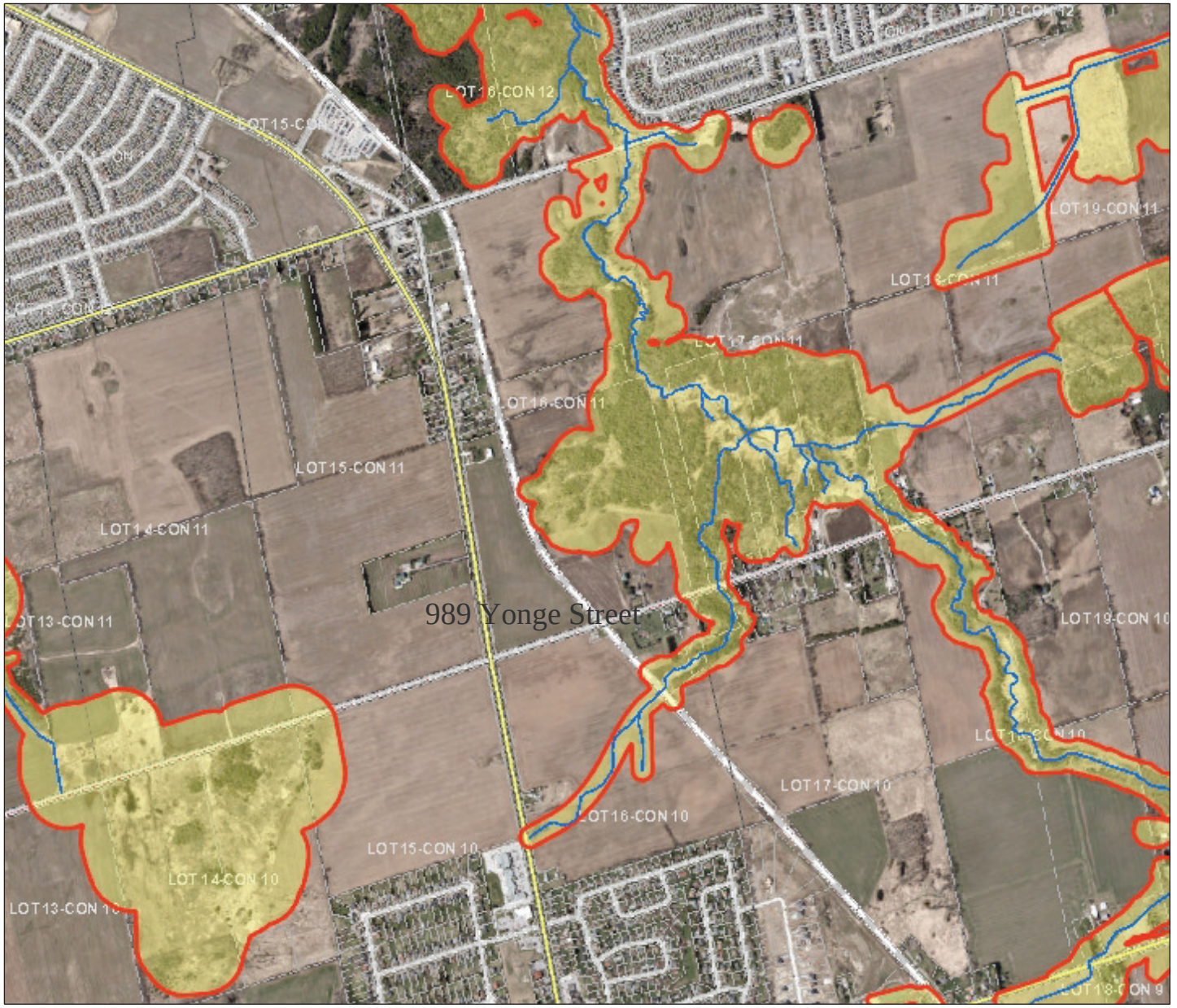
Lake Simcoe Region conservation authority

989 Yonge Street - Regulated Area



Features

- Regulation Map Index
- LSRCA Watershed Boundary
- Lake Simcoe
- Watercourse
- Regulated Area Boundary
- Regulated Area
- Lot and Concession

Roads

- Hwy 400 Series
- Highway, Arterials
- Local Road

Railway

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7/2/2019

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Mapped By:

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Scale 1: 18,319

Meters

931 0 465 931

Ontario

Ministry of Natural Resources and Forestry

Make-a-Map: Natural Heritage Areas

989 Yonge Street - ELC and Snag Tree Locations

Notes: Ontario Environmental Consultants (OEC)

Legend

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

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- Provincially Significant Wetland Evaluated
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3.6 FLORA AND VEGETATION COMMUNITIES

3.6.1 Ecological Land Classification Vegetation Communities

There is one ELC unit on the subject property. The vegetation community identified is a Naturalized Deciduous Hedgerow Ecosite (FODM11). The remainder of the property is actively cultivated agricultural land, currently in soybeans.

The Naturalized Deciduous Hedgerow Ecosite is approximately 0.5 ha and is located along the eastern edge of the legal parcel. The hedgerow is a collection of 85 single to double row trees found partially on-site, on the property boundary and onto the adjacent lands. Of the 85 trees: 29 are on-site; 27 are on the boundary; 19 are adjacent to the site; and, the remaining 10 are on municipal lands. While the hedgerow has naturalized, the overall ecological quality is low. This is due to poor tree health, lack of diversity within the species composition, in addition to an abundance of invasive species. Of the 85 trees: 32 (38%) identified as poor quality; 27 (32%) identified as fair quality; 11 (13%) identified as fair-poor quality; 4 (5%) identified as fair-good quality; and, 11 (13%) are dead. The development proposal will require the removal of the entire FODM11 community. **Table 2** summarizes the community structure in relation relative abundance. **Photo 1** shows an example of site conditions as they were during OEC field investigations.

TABLE 2: SUMMARY OF ECOLOGICAL LAND CLASSIFICATION

Abbreviation	Vegetation Type	Species Association	Comments
TERRESTRIAL SYSTEM			
FODM11	Naturalized Deciduous Hedgerow Ecosite	**Canopy:** The canopy is dominated by White Ash (*Fraxinus americana*) and Black Cherry (*Prunus serotina*). Additional associates that occur occasionally are; Trembling Aspen (*Populus tremuloides*), Sugar Maple (*Acer saccharum*), Manitoba Maple (*Acer negundo*), American Elm (*Ulmus americana),* Basswood (*Tilia americana*) and Silver Maple (*Acer saccharinum*). **Subcanopy:** No sub-canopy present. **Understorey:** The understorey is dominated by Staghorn Sumac (*Rhus typhina*), Tartarian Honeysuckle (*Lonicera tatarica*) and Common Buckthorn (*Rhamnus cathartica*). Occasional occurrences include; Choke Cherry (*Prunus virginiana),* Alternate-leaved Dogwood (*Cornus alternifolia*) and White Ash. **Ground Cover:** The ground cover is dominated by Canada Goldenrod (*Solidago canadensis*), Virginia Creeper (*Parthenocissus quinquefolia*), Riverbank Grape (*Vitis raparia),* Cow Vetch (*Vicia cracca*), Kentucky Bluegrass (*Poa pratensis*) and Common Dandelion (*Taraxacum officinale*). Abundant ground cover includes; Wild Strawberry (Fragaria virginiana), Annual Fleabane (*Erigeron annus*), Bird's-foot Trefoil (*Lotus corniculatus*), Field Horsetail (*Equisetum arvense*) and Dog Strangling Vine (*Vincetoxicum rossicum*), among others.	• The canopy has dominant size class of of 25-50 diameter at breast height (DBH) with heights of 10<HT<25m. • The understorey has 26-60% cover with heights of 1<HT<2m. • Ground cover is >60% cover with heights of <0.2HT<1m.

Photo 1: FODM11 community, looking north.

3.6.2 Flora

To date, a total of 56 vascular plant taxa were recorded within the study area. Of the 56 plants identified to species level, 23 species (41%) are considered non-native to Ontario while 33 species (59%) are classified as native. The mean Coefficient of Conservatism (CC) for the native species found on the subject property is 3. This low number represents a collective species composition with a high tolerance for disturbance and no fidelity to a particular pre-settlement plant community type. Therefore, indicating the floristic quality of the native species is not sufficient to consider the natural features to be of remnant natural quality. The Floristic Quality Index (FQI) of the native species found within the study area is 17. An FQI a value <20 indicates that the floristic quality of the species found, represent minimal significance from a natural quality perspective. The mean Coefficient of Wetness of all species is 2.2 indicating a predominance of upland species. A complete list of observed vascular plant species is presented below in **Table 3.**

TABLE 3:OBSERVED VASCULAR PLANTS

Scientific Name	Common Name	Status		
		SARA (SCH. 1) STATUS[1]	SARO STATUS[2]	SRANK[3]
Acer negundo	Manitoba Maple			S5
Acer saccharinum	Silver Maple			S5
Acer saccharum	Sugar Maple			S5
Alliaria petiolata	Garlic Mustard			SE5
Aralia nudicaulis	Wild Sarsaparilla			S5
Chelidonium majus	Greater Celandine			SE5
Chenopodium album	White Goosefoot			SE5
Cirsium vulgare	Bull Thistle			SE5
Cornus alternifolia	Alternate-leaved Dogwood			S5
Cornus sericea	Red-osier Dogwood			S5
Daucus carota	Wild Carrot			SE5
Dipsacus fullonum	Common Teasel			SE5
Echinocystis lobata	Wild Mock-cucumber			S5
Equisetum arvense	Field Horsetail			S5
Erigeron annuus	Annual Fleabane			S5
Fragaria virginiana	Wild Strawberry			S5
Fraxinus americana	White Ash			S4
Juniperus communis	Common Juniper			S5
Juniperus virginiana	Eastern Red Cedar			S5
Leucanthemum vulgare	Oxeye Daisy			SE5
Lonicera maackii	Amur Honeysuckle			SE2
Lonicera tatarica	Tartarian Honeysuckle			SE5
Lotus corniculatus	Garden Bird's-foot Trefoil			SE5
Oenothera biennis	Common Evening Primrose			S5
Ostrya virginiana	Eastern Hop-hornbeam			S5
Parthenocissus quinquefolia	Virginia Creeper			S4?
Pilosella aurantiaca	Orange Hawkweed			SE5
Pilosella caespitosa	Meadow Hawkweed			SE5
Plantago lanceolata	English Plantain			SE5
Plantago major	Common Plantain			SE5
Populus tremuloides	Trembling Aspen			S5
Prunus serotina	Black Cherry			S5
Prunus virginiana	Choke Cherry			S5
Rhamnus cathartica	Common Buckthorn			SE5
Rhus typhina	Staghorn Sumac			S5
Ribes cynosbati	Prickly Gooseberry			S5
Ribes glandulosum	Skunk Currant			S5
Rosa multiflora	Multiflora Rose			SE5
Rubus idaeus	Common Red Raspberry			S5
Rubus occidentalis	Black Raspberry			S5
Rumex crispus	Curly Dock			SE5

TABLE 3:OBSERVED VASCULAR PLANTS

Scientific Name	Common Name	Status		
		SARA (SCH. 1) STATUS[1]	SARO STATUS[2]	SRANK[3]
Sanguinaria canadensis	Bloodroot			S5
Solidago canadensis	Canada Goldenrod			S5
Sorbus americana	American Mountain-ash			S5
Stellaria media	Common Chickweed			SE5
Symphyotrichum ericoides	White Heath Aster			S5
Symphyotrichum lateriflorum	Calico Aster			S5
Symphyotrichum novae-angliae	New England Aster			S5
Taraxacum officinale	Common Dandelion			SE5
Tragopogon dubius	Yellow Goat's-beard			SE5
Ulmus americana	American Elm			S5
Verbascum thapsus	Common Mullein			SE5
Vicia cracca	Tufted Vetch			SE5
Vincetoxicum rossicum	European Swallow-wort			SE5
Viola sororia	Woolly Blue Violet			S5
Vitis riparia	Riverbank Grape			S5

[1] Species at Risk Act (SARA) Schedule 1 Status: END (Endangered); THR (Threatened); SC (Special Concern); NAR (Not at Risk)
[2] Species at Risk in Ontario (SARO) Status: END (Endangered); THR (Threatened); SC (Special Concern); NAR (Not at Risk)
[3] S-Rank (Provincial): S1 (Critically Imperiled), S2 (Imperiled), S3 (Vulnerable), S4 (Apparently Secure), S5 (Secure), S#B (breeding), SNA (species not suitable target for conservation activities)

3.7 FAUNA AND WILDLIFE HABITAT

A total of 10 wildlife species were identified within the study area or in the adjacent lands during OEC field investigations (**Table 4**). These species were identified either through unique vocalizations, visual observations or through evidence of occurrence. Of the 10 species identified, there were 6 bird species and 4 mammal species.

3.7.1 Birds

Six species of birds were recorded during field investigations, both within the study area and on the lands adjacent to it. Four species are protected under the *Migratory Birds Convention Act* (MBCA), which protects and conserves migratory birds and their nests during the breeding bird season. One species, Blue Jay is protected under Schedule 8 – Specially Protected Birds (Other than Raptors) of the Fish and Wildlife Conservation Act (FWCA). One of the species, American Crow (*Corvus brachyrhynchos*) receives no federal or provincial protection.

The hedgerow community on the subject property may provide suitable breeding habitat for generalist forest bird species. However, due to is size, it would not be considered large enough to support the breeding of sensitive interior species. Higher quality interior habitat exists to the east of the subject property in St.

Paul's Swamp and surrounding woodlands. It is likely that both generalist and interior bird species would prefer to utilize the habitat to the east of the subject property.

3.7.2 Herpetofauna

3.7.2.1 Amphibians

The Ontario Reptile and Amphibian Atlas (ORAA) indicates (historical and recent) records of the following amphibian species within the 10 km X 10 km survey square that encompasses the proposed development area (square 17PK01): American Toad (*Anaxyrus americanus*), Gray Treefrog (*Hyla versicolor*), Spring Peeper (*Pseudacris crucifer*), American Bullfrog (*Lithobates catesbeianus*), Northern Leopard Frog (*Lithobates pipiens*), Mink Frog (*Lithobates septentrionalis*), Wood Frog (*Lithobates sylvaticus*), and Eastern Red-backed Salamander (*Plethodon cinereus*).

No amphibians were observed during OEC field investigations as the majority of the property is bare soil. Although highly unlikely, it is possible that some of the amphibians listed above by the ORAA may use the property for foraging due to suitable breeding habitat found in St. Paul's Swamp and Hewitt's Creek and. No frog surveys were completed by OEC.

3.7.2.2 Reptiles

The ORAA indicates records of the following reptile species within the 10km X 10 km survey square that encompasses the subject property (square 17PK01): Snapping Turtle (*Chelydra serpentina*), Midland Painted Turtle (*Chrysemys picta marginata*), Blanding's Turtle (*Emydoidea blandingii*), Northern Map Turtle (Graptemys geographica), Northern Ring-necked Snake (*Diadophis punctatus*), Northern Watersnake (*Nerodia sipedon sipedon*), Milksnake (Lampropeltis triangulum), (Gartersnake (*Thamnophis sirtalis*) and Red-Bellied Snake (*Storeria occipitomaculata*).

While these species have been observed within the survey square that encompasses the proposed development area, some of the records would likely occur outside of the more defined project study area associated with St. Paul's Swamp and Hewitt's Creek. No reptiles were observed during OEC field investigations.

3.7.3 Mammals

Four species of mammals were observed on the subject property during OEC field investigations; Eastern Cottontail (*Sylvilagus floridanus*), Eastern Gray Squirrel (*Sciurus carolinensis*), Coyote (*Canis latrans*) and White-tailed Deer (*Odocoileus virginianus*). Although not observed, it is likely that other common small mammals (rodents), Striped Skunk (*Mephitis mephitis*) and Racccon (*Procyon lotor*) utilize the study area. Most species of mammals that were identified on the subject property are tolerant of anthropogenically disturbed habitats and are considered Secure (S5) in the province of Ontario.

TABLE 4: OBSERVED WILDLIFE SPECIES

Scientific Name	Common Name	Status	Protection				Location
		S-Rank[1]	SARA (SCH. 1) STATUS[2]	SARO STATUS[3]	FWCA[4]	MBCA[5]	Outside of Subject Property
BIRDS							
Cyanocitta cristata	Blue Jay	S5			S (8)		^
Turdus migratorius	American Robin	S5				^	
Corvus brachyrhynchos	American Crow	S5B			N/A	N/A	^
Poecile atricapillus	Black-capped Chickadee	S5				^	
Cardinalis cardinalis	Northern Cardinal	S5				^	
Carduelis tristis	American Goldfinch	SNA				^	
MAMMALS							
Sylvilagus floridanus	Eastern Cottontail	S5			F (1)		
Sciurus carolinensis	Eastern Gray Squirrel	S5			G (2)		
Canis latrans	Coyote	S5			F (1)		
Odocoileus virginianus	White-tailed Deer	S5			G (2)		

[1] S-Rank (Provincial): S1 (Critically Imperiled), S2 (Imperiled), S3 (Vulnerable), S4 (Apparently Secure), S5 (Secure), S#B (breeding), SNA (species not suitable target for conservation activities)

[2] Species at Risk Act (SARA), 2002: END (Endangered); THR (Threatened); SC (Special Concern); NAR (Not at Risk)

[3] Endangered Species Act (ESA), 2007: END (Endangered); THR (Threatened); SC (Special Concern); NAR (Not at Risk)

[4] *Fish and Wildlife Conservation Act* (FWCA): G (Game species); F (Furbearers); S (Specially protected species)

[5] *Migratory Bird Convention Act* (MBCA) Species Protection)

3.7.4 Movement Corridors and Connectivity

The subject property and surrounding natural landscape is extremely fragmented from agricultural operations and urbanization, resulting in very few movement corridors for wildlife and poor connectivity to adjacent natural features. The legal parcel is bound by a residential property to the north, Yonge Street and agricultural lands to the west and Lockhart Road followed by more agricultural land to the south. A remnant naturalized hedgerow occupies the eastern property boundary. A branch of the active GO Transit Railway separates the hedgerow on the property with the natural features to the east.

The natural features to the east of the property include St. Paul's Swamp (~75 m away) and a surrounding woodland (~28 m away at the closest point). The wetland and woodland are part of a large movement corridor that runs north south and follows the Hewitt's Creek watercourse. This system would foster the movement of birds and wildlife along the watercourse which connects with Lake Simcoe to the north. This natural system is well outside of the subject property and is separated by the elevated topography of the railroad. As the subject property is bordered by roads on the west and south, houses to the north, and the railroad to the east, habitat fragmentation between the hedgerow and the natural features already exists.

Therefore, removing the hedgerow will not have any adverse impacts to the connectivity present within natural features to the east.

3.8 SPECIES AT RISK BAT HABITAT ASSESSMENT

3.8.1 Phase 1: Bat Habitat Suitability Assessment

One ELC vegetation community (0.5 ha) on the subject property met some of the requirements for candidate SAR bat maternity roost habitat; Naturalized Deciduous Hedgerow Ecosite (FODM11). Although 'hedgerows' are not typically included in the OMNRF protocol (2007), due to the presence of deciduous trees and the nature of the project, a leaf-off survey was completed. The purpose of the leaf-off survey was to identify suitable maternity roost trees for Little Brown Myotis and Northern Myotis.

3.8.2 Phase 2: Suitable Maternity Roost Tree Survey

3.8.2.1 Leaf- Off Survey

During the leaf-off survey, a total of 3 trees were identified on the subject property as potential candidate maternity roost habitat for Northern Myotis and Little Brown Myotis. The details for each of the 3 trees are summarized below in **Table 4.**

3.8.2.1.1 *Snag Density Calculation*

A total of 3 snags were identified on the subject property. As per OMNRF protocol, a snag density of 10 snags/hectare is considered significant. The leaf-off snag survey determined that the snag density results for the entire property was 6 snags/ha (3 snags/ 0.5 ha = 6 snags/ha), confirming that the subject property does not contain significant quality maternity roost habitat for Northern Myotis and Little Brown Myotis (OMNRF 2017). Of the 3 trees identified as having features suitable for maternity roosting, 1 (33%) had medium quality habitat features in the crown (>10 m), while 2 (66%) trees had comparatively poor habitat close to the forest floor (<5m). The two snags (33%) within 10 m of one another are dead specimens (decay class 6) and may be considered hazardous. The overall roosting quality of the 3 snag trees that were observed is 'poor'. Impacts to SAR bats will be further discussed in **Section 4.2.3**.

TABLE 5: LEAF-OFF BAT MATERNITY ROOST ASSESSMENT

OEC Tree ID	JBD Tree ID	Common Name	Scientific Name	Dbh (cm)	Decay Class	Suitable Maternity Roost Features							Height of Features (m)	Overall Snag Quality	Overall Roost Quality
						Height Class	Cavity	Loose Bark	Crack	Knot Hole	Other Snags	Decay Class 1-3			
OEC1	13	Black Cherry	*Prunus serotina*	24, 26, 27	2	2	Yes						10	Multitrunked; 2 cavities present.	Low
OEC2	50	White Ash	*Fraxninus americana*	22	6	2				Yes	Yes		2, 3 and 6	Dead; 3 knot holes low and small; 1 deep large knot hole on side of trunk.	Low
OEC3	67	White Ash	*Fraxninus americana*	70	6	4	Yes		Yes	Yes	Yes		N/A	Dead; full of holes, cracks and crevices.	Low

4.0 IMPACTS & ENVIRONMENTAL DESIGNATIONS

4.1 SPECIES AT RISK ACT (2002)

The Federal *Species at Risk Act* (SARA; 2002) is designed to prevent wildlife species from becoming extinct or extirpated; help in the recovery of extirpated, endangered or threatened species; and to ensure that species of special concern do not become endangered or threatened. Section 32(1) of SARA states that:

"*No person shall kill, harm, harass, capture or take an individual of a wildlife species that is listed as an extirpated species, an endangered species or a threatened species*."

The Act maintains an on-line registry of Species at Risk which is the official Federal list of wildlife Species at Risk. Species are classified as being either extirpated, endangered, threatened, or special concern. Once the species becomes listed, the measures to protect and recover a listed wildlife species are implemented. On private lands prohibitions of SARA only apply to listed aquatic species and listed migratory birds that are also listed in the Migratory Birds Convention Act (1994). For non-aquatic species found on private land, SARA sets out a variety of ways critical habitat is to be protected. In most situations, provincial laws will provide protection for critical habitat.

No federally listed species were detected during OEC field studies.

4.2 ENDANGERED SPECIES ACT (2007)

The Species at Risk in Ontario (SARO) List is Ontario Regulation 230/08 issued under the *Endangered Species Act, 2007* (*ESA 2007*). The *ESA 2007* provides both species protection (Section 9) and habitat protection (Section 10) to species listed as "Endangered" or "Threatened" on the COSSARO List. If an activity or project will result in adverse effects to Endangered or Threatened species and/or their habitat, additional action would need to be taken by a proponent to remain in compliance with the *ESA 2007*. Species listed as "Special Concern" are not afforded legal protection under the ESA. Based on Species at Risk information gathering efforts and field investigations conducted by OEC it is argued that the project will not contravene the *ESA 2007* and will have no impact on any endangered or threatened species or their habitat.

4.2.1 NHIC & MNRF Species at Risk Records and Potential SAR Habitat Assessment

The NHIC Make-a-Map online application was investigated to search for historical records of Species at Risk and species of conservation concern within 1 km of the legal parcel. A list of known Species at Risk for Simcoe County based on broad habitat types provided by Midhurst District MNRF was also consulted. The MNRF list was chosen for species that could be potentially present based on 'Fields, Agricultural Lands and Edge Habitat Types'. **Table 6** provides a review of the NHIC 1 km search and the MNRF list to confirm species field results and suitable habitat presence or absence. No Endangered or Threatened species were encountered during OEC field investigations.

TABLE 6: SAR NOTED BY NHIC AND MNRF (SIMCOE COUNTY SAR 2018)

Scientific Name	Common Name	S-Rank[1]	SARA (SCH. 1) STATUS[2]	SARO STATUS[3]	Suitable Habitat	Key Habitats Used by Species[4]	Observed During 2019 Field Survey
NHIC 1 km Search Species							
Snapping Turtle	*Chelydra serpentina*	S2	SC	SC	No	Marsh, swamp, fen (poor fens) Shallow waters in lakes or along streams, use open areas of sand or gravel for nesting. ESA Protection: N/A	No individuals or evidence of occurrence observed on site. Suitable habitat is most likely present within the St. Paul's Swamp and forest system >75 m to the east.
MNRF Simcoe County SAR for Fields, Agricultural Lands and Edge Habitat Types							
Juglans cinerea	Butternut	S2	END	END	No	Butternut usually grows alone or in small groups in deciduous forests. It prefers moist, well-drained soil and is often found on valley slopes, in low-lands and along streams. ESA Protection: Species and general habitat protection.	No individuals were observed during field investigations.
Dolichonyx oryzivorus	*Bobolink*	S4B	THR	THR	No	Large, open hay field or grasslands with dense ground cover; meadows or fallow fields; marshes; requires tracts of grassland >4ha (COSEWIC, 2010h) ESA Protection: Species and general habitat protection.	No individuals were heard or observed on site. Large open fields do exist; however, they are actively tilled, with no ground cover present. Agricultural operations currently have an exemption from the ESA.

TABLE 6: SAR NOTED BY NHIC AND MNRF (SIMCOE COUNTY SAR 2018)

Scientific Name	Common Name	S-Rank[1]	SARA (SCH. 1) STATUS[2]	SARO STATUS[3]	Suitable Habitat	Key Habitats Used by Species[4]	Observed During 2019 Field Survey
Sturnella magna	*Eastern Meadowlark*	S4B	THR	THR	No	Open, grassy meadows, pastures, hayfields or grasslands with elevated singing perches; cultivated land and weedy areas with trees. Old orchards with adjacent, open grassy areas >4 ha in size (MNRF, 2000) ESA Protection: Species and general habitat protection	No individuals were heard or observed on site. Large open fields do exist; however, they are actively tilled, with no ground cover present. Agricultural operations currently have an exemption from the ESA.
Hirundo rustica	*Barn Swallow*	S4B	THR	THR	No	Ledges, exposed structural framing and walls of man-made structures such as buildings, barns, boathouses. ESA Protection: Species and general habitat protection.	No individuals were heard or observed on site. No buildings, barns or boathouse exist on site.
Ammodramus henslowii	*Henslow's Sparrow*	S4B	END	END	No	Requires grassland habitat and occurs more frequently and at higher densities in large patches of suitable habitat. Nests in tallgrass prairie, wet meadow, and marsh habitats as well as agricultural grasslands, lightly grazed pasture and grasslands on reclaimed surface mines (COSEWIC, 2011a). ESA Protection: Species and general habitat protection.	Suitable quality habitat does not exist.
Lanius leudovicianus	*Loggerhead Shrike*	S2B	END	END	No	Loggerhead shrike prefers pasture or other grasslands with scattered low trees and shrubs. It lives in fields or alvars with short grass, which makes it easier to spot prey. Loggerhead shrikes also require spiny, multi-branched shrubs where they can impale prey before eating it. They prefer Hawthorns and Red Cedar. ESA Protection: Species and general habitat protection	Suitable quality habitat does not exist.

TABLE 6: SAR NOTED BY NHIC AND MNRF (SIMCOE COUNTY SAR 2018)

Scientific Name	Common Name	S-Rank[1]	SARA (SCH. 1) STATUS[2]	SARO STATUS[3]	Suitable Habitat	Key Habitats Used by Species[4]	Observed During 2019 Field Survey
Ammodramus savannarum	*Grasshopper Sparrow*	S4B	SC	SC	No	It lives in open grassland areas with well-drained, sandy soil. It will also nest in hayfields and pasture, as well as alvars, prairies and occasionally grain crops such as barley. It prefers areas that are sparsely vegetated. Its nests are well-hidden in the field and woven from grasses in a small cup-like shape. ESA Protection: N/A.	No individuals were heard or observed on site. Large open fields do exist; however, they are actively tilled, with no ground cover present. Agricultural operations currently have an exemption from the ESA.
Contopus virens	*Eastern Wood-Pewee*	S4B	SC	SC	No	Typically associated with deciduous and mixed forests with little understory vegetation; often found in clearings or on edges of deciduous and mixed forests (MNRF, 2015). ESA Protection: N/A.	Suitable quality habitat does not exist.
Danaus plexippus	*Monarch*		SC	SC	Yes	Breeding habitat is confined to sites with milkweeds, the sole food of caterpillars. Milkweeds grow in meadows in farmlands, along roadsides and in ditches, open wetlands, dry sandy areas, short and tall grass prairie, riverbanks, irrigation ditches, arid valleys, and south-facing hills (COSEWIC, 2010k). ESA Protection: N/A.	Milkweed was not observed during field investigations nor were any monarch individuals.

[1] S-Rank (Provincial): S1 (Critically Imperiled), S2 (Imperiled), S3 (Vulnerable), S4 (Apparently Secure), S5 (Secure), S#B (breeding), SNA (species not suitable target for conservation activities)

[2] Species at Risk Act (SARA) Schedule 1 Status: END (Endangered); THR (Threatened); SC (Special Concern); NAR (Not at Risk)

[3] Species at Risk in Ontario (SARO) Status: END (Endangered); THR (Threatened); SC (Special Concern); NAR (Not at Risk)

[4] Habitat as outlined within MNRF's Species at Risk Website, SARA Registry, or referenced Species Specific COSEWIC Reports.

4.2.2 Vegetative Species at Risk & Species of Conservation Concern

The search efforts included looking for vegetative SAR and Provincially Significant species that prefer to grow in sandy soils, fields, agricultural lands and edge habitats. No Species at Risk plants, Provincially Significant plant species (S1-S3) or regionally rare plant species were encountered during OEC field investigations.

4.2.3 SAR Bats Maternity Roost Impact Assessment

Field assessments were focused on determining habitat suitability for SAR bat species including Little Brown Myotis and Northern Myotis. Suitable SAR bat maternity roosting habitat was identified for SAR bat species within the FODM11 community during Phase 1 and Phase 2 surveys. Impacts of the proposed development to SAR bat habitat is discussed below.

4.2.3.1 Impacts to Little Brown Myotis and Northern Myotis Maternity Roost Habitat

Leaf-off Surveys determined that the subject property contained 3 trees that could be considered potential roosting habitat for Little Brown Myotis or Northern Myotis. However, based on the suitable maternity roost feature criteria, all 3 trees identified as having 'poor' overall roosting quality. Additionally, a snag density of 6 snags/hectare was calculated for the hedgerow community, confirming that significant maternity roost habitat does not exist.

While the proposed development will remove all 85 trees within the hedgerow, including the 3 trees identified, it is important to note that more than 73 ha of woodland and wetland habitat exists to the east in St. Paul's Swamp. These features will remain untouched as a result of the proposed development and will leave extensive roosting, drinking and foraging habitat for any bat species that may utilize the area. This area is protected under the Hewitt's Secondary Plan as part of the Natural Heritage System. Therefore, it is a reasonable to expect that Little Brown Myotis and/or Northern Myotis bats would prefer to utilize these habitats for maternity roosting and foraging. As such, the proposed development and tree removals should have negligible impacts to the limited maternity roosting habitat identified.

4.2.4 Vegetation Removal

Although only 3 of the 85 trees scheduled for removal are considered potential roosting habitat, it is recommended that all 85 trees be removed following the active bat season to ensure that species are not utilizing any of these trees. Therefore, no vegetation clearing should occur between **April 1st and October 31st** in any given year. This timing window will also protect any breeding birds that may be present under the Migratory Birds Convention Act (MBCA). As it states; in order to avoid destruction of active bird nests, vegetation removals should not occur from April 1 to August 15.

4.2.5 Species at Risk Impact Assessment, *ESA 2007*

Field assessments were focused on determining the presence or absence of Species at Risk individuals and habitat suitability. The results of this SAR Study indicate the proposed development will not contravene the ESA, 2007 as no Endangered or Threatened species were found during the OEC field investigations. Although potential SAR bat maternity roost habitat is present; it is of poor quality and the timing window

for vegetation removal will prevent a contravention of Section 9 or 10 of the ESA, 2007. It is the opinion of OEC that the project works should not trigger further review of potential impacts that could require authorization under the ESA, 2007.

5.0 CONCLUDING STATEMENT

Based upon the results of the SAR study and the assessment of the FODM11 community, together with a review of the *Endangered Species Act, 2007*; it is the opinion of OEC that the development can be accommodated. It is reasonable to conclude that the removal of the hedgerow will not negatively impact SAR bats nor their habitat. Additionally, the proposed development has been sited the least sensitive areas relative to the surrounding natural features. Therefore, in closing, OEC recommends that the application put forth by ASA Development Inc., be approved.

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