6552-6558 Beatty Line

Township of Centre Wellington, Wellington County

Scoped Environmental Impact Study

Prepared for:

Jennark Homes

66 Wellington Road 7, Unit 1

Elora, ON

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ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects

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1.0 Introduction

Aboud & Associates Incorporated (AA) was retained by Jennark Homes to complete a Scoped Environmental Impact Study (EIS) in support of a proposed residential development. The subject lands currently consist of four properties, each with a single detached dwelling and are located on Lot 18, Concession 14, west of Beatty Line and south of Sideroad 18.

1.1 Proposed Development

The proposed development includes semi-detached dwellings, a four-storey apartment building and amenities. The subject lands are within the Urban Centre adjacent to Core Greenlands as designated by the County of Wellington Official Plan (2017) and are zoned as Residential R1 by the Township of Centre Wellington Zoning By-law (2009-045).

1.2 Existing Land Use and Study Area

The study area comprises the lands proposed to be developed (~1.78 ha) and up to 120m from the proposed development, including areas of the Irvine Creek Wetland Complex (PSW), a reach of Irvine Creek and Significant Woodlands, occurring north and east of the subject lands. Residential lands comprise the southern and western portions of the study area.

1.3 Existing Regulations

1.3.1 Provincial Policy Statement

The *Provincial Policy Statement* ([PPS) (OMMHA 2014) provides policy direction on matters of provincial interest related to land use planning and development.

The PPS states that:

"Natural features and areas shall be protected for the long term."

And that:

"The diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of natural heritage systems, should be maintained, restored or, where possible, improved, recognizing linkages between and among natural heritage features and areas, surface water features and ground water features."

Under the PPS, development and site alteration are not permitted in:
a) significant wetlands;
b) significant woodlands;
c) significant valleylands;
d) significant wildlife habitat;
e) significant areas of natural and scientific interest; and

f) coastal wetlands,

unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.

The PPS (2014) also states that:

1. *Development and site alteration is not permitted in fish habitat, habitat of endangered species and threatened species except in accordance with provincial and federal requirements.*

2. *Development and site alteration is not permitted on adjacent lands to the natural heritage features and areas identified above (Items a to f), unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions.*

3. *Development and site alteration is restricted in or near sensitive surface water features and sensitive ground water features in order to protect the hydrologic functions of the feature. Mitigation and/or alternative development approaches may be required in order to protect, improve or restore sensitive surface water features, sensitive ground water features, and their hydrologic functions.*

1.3.2 Endangered Species Act, 2007

The provincial Endangered Species Act, 2007 (ESA) provides protection to species designated as Threatened or Endangered on the Species at Risk in Ontario list (MNRF 2016). The habitat of some species at risk is also protected under the ESA. Protected habitat is habitat identified as essential for life processes including: breeding, rearing, feeding, hibernation and migration. Portions of Irvine Creek have been flagged as Currently Occupied and Historically Occupied habitat for Redside Dace (*Clinostomus elongatus*), a species of fish ranked as Endangered by the ESA (2007).

The ESA (Subsection 9(1)) states that:

"No person shall,

- *(a) kill, harm, harass, capture or take a living member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species;*
- *(b) possess, transport, collect, buy, sell, lease, trade or offer to buy, sell, lease or trade,*
  - *(i) a living or dead member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species,*
  - *(ii) any part of a living or dead member of a species referred to in subclause (i),*
  - *(iii) anything derived from a living or dead member of a species referred to in subclause (i); or*
- *(c) sell, lease, trade or offer to sell, lease or trade anything that the person represents to be a thing described in subclause (b) (i), (ii) or (iii).*

Clause 10(1)(a) of the ESA also states that:

"No person shall damage or destroy the habitat of a species that is listed on the Species at Risk in Ontario list as an endangered or threatened species."

An authorization or permit between the proponent and the Minister of Natural Resources and Forestry is required to authorize activities that would otherwise be prohibited by subsection 9(1) and 10(1) of the ESA.

1.3.3 Grand River Conservation Authority

The subject lands are opposite a portion of the Irvine Creek Wetland Complex, a reach of Irvine Creek, and are within the allowances of these features. Section 8.4 of the GRCA *Policies for Administration of the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation* (Ontario Regulation 150/06, 2015) identifies the area of interference of a non-significant wetland that is greater than 2 hectares as being 120 metres.

Section 8.4.9 states that:
"Development within an area of interference less than or equal to 30 metres from a wetland may be permitted in accordance with the policies in Section 7.1.2-7.1.3 General Policies, and where an Environmental Impact Study demonstrates that:

a) There are no negative or adverse hydrological or ecological impacts on the wetland
b) All development is located outside of the wetland and maintains as much setback as feasible
c) Development is located above the water table, except as specified in Section 8.4.11
d) Septic systems are located a minimum of 15 metres from the wetland and 0.9 metres above the annual maximum water table.

1.3.4 Wellington County Official Plan (2017)

The Wellington County Official Plan (Schedule A1) indicates that the proposed development is within the Fergus Urban Centre. Section 7.5.1 states that:

"Residential uses of various types and densities commercial, industrial and institutional uses as well as parks and open space uses will be permitted where compatible and where services are available."

1.3.5 Township of Centre Wellington Zoning By-law 2009-045

The Township of Centre Wellington By-law No. 2009-045 Map 66 indicates that the proposed development is within lands zoned as Residential R1. Section 7.1.1 states that:

"The permitted uses include:

a) A single detached dwelling
b) An existing semi-detached dwelling
c) An existing link or twin dwelling

d) A group home in accordance with Section 4.1.6
e) Uses, buildings and structures accessory to the foregoing, including:
    a. A bed and breakfast establishment (Class 1) in accordance with Section 4.6
    b. An accessory apartment in accordance with Section 4.1
    c. A home occupation in accordance with Section 4.18"

Approval of the proposed development on the above noted subject lands requires the preparation of an EIS to the satisfaction of the GRCA, Wellington County and the Township of Centre Wellington. Consideration will also be given to the *ESA (2007)*, and the *Provincial Policy Statement* (OMMHA, 2014).

1.4 Terms of Reference

Based upon the above Acts, Policies and Regulations, Terms of Reference (ToR) for the Scoped EIS were developed and submitted to the Grand River Conservation Authority, Wellington County and Township of Centre Wellington on May 10, 2018. The GRCA provided comments, including completion of breeding bird surveys due to the number of trees proposed for removal. A revised Terms of Reference incorporating the comments was submitted to GRCA on May 29, 2018. Comments from the GRCA on the revised Terms of Reference have yet to be received. The ToR and up to date correspondence is provided in *Appendix 1.*

2.0 Methods

2.1 Background Review

A background information review was conducted, of both biological and physical features within the vicinity of the study area. The following resources were consulted during this review:

- Atlas of the Breeding Birds of Ontario, 2001-2005
- GRCA EIS Guidelines (2005)
- Grand River Information Network (GRCA, 2013)
- Ontario Reptile and Amphibian Atlas (Ontario Nature, 2016a)
- Ontario Reptile and Amphibian Atlas Interactive map (Ontario Nature, 2016b)
- Ontario Mammal Atlas (1994)
- Ontario Ministry of Natural Resources (OMNR), Guelph District
- Natural Heritage Information Centre (NHIC) database, 2016
- Guelph Natural Heritage Strategy (Dougan & Associates, 2009)
- MNRF, Guelph District, Species of Conservation Concern in Wellington County (2014)
- Beatty Line EIS Addendum (North-South Environmental, 2011).

2.2. Buffer Recommendations and Setbacks

Recommended Buffers and setbacks for wetland boundaries were determined through a variety of resources, including The GRCA's Wetland Policy Appendix – Interim Wetland Buffer Policy (2003); The City of London – Guidelines for Determining Setbacks and Ecological Buffers (2004); and the Ecological Buffer Guideline Review (Beacon 2012).

2.3 Vegetation

Ecological Land Classification (ELC) surveys were completed by qualified ecologist, Shannon Davison, OMNRF Certified in Ecological Land Classification on June 20, 2018. Due to property access limitations, the ELC and botanical inventory were conducted from the roadside.

Vegetation communities within the study area were characterized and delineated following the Ecological Land Classification (ELC) system for Southern Ontario 1st approximation; community codes used generally follow the 2nd approximation (Lee, et al., 1998, 2008). Boundaries of ELC communities were mapped using aerial images and field observations (*Figure 2*). Information pertaining to the soils throughout the study area was gathered from the Beatty Line EIS Addendum (North-South Environmental, 2011). Digitized ELC data sheets are provided in *Appendix 3.*

Identified ELC communities were cross referenced with the NHIC Ontario Plant Community List (NHIC 2015) to determine the presence of rare plant communities (S1-Critically Imperiled, S2-Imperiled, or S3-Vulnerable). The Subnational, or Provincial Ranks (S Rank) are assigned by

the Ontario Ministry of Natural Resources and Forestry (MNRF) Natural Heritage Information Centre (NHIC) in order to help assign protection priorities. Detailed descriptions of each ELC community are provided in *Table 1*.

Identified vascular plant species were compared to provincial and federal SAR lists (COSARO, SARA), provincial ranks (NHIC 2015), global ranks, and Distribution and Status of the Vascular Plants of Southwestern Ontario (Oldham 1993) in order to assess federal, provincial, regional and local conservation status of each species. English colloquial names and scientific binomials of plant species generally follow the Database of Vascular Plants of Canada (VASCAN 2016).

Identification of environmentally sensitive plant species was completed based on assignment of a coefficient of conservatism value (CC) for each native species (Oldham, et al., 1995). The value of CC, ranging from 0 (low) to 10 (high), is based on a species' tolerance of disturbance and fidelity to specific natural habitat parameters. Species with a CC value of 9 or 10 generally exhibit a high degree of fidelity to a narrow range of habitat parameters. These species may be more sensitive to environmental changes (Mortarello et. al., 2010).

A list of all identified plant species is provided in *Appendix 4*. The list provides botanical names, common names, provincial rarity rank (S-rank), global rarity rank (G-rank), provincial Species at Risk status (SARO), federal Species at Risk status (SARA), local rarity/significance within Grey County (Oldham 1993), coefficient of conservatism (CC) and coefficient of wetness (CW). Plant species that could only be identified to genus were not assigned the above information.

2.4 Wildlife Habitat

2.4.1 Breeding Birds

Breeding Bird Surveys were conducted in 2018 by Matthew Iles, Wildlife Ecologist, to determine if Significant Bird Breeding habitat occurs within, or adjacent to, the study area. Two surveys were conducted, comprised of 10-minute point counts positioned at a pre-determined location. Surveys following the *Ontario Breeding Bird Atlas: Guide for Participants* (Bird Studies Canada 2001). The highest observed level of breeding evidence was used to assign breeding status (i.e. confirmed, possible, probable or observed) to each species.

As per the OBBA, surveys were performed during the peak breeding season for the bulk of species in Southern Ontario (last week of May through early July), and were spaced at least 10 days apart in order to determine presumed permanent territories through territorial singing males. The two surveys took place on the mornings of June 5 and June 25, 2018, between 30 minutes before dawn and 5 hours after dawn. The Point Count location is illustrated on *Figure 2*. Detailed survey dates and weather information are provided in *Appendix 2*.

2.4.2 Incidental Wildlife Observations

Incidental observations of insects, mammals, birds and reptiles were recorded during all field visits.

2.4.3 Significant Wildlife Habitat

With guidance from the *Significant Wildlife Habitat Technical Guide* (2000) and the SWH EcoRegion Criterion Schedule 6E (2015), the proposed development and immediately adjacent lands (within 120m) were considered for the presence of Significant Wildlife Habitat (e.g. specialized habitats for wildlife, and habitat for species of conservation concern). An assessment of the study area for all SWH is provided in *Appendix 5.*

2.4.4 Species at Risk Habitat

The proposed development and immediately adjacent lands (within 120m) were reviewed for the presence of habitat that may be suitable for Species at Risk (SAR). Guidance was provided by the MNRF-Guelph District, as to what SAR may have the potential to occur within Wellington County. A review of the site, along with habitat requirements for each species was conducted. A variety of sources, including the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) documents were used to determine habitat suitability. The site was then evaluated for potential habitat using Ecological Land Classification, guidance from MNRF documents, and on-site knowledge acquired through field surveys. An assessment of the study area of candidate habitat for SAR is provided in *Appendix 6.*

3.0 Existing Conditions

3.1 Background Review

3.1.1 Natural Heritage Information Centre - Species at Risk

Preliminary investigation through the Natural Heritage Information Centre (NHIC 2015) did not identify any provincial Species at Risk within 1km of the Study Area.

3.1.2 Ministry of Natural Resources and Forestry

A request for information was sent to the MNRF on May 10, 2018, to inquire whether any further Species at Risk may occur in the study area. A response was provided on May 28, 2018 and is provided in *Appendix 10*.

3.1.3 Ontario Breeding Bird Atlas

A list of birds determined to be breeding (Possible, Probable or Confirmed) in the 10km x 10km square (17NJ43) containing the study area during the 2001-2005 Ontario Breeding Bird Atlas (Cadman et. al. 2007) was compiled. This list includes 86 species; eight are considered Species at Risk under the ESA and SARA, respectively (Chimney Swift (THR, THR), Red-headed Woodpecker (SC, THR), Eastern Wood-pewee (SC, SC), Bank Swallow (THR, THR), Barn Swallow (THR, THR), Wood Thrush (SC, THR), Bobolink (THR, THR) and Eastern Meadowlark (THR, THR).

Thirty-two of the species determined to be breeding in the square are considered significant in Wellington County (Dougan & Associates, 2009), forty-four are considered Conservation Priorities by the Grand River Conservation Authority (GRCA 2016), seventeen species are considered Partners in Flight Conservation Priorities in BCR-13 (PIF, 2008), and sixteen species are identified as Area Sensitive by the MNRF (MNRF 2000). The findings of this review are presented in *Appendix 7*.

3.1.4 Ontario Reptile and Amphibian Atlas

Review of the Ontario Reptile and Amphibian Atlas (Ontario Nature 2015b) identified seventeen species that are known to occur within the 10km x 10km square containing the study area (17NJ61). This list includes two species considered at Species at Risk under the ESA and SARA, respectively (Blanding's Turtle (THR, END) and Common Snapping Turtle (SC, SC), with one further species at risk federally (Milksnake (SC)). Potential nesting, breeding or hibernation habitat may occur on lands adjacent to the subject parcel for Common Snapping Turtle and Blanding's Turtle. Seven of the species which may occur in the square are considered significant in Wellington County (Dougan & Associates, 2009) and one species is considered area sensitive (MNRF 2000). The findings of this review are presented in *Appendix 7.*

3.1.5 Atlas of the Mammals of Ontario

Review of the Atlas of the Mammals of Ontario (Dobbyn 1994) identified twenty species that are known to occur within approximately 10km the study area. One species (Little Brown Myotis) is

listed as Endangered provincially and federally. Potential maternity habitat for bat species at risk may occur in the wetland communities adjacent to the subject lands. The findings of this review are presented in *Appendix 7.*

3.2 Vegetation

3.2.1 Ecological Land Classification and Botanical Inventory

The community polygons identified during the ELC survey are summarized in *Table 1* below. Field forms and a comprehensive vascular plant list for the entire study area are presented in *Appendices 3 and 4*, respectively.

Table 1. Ecological Land Classification

ELC Code	Polygon	Vegetation Type	Community Description
Residential (CVR)			
CVR_3	A	Single Family Residential	This community encompasses the existing residential dwellings within the subject lands as well as the surrounding residential development. These dwellings consist of maintained lawns as well as planted native and ornamental tree and shrub species. A coniferous plantation of Eastern White Pine (*Pinus strobus*) and White Spruce (*Picea glauca*) occurs behind the existing residential dwellings.
Greenlands (CGL)			
CGL_4	B	Recreational	This community contains the Grace Baptist Fellowship and its surrounding lands. A stormwater management pond that contains a small patch of Narrow-leaved Cattail has been installed adjacent to the parking lot.
Deciduous Swamp (SWD)			
SWDM4-3	C	White Birch-Poplar Mineral Deciduous Swamp	This treed community occurs north of the subject lands, adjacent to the existing church and immediately west of Beatty Line. The canopy consists primarily of Trembling Aspen (*Populus tremuloides*) with associates of Green Ash (*Fraxinus pennsylvanica*) and White Birch (*Betula papyrifera*), while the sub-canopy is a combination of Trembling Aspen and Balsam Poplar (*Populus balsamifera*). The understorey is composed of shrubs including Common Buckthorn (*Rhamnus cathartica*), Red-osier Dogwood (*Cornus sericea*), Basket Willow (*Salix purpurea*) and Bebb's Willow (*Salix bebbiana*), while the groundlayer contains Goldenrod species (*Solidago sp.*), Reed Canary Grass (*Phalaris arundinacea*), Skunk Cabbage (*Symplocarpus foetidus*) and Cow Vetch (*Vicia cracca*). A coniferous plantation containing White Pine (*Pinus strobus*) and White Spruce (*Picea glauca*) within the portion of the polygon immediately adjacent Farley road has been identified as an inclusion.
SWDO3-3	F	Trembling Aspen Organic Deciduous Swamp	This community is located at the outlet of Irvine Creek once it passes beneath Beatty Line. The canopy and sub-canopy consist primarily of Trembling Aspen with Green Ash and Balsam Poplar in the canopy, and Balsam Poplar and Eastern White Cedar in the sub-canopy. The understorey receives substantial sunlight and supports species such as Reed Canary Grass, Red-osier Dogwood, Salix species and Common Buckthorn. The ground layer is similar to that of the mineral swamp to the north-west, consisting of Colt's-foot, Skunk Cabbage, Sensitive Fern and Spotted Jewelweed.
Meadow Marsh (MAM)			

Table 1. Ecological Land Classification

ELC Code	Polygon	Vegetation Type	Community Description
MAMM1-3	D	Reed Canary Grass Graminoid Mineral Meadow Marsh	This community is located along the banks of Irvine Creek before it flows beneath Beatty Line. No canopy or sub-canopy was identified, however there are a few standing snags throughout the polygon. Grasses and sedges including Reed Canary Grass and Lakebank Sedge (*Carex lacustris*) dominate the understorey with associates of Narrow-leaf Cattail (*Typha angustifolia*) and Bebb's Willow. Below the understorey, the ground cover consists of Blue Flag Iris (*Iris versicolor*) and Spotted Jewelweed (*Impatiens capensis*). When reviewing aerial imagery, the community was once open-water, however the recent colonization of grasses and sedges has shifted its composition.
Coniferous Swamp (SWC)			
SWCM1-1	E	White Cedar Mineral Swamp	The community occurs in the north-eastern portion of the study area at the corner of Sideroad 18 and Beatty Line. The sparse canopy consists of Balsam Fir (*Abies balsamea*) and Tamarack (*Larix laricina*), while the sub-canopy dominated by Eastern White Cedar (*Thuja occidentalis*) provides nearly full coverage of the polygon. Due to the lack of penetrating sunlight, the understorey and ground cover are thin, but are comprised of species including Alternate-leaf Dogwood (*Cornus alternifolia*), Common Buckthorn, Colt's-foot (*Tussilago farfara*) and Sensitive Fern (*Onoclea sensibilis*).

3.2.1.1 Species at Risk, Regional and Local Significance

No vegetation communities listed above are considered rare in the province.

Forty-two species of vascular plants were identified within subject lands during the botanical inventory. Of those identified, 29 species or 69% were native and 13 species or 31% were exotic. The majority of native species are ranked S5 (Secure in Ontario) with one species (Green Ash) ranked S4 (apparently secure in Ontario) and two species (Black Maple & Black Walnut) ranked S4?, indicating uncertainty in their rankings. No S1-S3 species were observed in the study area. No species observed had a Conservation Co-efficient of 9 or 10. Two identified species (Black Maple & Skunk Cabbage) are considered significant in Wellington County (Dougan & Associates, 2009).

One species was only identified to genus and was not identified as native or non-native.

No nationally or provincially rare, threatened or endangered species were found.

3.3 Wildlife

3.3.1 Breeding Birds

The results of the Breeding Bird Survey (BBS) are presented in *Tables 2 and 3*. Locations of significant observations are provided in *Figure 2* and are approximate. They are designed to give a general indication of the area in which the species may be nesting. During BBS visits, a total of 17 species were detected, of which five were assigned 'Probable' and twelve were assigned 'possible'. All species were detected within the study area. During area search transects a total of 29 species were detected, 16 of which were not identified during point counts (Green Heron, Mallard, Downy Woodpecker, Great Crested Flycatcher, Black-capped Chickadee, Gray Catbird, Yellow Warbler, Chestnut-sided Warbler, Common Grackle, Brown Thrasher, Killdeer, Mourning Dove, Ruby-throated Hummingbird, Barn Swallow, Winter Wren, Rose-breasted Grosbeak).

Due to the contiguity with natural lands surrounding the study area, it is important to note that, despite high levels of breeding evidence, a given species may not have been breeding specifically in the area in which it was observed. This is particularly true where species were only detected during one of the Breeding Bird Surveys. These species may have been foraging in these areas or, may have been wandering during post-breeding dispersal. Therefore, the following five species are those that can be presumed to have been breeding in, or within 120m of, the study area and were detected with probable or confirmed breeding evidence: American Goldfinch, Common Grackle, Red-winged Blackbird, American Robin and Black-capped Chickadee.

Table 2. Point Count Surveys- Highest Breeding Evidence (HBE)

Common Name	Scientific Name	COSARO	COSEWIC	S rank	G rank	Area sensitive	Area required (ha)	PIF priority species	GRCA (date unk.)	Wellington County	A	
											TOTAL	HBE
Belted Kingfisher	Megaceryle alcyon			S4B	G5			✓		✓	1	S
Eastern Kingbird	Tyrannus tyrannus			S4B	G5			✓	CP	✓	1	H
Blue Jay	Cyanocitta cristata			S5	G5						1	H
American Crow	Corvus brachyrhynchos			S5B	G5						2	P
American Robin	Turdus migratorius			S5B	G5						2	P
House Wren	Troglodytes aedon			S5B	G5						1	S
Cedar Waxwing	Bombycilla cedrorum			S5B	G5						1	H
European Starling	Stumus vulgaris			SNA	G5						2	V
Warbling Vireo	Vireo gilvus			S5B	G5						1	S
Common Yellowthroat	Geothlypis trichas			S5B	G5						2	S
Northern Cardinal	Cardinalis cardinalis			S5	G5						2	V
Indigo Bunting	Passerina cyanea			S4B	G5						1	S
Chipping Sparrow	Spizella passerina			S5B	G5						2	S
Song Sparrow	Melospiza melodia			S5B	G5						1	S
Red-winged Blackbird	Agelaius phoeniceus			S4	G5						1	S
Baltimore Oriole	Icterus galbula			S4B	G5			✓		✓	1	H
American Goldfinch	Carduelis tristis			S5B	G5				CP		2	P

Legend:
COSARO: Committee on the Status of Species at Risk Ontario
COSEWIC: Committee on the status of Endangered Wildlife in Canada
SARA: Species at Risk Act
THR: Threatened
SC: Special Concern
CP: Conservation Priority
S-Rank:
S4: Apparently Secure—Uncommon but not rare
S5: Secure—Common, widespread, and abundant in the province
G-Rank:
G5: Very common globally; demonstrably secure

Breeding Evidence:
Possible
H-suitable habitat
S-singing male

Probable
P-Pair
V- Visiting probable nest site

Table 3. Area Search- Highest Breeding Evidence (HBE)

Common name	Scientific name	COSARO	COSEWIC	S RANK	G RANK	Area Sensitive (MNRF 2000)	Area Required (Ha)	PIF priority species (BCR 13)	GRCA (date unk.)	Wellington County (2008)	A HBE
Green Heron	Butoridea virescens			S4B	G5				CP	✓	H
Mallard	Anas platyrhynchos			S5	G5						H
Killdeer	Charadrius vociferous			S5B, S5N	G5						H
Mourning Dove	Zenaida macroura			S5	G5						H
Ruby-throated Hummingbird	Archilochus colubris			S5B	G5						H
Downy Woodpecker	Picoides pubescens			S5	G5						H
Great Crested Flycatcher	Myiarchus crinitus			S4B	G5						H
Eastern Kingbird	Tyrannus tyrannus			S4B	G5			✓	CP	✓	P
Barn Swallow	Hirundo rustica	THR	THR	S4B	G5				CP		H
Blue Jay	Cyanocitta cristata			S5	G5						H
American Crow	Crovus brachyrhynchos			S5B	G5						H
Black-capped Chickadee	Poecile atricapillus			S5	G5						P
House Wren	Troglodytes aedon			S5B	G5						S
Winter Wren	Troglodytes troglodytes			S5B	G5	✓	>30ha			✓	S
American Robin	Turdus migratorius			S5B	G5						P
Gray Catbird	Dumetella carolinensis			S4B	G5						S
Brown Thrasher	Toxostoma rufum			S4B	G5			✓		✓	A
Cedar Waxwing	Bombycilla cedorum			S5B	G5						P
European Starling	Stumus vulgaris			SNA	G5						V
Warbling Vireo	Vireo gilvus			S5B	G5						S
Yellow Warbler	Dendroica petechia			S5B	G5						S
Chestnut-sided Warbler	Dendroica pensylvanica			S5B	G5				CP		S
Common Yellowthroat	Geothlypis trichas			S5B	G5						S
Rose-breasted Grosbeak	Pheucticus ludovicianus			S4B	G5			✓		✓	S
Indigo Bunting	Passerina cyanea			S4B	G5						S
Chipping Sparrow	Spizella passerina			S5B	G5						S
Song Sparrow	Melospiza melodia			S5B	G5						S
Red-winged Blackbird	Agelaius phoeniceus			S4	G5						FY
Common Grackle	Quiscalus quiscula			S5B	G5						P
Baltimore Oriole	Icterus galbula			S4B	G5			✓		✓	H
American Goldfinch	Carduelis tristis			S5B	G5				CP		P

Legend
COSARO: Committee on the Status of Species at Risk Ontario
COSEWIC: Committee on the status of Endangered Wildlife in Canada
THR: Threatened
S-Rank:
S4: Apparently Secure—Uncommon but not rare
S5: Secure—Common, widespread, and abundant in the province
G-Rank:
G5: Very common globally; demonstrably secure

Breeding Evidence:
Possible
H-suitable habitat
S-singing male
Probable
P-Pair
T-Territory (2 visits)
A-Agitated
V- Visiting probable nesting site
Confirmed
FY-fledged young

Grand River Conservation Authority:
CP: Conservation Priority

3.4.2.1 SAR, Regional and Local Significance

One species identified is considered a Species at Risk under the ESA. Barn Swallow, listed as Threatened provincially and federally, was observed foraging over the Reed Canary Grass Marsh community. The approximate location of observation is shown on *Figure 2*. The Subnational, or Provincial Ranks (SRank) are assigned by the Ontario Ministry of Natural Resources Natural Heritage Information Centre to help assign protection priorities. All species detected in the study area are ranked as either S4 (Common) or S5 (Very Common) in Ontario. The rank qualifier 'B' denotes the status of a migratory species during the breeding season.

Within Wellington Region, two species that are considered significant have been identified (Dougan & Associates, 2009) displaying probable breeding evidence; Brown Thrasher and Eastern Kingbird. Both species were identified during the area searches of the study area. Brown Thrasher, identified as exhibiting agitated behaviour, is known to nest in thickets, hedgerows, forest edges and clearings in deciduous forests (Cadman et al, 2007). A pair of Eastern Kingbirds were identified throughout the study area. Eastern Kingbirds are the most wide-spread Flycatcher and prefer a variety of open habitats (Cadman et al, 2007).

3.4.2.2 Regional Priority Species

The Ontario Landbird Conservation Plan (OLCP): Lower Great Lakes/St. Lawrence Plain, North American Bird Conservation Region 13 (Ontario Partners in Flight, 2008) has identified a number of species that are considered conservation priorities for the region. Five priority species were observed in the study area, including Belted Kingfisher, Eastern Kingbird, Rose-breasted Grosbeak, Brown Thrasher and Baltimore Oriole. The OLCP does not provide legislative protection of species or their habitat, but rather identifies species that should be conservation priorities on a regional level that were not designated Species at Risk at the time of writing.

3.3.3 Incidental Wildlife Observations

Incidental wildlife observations made outside of the above formal field surveys are presented in *Table 4*. All observations were of single individuals unless otherwise stated. None of these species are designated as Species at Risk.

Table 4. Incidental Wildlife Observations

Common Name	Scientific Name	Taxa	Date	Location/Notes
Mallard	*Anas platyrhynchos*	Bird	June 20, 2018	Observed a flying pair during ELC/botanical inventory
Red-winged Blackbird	*Agelaius phoeniceus*	Bird	June 20, 2018	Observed during ELC/botanical inventory
American Robin	*Turdus migratorius*	Bird	June 20, 2018	Observed during ELC/botanical inventory
Blue Jay	*Cyanocitta cristata*	Bird	June 20, 2018	Heard during ELC/botanical inventory
Gray Squirrel	*Scirurus carolinensis*	Mammal	June 20, 2018	Observed during ELC/botanical inventory
White-tailed Deer	*Odocoileus virginianus*	Mammal	June 25, 2018	Observed during Breeding Bird Surveys
Green Frog	*Rana clamitans*	Amphibian	June 20, 2018	Heard during ELC/botanical inventory

3.3.4 Significant Wildlife Habitat

With guidance from the *Significant Wildlife Habitat Technical Guide* (2000) and the SWH EcoRegion Criterion Schedule 6E (2015), we have determined that Significant Wildlife Habitat (SWH) is present within the proposed severance.

The Irvine Creek Wetland Complex within and adjacent to the study area may contain candidate amphibian breeding habitat (wetland). It is our opinion that the proposed development is unlikely to impact the SWH, as it is to occur entirely within the polygon containing the existing residential dwellings. The communities surrounding the development have experienced repeated anthropogenic disturbance over a number of years, therefore wildlife species occurring adjacent the proposed development are unlikely to be affected by residential use. See *Appendix 5* for a detailed assessment of Significant Wildlife Habitat.

3.3.5 Species at Risk Habitat

No candidate habitat for Species at Risk was identified within the proposed development area. Habitat for bat and amphibian SAR may occur in the treed communities opposite the proposed development. It is recommended that trees that may be removed in order to complete grading, be inspected for bat maternity potential prior to removal. Due to the recent development in the surrounding area causing repeated anthropogenic disturbance over a number of years, the wildlife species occurring adjacent to the proposed development are unlikely to be affected by residential use. See *Appendix 6* for a detailed assessment of Species at Risk Habitat.

3.4 Geology and Soils

Generally, surface soil types on the subject lands are Harriston Loam (Hoffman et al., 1963). Harriston Loam is described as having a moderately to gently rolling topography and is well-drained (Hoffman et al, 1963). Hoffman et al (1963) notes that the soil parent material is a glacial till that has been derived from the limestones that form the underlying rock strata, and that although the majority of the soil is loam, the silt content is rarely below 45%. The proposed development will be entirely on Harriston Loam.

4.0 Impact Assessment and Mitigation

The proposed development will result in impacts to the existing natural features. Through the implementation of proposed mitigation described in *Table 7,* the impact will be minor to none.

4.1 Potential Impacts and Mitigation Recommendations

An assessment of the impacts (potential and actual) and mitigation measures are provided in *Table 5*. A glossary of terms and impact ratings is found in *Appendix 9*.

Table 5. Impact Assessment and Mitigation Recommendations

PHASE	ACTIVITY	POTENTIAL IMPACTS	DURATION OF IMPACT	REVERSIBILITY	GEOGRAPHIC LEVEL OF INFLUENCE	FREQUENCY	ECOLOGICAL SITE CONTEXT	LIKELIHOOD OF OCCURRING	CUMULATIVE EFFECTS?	POTENTIAL IMPACT RATING[1]	MITIGATION RECOMMENDATIONS / COMMENTS	FINAL [2] IMPACT RATING	MONITORING / FOLLOW-UP RECOMMENDATION
Site Preparation and servicing	Vegetation Removal – clearing & grubbing *upland areas*	· Loss of vegetation and wildlife habitat · Loss of rare plant species of communities	ST	P	SA	O	D	H	N	Moderate-Minor	· Avoid significant wildlife habitat · Modify design to avoid or minimize loss of vegetation and edge habitat · Revegetate areas with native species after site preparation · Establish and maintain buffers around significant features, habitats of significant species, including rare plants	Minor	

Table 5. Impact Assessment and Mitigation Recommendations

PHASE	ACTIVITY	POTENTIAL IMPACTS	DURATION OF IMPACT	REVERSIBILITY	GEOGRAPHIC LEVEL OF INFLUENCE	FREQUENCY	ECOLOGICAL SITE CONTEXT	LIKELIHOOD OF OCCURRING	CUMULATIVE EFFECTS?	POTENTIAL IMPACT RATING[1]	MITIGATION RECOMMENDATIONS / COMMENTS	FINAL [2] IMPACT RATING	MONITORING / FOLLOW-UP RECOMMENDATION
Site Preparation and servicing (cont.)		▪ Disturbance of wildlife species	ST	P	SA	O	D	L	N	Minor	▪ Avoid removal or destruction of animal movement corridors ▪ Time activities to avoid wildlife disturbance during important life stages	None	
		▪ Impacts to Nesting Birds Protected under the Migratory Bird Convention Act	ST	P	SA	O	D	M	N	Moderate	▪ Conduct a bird nest survey to determine locations of active nests prior to construction works including installation of Erosion Sediment Control (ESC) fence and any site clearing ▪ Create nest protection zones where active bird nests are found and monitor (as needed, e.g. weekly) until inactive	Minor-None	
	Grading	▪ Increased erosion, sedimentation and turbidity	ST	P	AA	O	D	L	Y	Minor	▪ Maintain or restore vegetative buffers	None	▪ Monitor ESC fence weekly, and after a major storm event for any breaks, and repair

Table 5. Impact Assessment and Mitigation Recommendations

PHASE	ACTIVITY	POTENTIAL IMPACTS	DURATION OF IMPACT	REVERSIBILITY	GEOGRAPHIC LEVEL OF INFLUENCE	FREQUENCY	ECOLOGICAL SITE CONTEXT	LIKELIHOOD OF OCCURRING	CUMULATIVE EFFECTS?	POTENTIAL IMPACT RATING[1]	MITIGATION RECOMMENDATIONS / COMMENTS	FINAL [2] IMPACT RATING	MONITORING / FOLLOW-UP RECOMMENDATION
Site Preparation and servicing (cont.)	Grading	· Increase nutrient inputs and contaminants to waterbodies and wetlands	ST	P	AA	O	D	L	Y	Moderate	· Develop & implement ESC plan · Designate areas for equipment storage ·	Minor-None	· Monitor ESC fence weekly, and after a major storm event for any breaks, and repair
		· Increased soil compaction	LT	P	SA	O	D	H	N	Moderate	· Control access and movement of equipment and people	Minor	
		· Changes to drainage · Changes to surface runoff	LT	P	SA	O	D	H	Y	Moderate	· Schedule grading to avoid high runoff volumes · Minimize changes to land contours and natural drainage · Maintain streams and timing, quantity of flows	Minor-None	
		· Changes in soil moisture, tree cover and vegetation	LT	P	SA	O	D	H	Y	Moderate	· Minimize the area and duration of soil exposure	Minor-None	

Table 5. Impact Assessment and Mitigation Recommendations

PHASE	ACTIVITY	POTENTIAL IMPACTS	DURATION OF IMPACT	REVERSIBILITY	GEOGRAPHIC LEVEL OF INFLUENCE	FREQUENCY	ECOLOGICAL SITE CONTEXT	LIKELIHOOD OF OCCURRING	CUMULATIVE EFFECTS?	POTENTIAL IMPACT RATING[1]	MITIGATION RECOMMENDATIONS / COMMENTS	FINAL [2] IMPACT RATING	MONITORING / FOLLOW-UP RECOMMENDATION
Site Preparation and servicing (cont.)	Grading (cont.)	· Disturbance to wildlife · Alteration or destruction of wildlife Habitat	ST	R	SA	O	D	M	N	Moderate	· Time activities to avoid sensitive periods (Breeding birds, fish spawning) · Identify sensitive species prior to work and design grading to avoid disturbing sensitive species · Conduct work outside timing windows of sensitive species	Minor	
		· Wildlife Entering Construction Areas	ST	R	SA	O	D	L	N	Minor	· Develop & implement ESC plan to exclude wildlife	None	· Silt fence to be inspected weekly during site preparation
	Installation of Services and utilities (sewer, hydro, infrastructure, stormwater management facilities)	· Increased erosion, sedimentation and turbidity	ST	P	AA	O	D	M	Y	Moderate	· Maintain vegetated buffers · Develop sediment and erosion control plan	Minor-None	· Monitor ESC fence weekly, and after a major storm event for breaks, and repair
		· Increased nutrient and contaminant inputs to waterbodies	ST	P	AA	O	D	M	Y	Moderate	· Re-establish vegetation as soon as possible	Minor	

Table 5. Impact Assessment and Mitigation Recommendations

PHASE	ACTIVITY	POTENTIAL IMPACTS	DURATION OF IMPACT	REVERSIBILITY	GEOGRAPHIC LEVEL OF INFLUENCE	FREQUENCY	ECOLOGICAL SITE CONTEXT	LIKELIHOOD OF OCCURRING	CUMULATIVE EFFECTS?	POTENTIAL IMPACT RATING[1]	MITIGATION RECOMMENDATIONS / COMMENTS	FINAL [2] IMPACT RATING	MONITORING / FOLLOW-UP RECOMMENDATION
Site Preparation and servicing (cont.)	Installation of Services and utilities (sewer, hydro, infrastructure, stormwater management facilities) (cont.)	· Disposal of water from dewatering activities	ST	R	SA	O	D	L	N	Minor	· Install water infiltration basins (temporary or permanent)	None	
		· Disturbance to wildlife including sensitive species	ST	P	SA	O	D	L	N	Minor	· Conduct work outside timing windows of sensitive species	None	
		· Hydrological changes	LT	P	AA	C	D	L	Y	Moderate	· Conduct appropriate studies to determine how to maintain existing hydrology · Design underground facilities to minimize impacts to groundwater	Minor-None	
		· Wildlife Entering Construction Areas	ST	R	SA	O	D	L	N	Minor	· Develop & implement ESC plan to exclude wildlife	None	· Monitor ESC fence weekly, and after a major storm event for breaks, and repair
Construction	Building Construction (including Accessory uses and amenities)	· Increased erosion, sedimentation and turbidity	ST	P	AA	O	D	M	Y	Moderate	· Maintain vegetated buffers · Develop sediment and erosion control plan	Minor-None	
		· Water contamination by oils, gasoline, grease and other materials	LT	P	AA	O	D	M	Y	Moderate	· Control water contamination through good housekeeping practices	Minor-None	

Table 5. Impact Assessment and Mitigation Recommendations

PHASE	ACTIVITY	POTENTIAL IMPACTS	DURATION OF IMPACT	REVERSIBILITY	GEOGRAPHIC LEVEL OF INFLUENCE	FREQUENCY	ECOLOGICAL SITE CONTEXT	LIKELIHOOD OF OCCURRING	CUMULATIVE EFFECTS?	POTENTIAL IMPACT RATING[1]	MITIGATION RECOMMENDATIONS / COMMENTS	FINAL [2] IMPACT RATING	MONITORING / FOLLOW-UP RECOMMENDATION
Construction (cont.)	Building Construction (including Accessory uses and amenities) (cont.)	· Increased impervious surfaces causing, Increased runoff, reduced infiltration and groundwater discharge	LT	P	AA	C	D	H	Y	Moderate	· Maintain or provide vegetative buffers · Implement infiltration techniques · Control quantity and quality of stormwater discharge	Minor	
		· Barriers to animal and plant movement	ST	P	SA	O	D	H	N	Moderate	· Cluster multiple housing units to avoid fragmentation · Ensure wildlife corridors are maintained	Minor-None	
		· Disturbance to Wildlife from sounds and activity associated with occupancy	LT	P	SA	C	D	H	N	Moderate	· Restrict access and buffer natural areas to discourage landowner encroachment and improper use · Provide homeowners manual to encourage stewardship	Minor-None	
		· Loss of wildlife (mortality) due to collisions with buildings	LT	P	SA	C	D	M	N	Minor	· Design buildings to minimize/prevent mortality	None	
	Groundwater and surface water taking	· Reduced groundwater discharge	LT	P	SA	S	D	M	N	Minor	· Control rate and timing of water pumping · Control lawn watering	None	

Table 5. Impact Assessment and Mitigation Recommendations

PHASE	ACTIVITY	POTENTIAL IMPACTS	DURATION OF IMPACT	REVERSIBILITY	GEOGRAPHIC LEVEL OF INFLUENCE	FREQUENCY	ECOLOGICAL SITE CONTEXT	LIKELIHOOD OF OCCURRING	CUMULATIVE EFFECTS?	POTENTIAL IMPACT RATING[1]	MITIGATION RECOMMENDATIONS / COMMENTS	FINAL [2] IMPACT RATING	MONITORING / FOLLOW-UP RECOMMENDATION
Post-Construction	Use of Septic Systems	▪ Increased nutrient and contaminant input to waterbodies and wetlands	LT	P	AA	S	D	M	Y	Moderate	▪ Make alternative servicing arrangements	Minor-None	
		▪ Adverse effects to vegetation from faulty septic system	ST	R	SA	S	D	L	Y	Moderate	▪ Avoid installing system near sensitive vegetation or landforms	Minor-None	
	Human Occupation	▪ Increased nutrient and contaminant inputs to waterbodies, wetlands from fertilizers, pesticides etc.	LT	P	AA	S	D	M	Y	Moderate	▪ Avoid installing near sensitive vegetation and landforms	Minor-None	
		▪ Vegetation and soil compaction	LT	P	SA	O	D	M	N	Minor	▪ Minimize erosion by using gravel, stones or wood on paths	None	

Table 5. Impact Assessment and Mitigation Recommendations

PHASE	ACTIVITY	POTENTIAL IMPACTS	DURATION OF IMPACT	REVERSIBILITY	GEOGRAPHIC LEVEL OF INFLUENCE	FREQUENCY	ECOLOGICAL SITE CONTEXT	LIKELIHOOD OF OCCURRING	CUMULATIVE EFFECTS?	POTENTIAL IMPACT RATING[1]	MITIGATION RECOMMENDATIONS / COMMENTS	FINAL [2] IMPACT RATING	MONITORING / FOLLOW-UP RECOMMENDATION
Post-Construction (Cont.)		▪ Noise and light pollution from pets and residents ▪ Predation on wildlife by pets ▪ Non-native species introductions, increased competition, predators and parasites ▪ increased erosion and sedimentation from dumping of debris and compost in natural areas	LT	P	SA	S	D	M	Y	Moderate	▪ Provide homeowners manual to promote stewardship	Minor-None	
		▪ Tree and vegetation removals, changes to vegetation structure and composition	LT	R	SA	O	D	L	N	Minor	▪ Maintain or provide vegetative buffers	None	

4.2 Buffers

4.2.1 Wetland

The portion of the Irvine Creek Wetland Complex within the study area occurs on the opposite sides of both Beatty Line and Farley Road from the proposed development. Based on the proposed concept plan and separation by the existing roads, the development is to occur approximately 18 metres from the mapped wetland boundary. Based on the Ecological Buffer Guideline Review (Beacon, 2012), 18 metres is an appropriate setback distance, however it is recommended that the limits of development that are opposite the wetland be re-vegetated using native species trees and shrubs to help provide further protection to the wetland in the form of sediment and nutrient attenuation.

4.2.2 Watercourse

A reach of Irvine Creek that flows east to west beneath the intersection of Beatty Line and Farley Road is within the Study Area. The GRCA comments provided in regards to the Terms of Reference indicated that portions of Irvine Creek are flagged as Currently Occupied and Historically Occupied habitat for Redside Dace, a species of fish ranked as Endangered under the ESA (2007). As noted in Section 1.3.2, Redside Dace is afforded habitat protection through the ESA (2007) due to its endangered status. Due to the proximity of the development to the Irvine Creek and the sensitivity of Redside Dace to siltation, it is recommended that an Erosion and Sediment Control Plan be implemented throughout construction and the installation of native species and trees and shrubs along the edges of the development to aid in reducing runoff.

4.2 Hydrological Function of the Wetland

A detailed hydrological study of the subject property was not completed as part of the EIS. However, a general assessment of hydrological function and potential impacts to the wetland was completed using field observations and background resources.

Based on Grand River Information Network mapping (GRCA, 2013), the proposed development is on a gentle slope the western limit of the subject lands east to Beatty Line. Surface water generally runs off in the same direction towards the Irvine Creek Wetland Complex and tributary of the Grand River.

No seeps or springs were identified within the study area. Any seeps that may occur within the wetland communities are separated from the proposed development by Beatty Line and Farley Road.

Minimal surface grading on the property will occur as a result of the existing topography of the site. The general drainage pattern of the property will not be changed, with the east and west

slopes maintained. Redirection of surface flows from the proposed development including grading will be minor.

The construction of the proposed development is anticipated to create a large area of impermeable hard surface. This area may have effects on the overall infiltration of water and the water budget for the local water table, given the change in land use. The majority of water hitting these impermeable surfaces will eventually run-off and infiltrate into the ground or enter the wetland as surface water flow. The implementation of mitigation measures recommended in Section 4.0 will help to minimize potential impacts to the adjacent wetland and watercourse.

In summary, due to the minimal grading, implementation of mitigation measures and separation of the subject lands and the Irvine Creek Wetland Complex by Beatty Line and Farley Road, little no impact to the wetland hydrology is expected.

5.0 Legislation and Policy Compliance

5.1 Wellington County Official Plan

The Wellington County Official Plan (2017; Schedule A1) indicates that the proposed development is within the Fergus Urban Centre and adjacent to Core Greenland features.

The Official Plan specifies that residential uses of various types and densities will be permitted where compatible and where services are available. The proposed development is entirely within the lands designated as Urban Centre and will not encroach upon or remove any portion of the Core Greenland features opposite Beatty Line and Farley Road. Furthermore, mitigation measures proposed in Section 4.0 will ensure that there will be no negative impacts to the Core Greenland features or their ecological functions, thus complying with the Official Plan.

5.2 Provincial Policy Statement

The Provincial Policy Statement ([PPS] OMMHA, 2005) provides policy direction on matters of provincial interest related to land use planning and development. Section 2.1.4 of the PPS states that "Development and site alteration shall not be permitted in: Significant Wetlands, south and east of the Canadian Shield… unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological function." The Wellington County Official Plan (2017; Schedule A1) shows that the proposed development is adjacent to lands designated as Core Greenlands in Section 5 of the Official Plan.

Based on the Wellington County Official Plan policy in Section 5.1 of this EIS, the proposed development does not contravene the policies of the PPS because the development would result in no removal of the wetland feature or watercourse and will incorporate mitigation measures to ensure no negative impact to either feature or their ecological functions.

5.3 Township of Centre Wellington Zoning By-law 2009-045

The Township of Centre Wellington By-law No. 2009-045 Map 66 indicates that the proposed development is within lands zoned as Residential R1. Based on the permitted uses stated in Section 1.3.5, discussions with the Township of Centre Wellington may be required to determine whether the proposed development is permitted on the subject lands.

5.4 Grand River Conservation Authority

Section 8.4 of the GRCA's *Policies for the Administration of the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation* (Ontario Regulation 150/06, 2015) identifies the area of interference of a Non-Significant Wetland that is greater than 2ha as being 120m. Section 8.4.9 states that development may occur within an area of interference where an EIS demonstrates that;

a) there are no negative or adverse hydrological or ecological impacts on the wetland;

b) all development is located outside of the wetland and maintains as much setback as feasible;

c) development is located above the water table, *and*

d) septic systems are located a minimum of 15 metres from the wetland and 0.9 metres above the annual maximum water table.

Based on the physical separation of the subject lands from the wetland and watercourse feature and the implementation of mitigation measures, it is our opinion that the proposed development will result in no negative hydrological and ecological impacts upon the existing natural features. *Figure 1* demonstrates that all development is proposed to occur outside of the wetland and maintains as much setback as possible. It is recommended that a brief subsurface investigation to determine the soil type and groundwater conditions be completed to ensure the footings and sewage system for the proposed development has proper separation of at least 900mm to the seasonal high groundwater table.

5.5 Endangered Species Act (2007)

Portions of Irvine Creek have been flagged as Currently Occupied and Historically Occupied habitat for Redside Dace (*Clinostomus elongatus*), a species of fish ranked as Endangered by the ESA (2007).

The ESA (Subsection 9(1)) states that:

"No person shall,

- *(d) kill, harm, harass, capture or take a living member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species;*
- *(e) possess, transport, collect, buy, sell, lease, trade or offer to buy, sell, lease or trade,*
  - *(iv) a living or dead member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species,*
  - *(v) any part of a living or dead member of a species referred to in subclause (i),*
  - *(vi) anything derived from a living or dead member of a species referred to in subclause (i); or*
- *(f) sell, lease, trade or offer to sell, lease or trade anything that the person represents to be a thing described in subclause (b) (i), (ii) or (iii).*

Clause 10(1)(a) of the ESA also states that:

"No person shall damage or destroy the habitat of a species that is listed on the Species at Risk in Ontario list as an endangered or threatened species."

Currently, the proposed development is not occurring within or immediately adjacent the reach of Irvine Creek that is identified in the Study Area. Based on the development being confined to the subject lands south of the intersection of Beatty Line and Farley Road, encroachment into or disturbance of the watercourse is not anticipated therefore the development will not contravene the ESA (2007). It is our opinion that although no disturbance is expected, the implementation of an Erosion and Sediment Control Plan throughout the development process is necessary to ensure all sediment is contained within the limits of work.

6.0 Summary and Conclusions

It is our opinion that the measures to mitigate construction impacts from the proposed residential development will result in no negative impacts to natural heritage features identified adjacent to the proposed development. The Non-Significant Wetland and watercourse identified adjacent to the proposed development will be protected. Below is a summary of the Natural Heritage features and constraints, and associated mitigation and/or protection measures.

6.1 Biological Constraints

1. Surveys were conducted for Ecological Land Classification and Vegetation Communities (ELC and Vascular Plant List), and Breeding Birds.
2. One Species at Risk was detected within the study area; Barn Swallow was detected foraging over the Reed Canary Grass Marsh.
3. Significant Wildlife Habitat (amphibian breeding (wetland)) may occur in the adjacent wetland.

6.2 Impact Assessment

1. Potential impacts from the proposed development were assessed to determine their extent (see *Table 4*), and mitigation guidelines have been provided.
2. Impacts primarily involve the removal of naturalized weedy herbaceous vegetation communities, site grading and wildlife disturbance.
3. There is also potential for site preparation works (grading) to have minor impacts upon trees, wildlife, non-significant wetland and watercourse through root damage, wandering wildlife and sediment run-off respectively.
4. Residual impacts from occupation are expected and can be minimized through provision of an environmental guide/brochure to advise occupants of action and activities that can be taken to avoid impacts to the adjacent natural feature.
5. There are opportunities on the subject lands for edge enhancement to mitigate and offset potential for sediment run-off between the proposed development, the non-significant wetland and watercourse.

6.3 Legislation and Policy Compliance

1. The proposed development is adjacent to existing Greenland Features as designated by the Wellington County Official Plan (2017). The Official Plan and the Provincial Policy Statement (2014) prevent development and site alteration that would negatively impact the adjacent features. Due to the development being entirely outside of these features and providing mitigation, it is our opinion that there will be no negative effects to the

Greenlands from the proposed development.

2. The proposed development can occur in accordance with GRCA's *Policies for the Administration of the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation* (Ontario Regulation 150/06, 2013) because it has been demonstrated that there will be no negative impacts upon the nearby Provincially Significant Wetland, due to the location of the development and the absence of interactions with the water table.
3. The proposed development can occur in accordance with the Endangered Species Act (2007) because it has been demonstrated that there will be no negative impact to potential Redside Dace or its habitat within the reach of the Irvine Creek in the Study Area.

7.0 Recommendations

The following recommendations are provided to ensure protection of natural heritage features and function within and adjacent the severed parcel from the proposed development.

1. Implement Erosion and Sediment Control Plan (ESC) following guidelines provided in the “Greater Golden Horseshoe Area Conservation Authorities’ Erosion and Sediment Control Guideline for Urban Construction”.

2. Install and monitor a silt and sediment control barrier:
    1. Silt fence to be inspected weekly during construction and following a storm event of 25mm of rainfall within 24 hours.

3. ESC measures to be kept in place until construction is completed and disturbed soils have been vegetated.

4. Accumulated sediment and debris to be removed before silt fence is removed.

5. All disturbed areas will be re-vegetated or restored with site appropriate indigenous plants wherever opportunities exist.

6. Complete a Tree Protection and Replacement Plan, to determine which trees can be preserved and adequate compensation for those that are proposed for removal.

7. Install tree and shrub enhancement plantings along the roadside edges of the development to provide dissipation of run-off.

8. Conduct an active nest survey immediately prior to site disturbances or alterations (e.g. tree and/or vegetation removal) that will occur within the Core Nesting Period.

9. Promote occupant’s environmental stewardship awareness through provision of an environmental guide/brochure that contains a list of recommendations (e.g. do’s / don’ts) to avoid/minimize residual impacts (e.g. control pets, avoid tree removals, avoid use of pesticides and toxic materials, use of invasive plant species).

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OMNRF Certified Wetland Evaluation

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Authority Correspondence

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FIGURES

LEGEND

- CONCEPT PLAN
- STUDY AREA (120M)
- WATERCOURSE
- WETLAND
- WOODLAND

Information Sources:

1. Orthophotography provided by First Base Solutions Accessed June, 2018.
2. Woodlands, wetlands & watercourses provided by Land Information Ontario accessed June, 2018
3. Concept Plan provided by Astrid J. Clos Planning Consultants dated: May 25, 2018

Title:

PROPOSED SITE PLAN & LIMITS OF NATURAL FEATURES

Project:

6552-6558 BEATTY LINE
TOWNWSHIP OF CENTRE WELLINGTON

Date: JUNE 2018

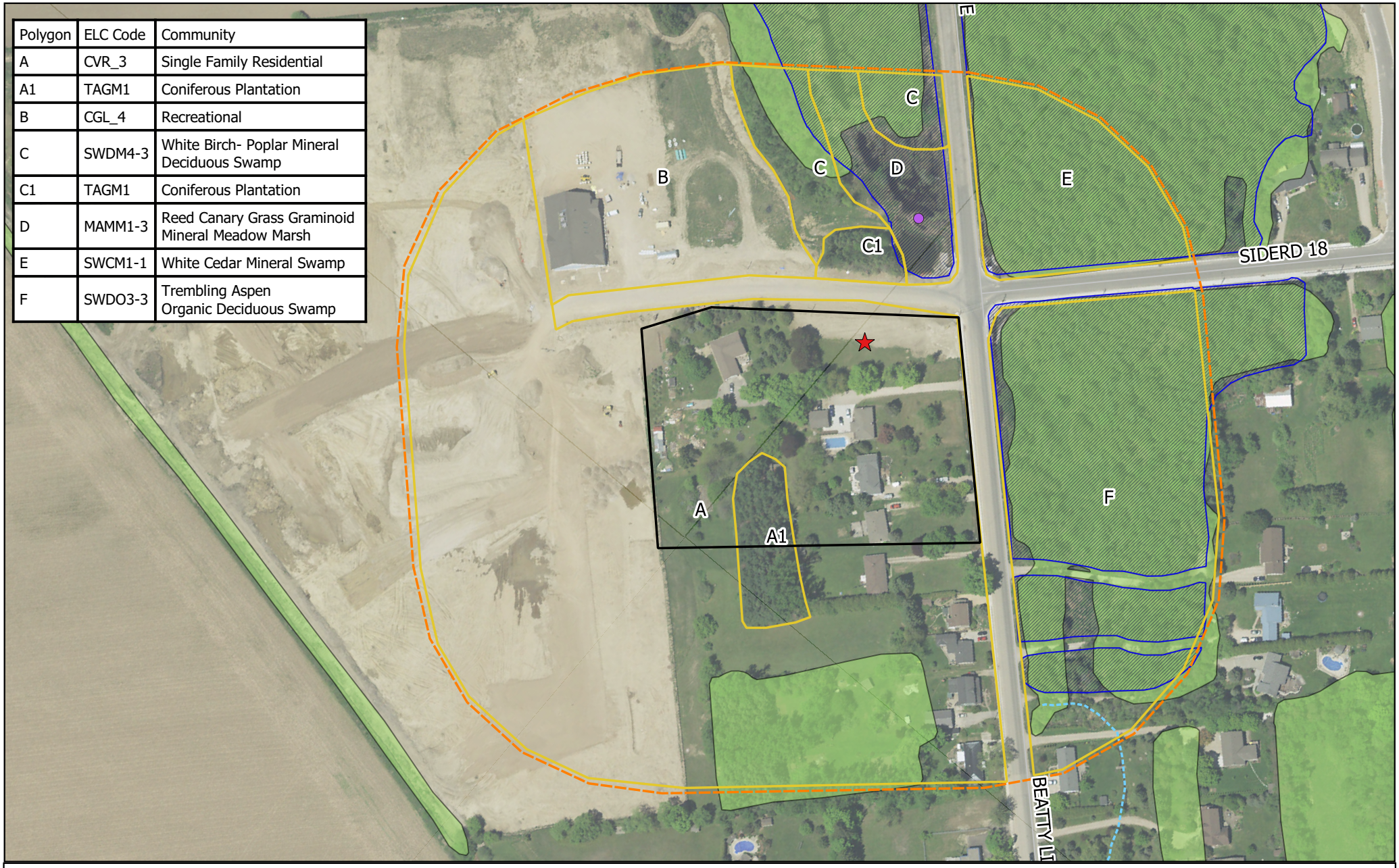
Project: AA18-030B

Scale: 1 : 2500

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road . Guelph . Ontario . N1H 7L5 . 519.822.6839 . www.aboudtng.com

Figure No: 1

Polygon	ELC Code	Community
A	CVR_3	Single Family Residential
A1	TAGM1	Coniferous Plantation
B	CGL_4	Recreational
C	SWDM4-3	White Birch- Poplar Mineral Deciduous Swamp
C1	TAGM1	Coniferous Plantation
D	MAMM1-3	Reed Canary Grass Graminoid Mineral Meadow Marsh
E	SWCM1-1	White Cedar Mineral Swamp
F	SWDO3-3	Trembling Aspen Organic Deciduous Swamp



LEGEND

- SUBJECT LANDS
- STUDY AREA (120M)
- WATERCOURSE
- WETLAND
- WOODLAND
- ECOLOGICAL LAND CLASSIFICATION
- APPROXIMATE LOCATION OF BARN SWALLOW
- BREEDING BIRD POINT COUNT LOCATION

Information Sources:

1. Orthophotography provided by First Base Solutions Accessed June, 2018.
2. Woodlands, wetlands & watercourses provided by Land Information Ontario accessed June, 2018
3. Ecological Land Classification provided by Aboud & Associates Inc. June, 2018

Title:
EXISTING CONDITIONS & NATURAL FEATURES

Project:
6552-6558 BEATTY LINE
TOWNWSHIP OF CENTRE WELLINGTON

Date: JUNE 2018
Project: AA18-030B
Scale: 1 : 2500

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190 Nicklin Road . Guelph . Ontario . N1H 7L5 . 519.822.6839 . www.aboudtng.com

Figure No: 2

APPENDIX 1

Terms of Reference and Approval

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects

190 Nicklin Road
Guelph . Ontario
N1H 7L5

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URBAN FORESTRY
ARBORIST REPORTS
MANAGEMENT PLANS
TREE PRESERVATION PLANS
TREE RISK ASSESSMENT
GIS TREE INVENTORIES
TREE APPRAISALS
MONITORING

ECOLOGICAL RESTORATION
NATURAL SYSTEMS DESIGN
HABITAT RESTORATION
EDGE MANAGEMENT PLANS
RAVINE STEWARDSHIP PLANS
NATURALIZATION PLANS
INTERPRETIVE DESIGN
MONITORING
CONTRACT ADMINISTRATION

ENVIRONMENTAL STUDIES
SUBWATERSHED STUDIES
ENVIRONMENTAL IMPACT STATEMENTS
ECOLOGICAL LAND CLASSIFICATION
WETLAND EVALUATION
VEGETATION ASSESSMENT
BOTANICAL INVENTORIES
WILDLIFE SURVEYS
MONITORING

LANDSCAPE ARCHITECTURE
MASTER PLANNING
RESIDENTIAL COMMUNITIES
COMMERCIAL/INDUSTRIAL
HEALTHCARE AND EDUCATION
STREETSCAPES
PARKS AND OPEN SPACES
TRAIL SYSTEMS
GREEN ROOFS
CONTRACT ADMINISTRATION

EXPERT OPINION
OMB TESTIMONY
LEGAL PROCEEDINGS
PEER REVIEW
RESEARCH
EDUCATION

May 10, 2018

Our Project No.: AA18-030B
Sent By Email: jwagler@grandriver.ca

Jason Wagler MCIP, RPP
Resource Planner
Grand River Conservation Authority
400 Clyde Road
Cambridge, ON N1R 5W6

Re: 6552-6558 Beatty Line, Township of Centre Wellington
Terms of Reference - Scoped Environmental Impact Study

Dear Mr. Wagler:

This document outlines the Terms of Reference (ToR) of the scoped Environmental Impact Study (EIS) for the proposed residential development containing semi-detached dwellings, a four-storey apartment building and amenities. Please review the terms and circulate to GRCA staff for discussion and approval.

BACKGROUND

The client requires an EIS to be prepared to the satisfaction of the GRCA and Wellington County in order to proceed with the proposed residential development located at 6552-6558 Beatty Line in Fergus.

The subject lands are located on Lot 18, Concession 14, west of Beatty Line south of Sideroad 18.

The subject lands are currently comprised of four properties, each with a single detached dwelling. The lands are within the Urban Centre adjacent from Core Greenlands as designated by the County of Wellington Official Plan and are zoned as Residential R1 by the Township of Centre Wellington Zoning By-law 2009-045.

The lands are partially within the GRCA Regulation Limit and the allowances of the Irvine Creek Wetland Complex and a tributary of the Grand River.

In preparing the Terms of Reference, the following sources were reviewed for background information:

- Aerial photography of the subject site,
- Concept Plan 16 (Astrid J. Clos Planning Consultants, dated March 16, 2018),
- E-mail correspondence between Client and Township (May, 2018),
- Wellington County Official Plan (2015) and Schedules,
- Wellington County mapping (Wellington County Maps, accessed May 4, 2018),
- GRCA mapping (accessed May 10, 2018) of natural heritage features (e.g. regulation limit, GRCA and OMNR wetlands, ANSI's, and MNR Woodlands),
- Natural Heritage Information Center, Make-a-map, accessed May 4, 2018,
- Ontario Nature. Ontario Reptile and Amphibian Atlas: a citizen science project to map the distribution of Ontario's reptiles and amphibians. Accessed May 4, 2018,
- Ontario Breeding Bird Atlas. Bird Studies Canada, 2007.

STUDY AREA

The study area includes the proposed residential development and up to 120 metres beyond the subject lands where permission to access property is granted (Figure 1, attached).

As needed, the lands adjacent the study area may require further access in order to assist with understanding the features and functions of natural heritage features.

Lands outside of the field study area will be reviewed from existing background information e.g. Wellington County Official Plan.

PLANNING CONTEXT

Wellington County Official Plan (2015)

The Wellington County Official Plan (Schedule A1) indicates the proposed development is within the Fergus Urban Centre. Section 7.5.1 states that:

> *"Residential uses of various types and densities commercial, industrial and institutional uses as well as parks and open space uses will be permitted where compatible and where services are available."*

Township of Centre Wellington By-Law 2009-045

The Township of Centre Wellington By-law No. 2009-045 Map 66 indicates that the proposed development is within lands zoned as Residential R1. Section 7.1.1 states that the permitted uses include:

a) A single detached dwelling
b) An existing semi-detached dwelling
c) An existing link or twin dwelling

d) A group home in accordance with Section 4.16
e) Uses, buildings and structure accessory to the foregoing, including:
    a. A bed and breakfast establishment (Class 1) in accordance with Section 4.6
    b. An accessory apartment in accordance with Section 4.1
    c. A home occupation in accordance with Section 4.18

Grand River Conservation Authority
The subject lands are opposite a portion of the Irvine Creek Wetland Complex and a tributary of the Grand River, and are within the allowances of these features. Section 8.4 of the GRCA *Policies for Administration of the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation* (Ontario Regulation 150/06, 2015) identifies the area of interference of a Non-Significant Wetland as being 30 metres.

Section 8.4.9 states that Development within an area of interference less than or equal to 30 metres from a wetland may be permitted in accordance with the policies in Sections 7.1.2-7.1.3-General Policies, and where an Environmental Impact Study demonstrates that:

a) There are no negative or adverse hydrological or ecological impacts on the wetland
b) All development is located outside of the wetland and maintains as much setback as feasible
c) Development is located above the water table, except as specified in Section 8.4.11
d) Septic systems are located a minimum of 15 metres from the wetland and 0.9 metres above the annual maximum water table.

The Provincial Policy Statement and Wellington County OP indicate that natural heritage features shall be protected for the long term. Development may be permitted adjacent to the Greenlands System where an EIS demonstrates that there will be no negative impacts on the natural heritage resources.

BACKGROUND REVIEW

Additional background natural heritage information related to the subject lands and adjacent lands identified the following information:

1. The Ontario Reptile and Amphibian Atlas shows within a 10 km square of the subject lands, the recent and historical presence of 17 species (including complexes and hybrids) of reptiles and amphibians. Including three species of Conservation Concern (Milksnake, Snapping Turtle and Blanding's Turtle).

2. The Natural Heritage Information Center indicates the presence of one species of conservation concern within 2km of the project location (Bobolink).

3. The Ontario Breeding Bird Atlas shows within a 10 km square of the subject lands, the recent presence of 86 species of bird. Including eight species of Conservation concern (Chimney Swift, Red-headed Woodpecker, Eastern Wood-pewee, Bank Swallow, Barn Swallow, Wood Thrush, Bobolink and Eastern Meadowlark).

This information indicates that there is a potential presence of additional natural heritage features and constraints that may require investigation and/or comment.

PROPOSED TERMS OF REFERENCE

Scoped Environmental Impact Study

To fulfill the requirements of this study, we will:

1. Describe the proposed development.
2. Review background information, (e.g. proposed activity, relevant sections of natural heritage system components of the Wellington County OP, investigation of wildlife atlases and NHIC)
3. Complete a MNRF Information request, to determine the potential presence of SAR or other significant natural features in the study area.
4. Conduct one site visit to characterize vegetation communities using the ELC system (MNRF) and complete a one- season botanical inventory.
5. Investigate the study area for the presence of significant wildlife habitat, Species at Risk habitat and Species at Risk presence.
6. Record observations of incidental wildlife during site visits.
7. Analyze findings and prepare a map that shows:
    a. Identified natural heritage features, and functions and landscape level features (e.g. linkages, forest interior habitat).
    b. The proposed site plan (locations of buildings, septic tank/field, amenity, drive)
    c. ELC vegetation communities
    d. Other noteworthy features as needed
    e. Locations of other natural heritage features from background literature searches (e.g. mammal atlas, herpetofaunal atlas, Wellington County OP, Township Zoning Bylaw.
8. Conduct an impact assessment by reviewing the proposed development's direct, in-direct, and induced (i.e. residual, ongoing) impacts on the natural features. Provide an opinion about the location of the components of the site plan (e.g. building footprint, drive, septic field) to reduce/avoid impacts to natural heritage features. Show the configuration of the proposed development within the building envelope and assess for minimizing impacts to ecological features and functions. This will involve discussions with the proponent, project surveyor and AA.
9. Provide policy rationale for expected impacts to natural heritage features e.g. removal of trees and grading to accommodate the site plan.
10. Edge Management Guidelines and Compensation: Provide general recommendations of where and why naturalization treatments may be needed to protect vegetation features (e.g. woodlands, wetlands) adjacent to the development activity. Provide rationale and recommendations for tree compensation (e.g. where, why and how much).
11. Examine site hydrology with input from the project engineers, and determine if impacts are anticipated; provide mitigation for expected impacts.

12. Prepare a report of the EIS that includes background information, methods, existing conditions, proposed development, impact assessment and mitigation measures, and appendices of field studies (e.g. flora and ELC data sheets, breeding bird survey results).
13. Submit EIS to client for review followed by distribution to the Township, County and GRCA.

I look forward to your response regarding these proposed terms of reference. If you require clarification, please do not hesitate to email or call me at 519.822.6839 x5.

Yours truly,

ABOUD & ASSOCIATES INC.

Shannon Davison B.Env., Eco. Rest. Cert.
Ecologist
OMNRF Certified Ecological Land Classification
OMNRF Certified Wetland Evaluation

Cc: Taylor McDaniel, Jennark Homes(email)
Sarah Wilhelm, County of Wellington (email)
Brett Salmon, Township of Centre Wellington (email)
Astrid Clos, Astrid J. Clos Planning Consultants (email)

Grand River Conservation Authority

Date: May 10, 2018
Author: Aboud & Associates

Beatty Line

Red outline depicts subject lands. Black buffer depicts study area.

Legend

- Regulation Limit (GRCA)
- Regulated Watercourse (GRCA)
- Regulated Waterbody (GRCA)
- Wetland (GRCA)
- Floodplain (GRCA)
  - Engineered
  - Estimated
  - Approximate
  - Special Policy Area
- Slope Valley (GRCA)
  - Steep
  - Oversteep
  - Steep
- Slope Erosion (GRCA)
  - Oversteep
  - Toe
- Lake Erie Flood (GRCA)
- Lake Erie Shoreline Reach (GRCA)
- Lake Erie Dynamic Beach (GRCA)
- Lake Erie Erosion (GRCA)
- Parcel - Assessment (MPAC/MNRF)

This legend is static and may not fully reflect the layers shown on the map. The text of Ontario Regulation 150/06 supercedes the mapping as represented by these layers.

0 20 40 80 120 Metres

N

Map Centre (UTM NAD83 z17): 548,008.11 4,839,803.90

This map is not to be used for navigation | 2015 Ortho (ON)

NAD 1983 UTM Zone 17N

Scale: 3,778

400 Clyde Road, P.O. Box 729 Cambridge, ON N1R 5W6

Phone: 519.621.2761 **Toll free:** 866.900.4722 **Fax:** 519.621.4844 **Online:** www.grandriver.ca

May 16, 2018

Shannon Davison, Ecologist
Aboud & Associates Inc.
sdavison@aboudtng.com

Attn: Shannon Davison

Dear Ms. Davison:

RE: Terms of Reference – 6552-6558 Beatty Line - EIS Terms of Reference
Township of Centre Wellington

Summary
We have now had an opportunity to review the Terms of Reference for the Environmental Impact Study (dated May 10, 2018) for a future residential development consisting of semi-detached dwellings, a four-storey apartment building and amenities. The Terms of Reference should be revised to include the following comments:

Comments

1. The Terms of Reference identifies the GRCA Area of Interference for a non-Provincially Significant Wetland as being 30m. In this situation since the wetland is larger than 2ha, the GRCA Policy 8.4 applies a 120m Area of Interference; this should be corrected in the EIS.

2. Background Review, portions of Irvine Creek are flagged as Currently Occupied and Historically Occupied habitat for Redside Dace (*Clinostomus elongates*) which is a species of fish ranked as Endangered under the *Endangered Species Act*. The EIS should screen the proposed works to ensure compliance with the act and ensure no impacts to Redside Dace.

Recommendations

3. With the amount of tree cover that will be removed breeding bird surveys should be completed following the Breeding Bird Atlas protocol.

Should you have any questions or comments, please contact me at 519-621-2763 x2320.

Yours truly,

Jason Wagler, MCIP, RPP
Resource Planner
Grand River Conservation Authority

cc. Brett Salmon, Township of Centre Wellington

ABOUD & ASSOCIATES INC.
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TRAIL SYSTEMS
GREEN ROOFS
CONTRACT ADMINISTRATION

EXPERT OPINION
OMB TESTIMONY
LEGAL PROCEEDINGS
PEER REVIEW
RESEARCH
EDUCATION

May 29, 2018

Our Project No.: AA18-030B
Sent By Email: jwagler@grandriver.ca

Jason Wagler MCIP, RPP
Resource Planner
Grand River Conservation Authority
400 Clyde Road
Cambridge, ON N1R 5W6

Re: 6552-6558 Beatty Line, Township of Centre Wellington
Revised Terms of Reference - Scoped Environmental Impact Study

Dear Mr. Wagler:

This document outlines the revised Terms of Reference (ToR) of the scoped Environmental Impact Study (EIS) for the proposed residential development containing semi-detached dwellings, a four-storey apartment building and amenities. Please review the terms and circulate to GRCA staff for discussion and approval.

BACKGROUND

The client requires an EIS to be prepared to the satisfaction of the GRCA and Wellington County in order to proceed with the proposed residential development located at 6552-6558 Beatty Line in Fergus.

The subject lands are located on Lot 18, Concession 14, west of Beatty Line south of Sideroad 18.

The subject lands are currently comprised of four properties, each with a single detached dwelling. The lands are within the Urban Centre adjacent from Core Greenlands as designated by the County of Wellington Official Plan and are zoned as Residential R1 by the Township of Centre Wellington Zoning By-law 2009-045.

The lands are partially within the GRCA Regulation Limit and the allowances of the Irvine Creek Wetland Complex and a tributary of the Grand River.

In preparing the Terms of Reference, the following sources were reviewed for background information:

- Aerial photography of the subject site,
- Concept Plan 16 (Astrid J. Clos Planning Consultants, dated March 16, 2018),
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- Ontario Nature. Ontario Reptile and Amphibian Atlas: a citizen science project to map the distribution of Ontario's reptiles and amphibians. Accessed May 4, 2018,
- Ontario Breeding Bird Atlas. Bird Studies Canada, 2007.
- Department of Fisheries and Oceans, Aquatic Species at Risk Mapping

STUDY AREA

The study area includes the proposed residential development and up to 120 metres beyond the subject lands where permission to access property is granted (Figure 1, attached).

As needed, the lands adjacent the study area may require further access in order to assist with understanding the features and functions of natural heritage features.

Lands outside of the field study area will be reviewed from existing background information e.g. Wellington County Official Plan.

PLANNING CONTEXT

Wellington County Official Plan (2015)

The Wellington County Official Plan (Schedule A1) indicates the proposed development is within the Fergus Urban Centre. Section 7.5.1 states that:

> *"Residential uses of various types and densities commercial, industrial and institutional uses as well as parks and open space uses will be permitted where compatible and where services are available."*

Township of Centre Wellington By-Law 2009-045

The Township of Centre Wellington By-law No. 2009-045 Map 66 indicates that the proposed development is within lands zoned as Residential R1. Section 7.1.1 states that the permitted uses include:

a) A single detached dwelling
b) An existing semi-detached dwelling

c) An existing link or twin dwelling
d) A group home in accordance with Section 4.16
e) Uses, buildings and structure accessory to the foregoing, including:
    a. A bed and breakfast establishment (Class 1) in accordance with Section 4.6
    b. An accessory apartment in accordance with Section 4.1
    c. A home occupation in accordance with Section 4.18

Grand River Conservation Authority
The subject lands are opposite a portion of the Irvine Creek Wetland Complex and a tributary of the Grand River, and are within the allowances of these features. Section 8.4 of the GRCA *Policies for Administration of the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation* (Ontario Regulation 150/06, 2015) identifies the area of interference of a Non-Significant Wetland that is greater than 2 hectares as being 120m.

Section 8.4.9 states that Development within an area of interference less than or equal to 30 metres from a wetland may be permitted in accordance with the policies in Sections 7.1.2-7.1.3-General Policies, and where an Environmental Impact Study demonstrates that:
a) There are no negative or adverse hydrological or ecological impacts on the wetland
b) All development is located outside of the wetland and maintains as much setback as feasible
c) Development is located above the water table, except as specified in Section 8.4.11
d) Septic systems are located a minimum of 15 metres from the wetland and 0.9 metres above the annual maximum water table.

The Provincial Policy Statement and Wellington County OP indicate that natural heritage features shall be protected for the long term. Development may be permitted adjacent to the Greenlands System where an EIS demonstrates that there will be no negative impacts on the natural heritage resources.

BACKGROUND REVIEW

Additional background natural heritage information related to the subject lands and adjacent lands identified the following information:

1. The Ontario Reptile and Amphibian Atlas shows within a 10 km square of the subject lands, the recent and historical presence of 17 species (including complexes and hybrids) of reptiles and amphibians. Including three species of Conservation Concern (Milksnake, Snapping Turtle and Blanding's Turtle).

2. The Natural Heritage Information Center indicates the presence of one species of conservation concern within 2km of the project location (Bobolink).

3. The Ontario Breeding Bird Atlas shows within a 10 km square of the subject lands, the recent presence of 86 species of bird. Including eight species of Conservation concern (Chimney Swift, Red-headed Woodpecker, Eastern Wood-pewee, Bank Swallow, Barn Swallow, Wood Thrush, Bobolink and Eastern Meadowlark).

4. DFO Aquatic Species at Risk Mapping indicates that portions of the Irvine Creek are flagged as Currently Occupied and Historically Occupied habitat for Redside Dace.

This information indicates that there is a potential presence of additional natural heritage features and constraints that may require investigation and/or comment.

PROPOSED TERMS OF REFERENCE

Scoped Environmental Impact Study

To fulfill the requirements of this study, we will:

1. Describe the proposed development.
2. Review background information, (e.g. proposed activity, relevant sections of natural heritage system components of the Wellington County OP, investigation of wildlife atlases and NHIC)
3. Complete a MNRF Information request, to determine the potential presence of SAR or other significant natural features in the study area.
4. Conduct one site visit to characterize vegetation communities using the ELC system (MNRF) and complete a one- season botanical inventory.
5. Investigate the study area for the presence of significant wildlife habitat, Species at Risk habitat and Species at Risk presence.
6. Conduct a Breeding Bird Survey of the study area, following the protocol of the Ontario Breeding Bird Atlas (Bird Studies Canada, 2004), and including both point counts and area searches. The Breeding Bird Survey requires two, focused, early morning site visits during the period between late May and early July.
7. Record observations of incidental wildlife during site visits.
8. Analyze findings and prepare a map that shows:
    a. Identified natural heritage features, and functions and landscape level features (e.g. linkages, forest interior habitat).
    b. The proposed site plan (locations of buildings, septic tank/field, amenity, drive)
    c. ELC vegetation communities
    d. Other noteworthy features as needed
    e. Locations of other natural heritage features from background literature searches (e.g. mammal atlas, herpetofaunal atlas, Wellington County OP, Township Zoning Bylaw.
9. Conduct an impact assessment by reviewing the proposed development's direct, in-direct, and induced (i.e. residual, ongoing) impacts on the natural features. Ensure compliance with the Endangered Species Act and no impacts to Redside Dace. Provide an opinion about the location of the components of the site plan (e.g. building footprint, drive, septic field) to reduce/avoid impacts to natural heritage features. Show the configuration of the proposed development within the building envelope and assess for minimizing impacts to ecological features and functions. This will involve discussions with the proponent, project surveyor and AA.
10. Provide policy rationale for expected impacts to natural heritage features e.g. removal of trees and grading to accommodate the site plan.

11. Edge Management Guidelines and Compensation: Provide general recommendations of where and why naturalization treatments may be needed to protect vegetation features (e.g. woodlands, wetlands) adjacent to the development activity. Provide rationale and recommendations for tree compensation (e.g. where, why and how much).
12. Examine site hydrology with input from the project engineers, and determine if impacts are anticipated; provide mitigation for expected impacts.
13. Prepare a report of the EIS that includes background information, methods, existing conditions, proposed development, impact assessment and mitigation measures, and appendices of field studies (e.g. flora and ELC data sheets, breeding bird survey results).
14. Submit EIS to client for review followed by distribution to the Township, County and GRCA.

I look forward to your response regarding these proposed terms of reference. If you require clarification, please do not hesitate to email or call me at 519.822.6839 x5.

Yours truly,

ABOUD & ASSOCIATES INC.

Shannon Davison B.Env., Eco. Rest. Cert.
Ecologist
OMNRF Certified Ecological Land Classification
OMNRF Certified Wetland Evaluation

Cc: Taylor McDaniel, Jennark Homes(email)
Sarah Wilhelm, County of Wellington (email)
Brett Salmon, Township of Centre Wellington (email)
Astrid Clos, Astrid J. Clos Planning Consultants (email)

Grand River Conservation Authority

Date: May 10, 2018
Author: Aboud & Associates

Beatty Line

Red outline depicts subject lands. Black buffer depicts study area.

Legend

- Regulation Limit (GRCA)
- Regulated Watercourse (GRCA)
- Regulated Waterbody (GRCA)
- Wetland (GRCA)
- Floodplain (GRCA)
  - Engineered
  - Estimated
  - Approximate
  - Special Policy Area
- Slope Valley (GRCA)
  - Steep
  - Oversteep
  - Steep
- Slope Erosion (GRCA)
  - Oversteep
  - Toe
- Lake Erie Flood (GRCA)
- Lake Erie Shoreline Reach (GRCA)
- Lake Erie Dynamic Beach (GRCA)
- Lake Erie Erosion (GRCA)
- Parcel - Assessment (MPAC/MNRF)

This legend is static and may not fully reflect the layers shown on the map. The text of Ontario Regulation 150/06 supercedes the mapping as represented by these layers.

0 20 40 80 120 Metres

N

Map Centre (UTM NAD83 z17): 548,008.11 4,839,803.90

This map is not to be used for navigation | 2015 Ortho (ON)

NAD 1983 UTM Zone 17N

Scale: 3,778

APPENDIX 2

Detailed Survey Dates & Weather Information

Survey	Time	Date	Staff	Temp. (°C)	Wind (Beaufort)	Cloud Cover %	Precipitation	Past Precipitation
Breeding Bird Survey #1	07:30-08:50	05-Jun-18	MI	13	2	0	None	Light
ELC/Spring Botanical	09:30-12:30	20-Jun-18	SD	17	1	100	None	Light
Breeding Bird Survey #2	07:30-08:40	25-Jun-18	MI	13	2	0	None	Light

APPENDIX 3

Ecological Land Classification Forms

ELC COMMUNITY DESCRIPTION & CLASSIFICATION

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road , Guelph , Ontario , Canada , N1H 7L5
T:519.822.6839 , F:519.822.4052 , info@aboudtng.com , www.aboudtng.com

Project: Beatty Line **Project #:** 18-030B **Observer(s):** SD

Weather conditions: **Date:** 20/06/2018

Temp (°C)	Wind*	Cloud Cover	Precipitation	Precipitation(24hrs)
17	1	100	Light	Light

*Beaufort Scale: 0- (0 km/hr), 1- (1-5km/hr), 2- (6-11km/hr), 3- (12-19km/hr), 4- (20-28km/hr), 5- (29-38km/hr), 6- (39-49km/hr)

Polygon: C	**Polygon UTM** E: 547878.11 N: 4839923.33	**Community Series** SWD- Deciduous Swamp	**Ecosite** SWDM4- Mineral Deciduous Swamp	**Vegetation Type** SWDM4-3- White Birch- Poplar Mineral Deciduous Swamp

System
Terrestrial [Wetland] Aquatic

Topographic Feature
Lacustrine Riverine Bottomland Terrace Valley slope [Tableland] Rolling upland
Cliff Talus Crevice Cave Alvar Rockland Beach Bar Sand dune Bluff

Dominant Plant Form
Plankton Submerged Floating-lvd. Graminoid Forb
Lichen Bryophyte [Deciduous] Coniferous Mixed

Cover
Open Shrub [Treed]

History
[Natural] Cultural

Community Class
Beach-Bar Sand Dune Bluff Cliff Talus Alvar Rock Barren Crevice-Cave Sand Barren Meadow Tallgrass
Prairie Savannah Woodland Forest Thicket Cultural [Swamp] Fen Bog Marsh Open Water Shallow Water

Stand Description:

Community Age
Pioneer [Young] [Mid-Aged] Mature Old Growth

Basal Area (m²/ha)

Standing Snags
[Rare] Occasional Abundant Dominant

Deadfall Logs
[Rare] Occasional Abundant Dominant

Health
Low [Medium] High

Sensitivity
Low [Medium] High

Botanical Quality
Low [Medium] High

Slope
none [gentle] moderate steep (simple or complex)

Soil Analysis:

Soil Drainage
Very Rapid Rapid Well Moderately Well Imperfect Poor Very Poor

Soil Moisture Regime
Dry Fresh Moist Wet

Effective Soil Texture

Depth to Mottles / Gley
Sample: M - -- cm / G - -- cm

Depth to Groundwater metres
at surface less than 1m more than 1 m

Depth to Bedrock metres
at surface less than 1m more than 1 m

	Vegetation Layer	Height [1]	Cover [2]	Dominant Species per Vegetation Layer
1	Canopy	2	3	POPTREM > FRAPENN > PINSTRO > PICABIE
2	Subcanopy	3	2	POPTREM > POPBALS
3	Understorey	4	3	RHACATH > CORSERI > SALPURP > SALBEBB
4	Ground Layer	5	4	SOL SP. > PHAARUN > SYMPFOET > VICCRAC

[1] ***Height Code***: 1=>20m, 2=10m-20m, 3=2m-10m, 4=1m-2m, 5=0.5m-1m, 6=0.2m-0.5m, 7= < 0.2m [2] ***Cover Codes***: 0 = none, 1 = 0%- 10%, 2 = 10%- 25%, 3 = 25%-60%, 4= >60%

Size Class Analysis [3]	O	A	O	R
[3] *Abundance Code*: RS=Rare, O=Occasional, A=Abundant, D=Dominant	**< 10 cm DBH**	**10 to 24 cm DBH**	**25 to 50 cm DBH**	**> 50 cm DBH**

Evidence of Disturbance:

Wildlife / Habitat Observations / Comments:
Red-winged Blackbird, Grey Squirrel

				Community Name	Code	% Coverage
Inclusion	**X**	**Complex**		Coniferous Plantation	**TAGM1**	**25**
Inclusion		**Complex**				
Inclusion		**Complex**				

Plant Species List	Layer / Abundance *Abundance Code*: R=Rare, O=Occasional, A=Abundant, D=Dominant			
	1	2	3	4
Trees				
PINUS STROBUS	R			
PICEA PUNGENS	R			
POPULUS TREMULOIDES	A-O	O		
POPULUS BALSAMIFERA		O		
PICEA ABIES	R			
FRAXINUS PENNSYLVANICA	O-R			
Shrubs and Woody Vines				
CORNUS SERICEA			O-R	
RHAMNUS CATHARTICA			O	
SALIX PURPUREA			R	
SALIX BEBBIANA			R	

Plant Species List	Layer / Abundance *Abundance Code*: R=Rare, O=Occasional, A=Abundant, D=Dominant			
	1	2	3	4
Ferns & Fern Allies, Herbs, Graminoids				
LEUCANTHEMUM VULGARE				O
VICIA CRACCA				O
RANUNCULUS ACRIS				R
OXALIS STRICTA				R
RUMEX OBTUSIFOLIUS				O
ERIGERON PHILADELPHICUS				R
EQUISETUM ARVENSE				R
ASCLEPIAS SYRIACA				R
SOLIDAGO SP.				A-O
PHALARIS ARUNDINACEA				O
CIRSIUM ARVENSE				R
LOTUS CORNICULATUS				R
TUSSILAGO FARFARA				O-R
SYMPLOCARPUS FOETIDUS				O

ELC COMMUNITY DESCRIPTION & CLASSIFICATION

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road , Guelph , Ontario , Canada , N1H 7L5
T:519.822.6839 , F:519.822.4052 , info@aboudtng.com , www.abouatng.com

Project: Beatty Line **Project #:** 18-030B **Observer(s):** SD

Weather conditions: **Date:**

Temp (°C)	Wind*	Cloud Cover	Precipitation	Precipitation(24hrs)
17	1	100	None	Light

*Beaufort Scale: 0- (0 km/hr), 1- (1-5km/hr), 2- (6-11km/hr), 3- (12-19km/hr), 4- (20-28km/hr), 5- (29-38km/hr), 6- (39-49km/hr)

Polygon: D	**Polygon UTM** E: 547947.31 N: 4839924.93	**Community Series** MAM- Meadow Marsh	**Ecosite** MAMM1- Graminoid Mineral Meadow Marsh	**Vegetation Type** MAMM1-3- Reed Canary Grass Graminoid Mineral Meadow Marsh

System
Terrestrial [Wetland] Aquatic

Topographic Feature
Lacustrine Riverine Bottomland Terrace Valley slope [Tableland] Rolling upland
Cliff Talus Crevice Cave Alvar Rockland Beach Bar Sand dune Bluff

Dominant Plant Form
Plankton Submerged Floating-lvd. [Graminoid] Forb
Lichen Bryophyte Deciduous Coniferous Mixed

Cover
[Open] Shrub Treed

History
[Natural] Cultural

Community Class
Beach-Bar Sand Dune Bluff Cliff Talus Alvar Rock Barren Crevice-Cave Sand Barren Meadow Tallgrass
Prairie Savannah Woodland Forest Thicket Cultural Swamp Fen Bog [Marsh] Open Water Shallow Water

Stand Description:

Community Age
Pioneer Young Mid-Aged Mature Old Growth

Basal Area (m^2/ha)

Standing Snags
Rare Occasional Abundant Dominant

Deadfall Logs
Rare Occasional Abundant Dominant

Health
Low [Medium] High

Sensitivity
Low [Medium] High

Botanical Quality
Low [Medium] High

Slope
none [gentle] moderate steep (simple or complex)

Soil Analysis:

Soil Drainage
Very Rapid Rapid Well Moderately Well Imperfect Poor Very Poor

Soil Moisture Regime
Dry Fresh Moist Wet

Effective Soil Texture

Depth to Mottles / Gley
Sample: M - -- cm / G - -- cm

Depth to Groundwater metres
at surface less than 1m more than 1 m

Depth to Bedrock metres
at surface less than 1m more than 1 m

	Vegetation Layer	Height [1]	Cover [2]	Dominant Species per Vegetation Layer
1	Canopy			
2	Subcanopy			
3	Understorey	4	4	PHAARUN > CARLACU > TYPANGU > SALBEBB
4	Ground Layer	6	3	IRIVERS > IMPCAPE

[1] ***Height Code***: 1=>20m, 2=10m-20m, 3=2m-10m, 4=1m-2m, 5=0.5m-1m, 6=0.2m-0.5m, 7= < 0.2m [2] ***Cover Codes***: 0 = none, 1 = 0%- 10%, 2 = 10%- 25%, 3 = 25%-60%, 4= >60%

Size Class Analysis [3]				
[3] *Abundance Code*: RS=Rare, O=Occasional, A=Abundant, D=Dominant	**< 10 cm DBH**	**10 to 24 cm DBH**	**25 to 50 cm DBH**	**> 50 cm DBH**

Evidence of Disturbance:

Wildlife / Habitat Observations / Comments:
Red-winged Blackbird

				Community Name	**Code**	**% Coverage**
Inclusion		**Complex**				
Inclusion		**Complex**				
Inclusion		**Complex**				

Plant Species List	Layer / Abundance *Abundance Code*: R=Rare, O=Occasional, A=Abundant, D=Dominant 1	2	3	4
Trees				
Shrubs and Woody Vines				
SALIX PURPUREA			R	
SALIX BEBBIANA			O	

Plant Species List	Layer / Abundance *Abundance Code*: R=Rare, O=Occasional, A=Abundant, D=Dominant 1	2	3	4
Ferns & Fern Allies, Herbs, Graminoids				
CAREX LACUSTRIS			A	
PHALARIS ARUNDINACEA			D	
TYPHA ANGUSTIFOLIA			A-O	
LEMNA SP. (WATER SURFACE)				A-O
EUTROCHIUM MACULATUM			R	
IRIS VERSICOLOR				O
IMPATIENS CAPENSIS				O

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Project: Beatty Line **Project #:** 18-030B **Observer(s):** SD

Weather conditions: **Date:** 20/06/2018

Temp (°C)	Wind*	Cloud Cover	Precipitation	Precipitation(24hrs)
19	1	100	None	Light

*Beaufort Scale: 0- (0 km/hr), 1- (1-5km/hr), 2- (6-11km/hr), 3- (12-19km/hr), 4- (20-28km/hr), 5- (29-38km/hr), 6- (39-49km/hr)

Polygon: E	**Polygon UTM** E: 547993.29 N: 4839972.13	**Community Series** SWC- Coniferous Swamp	**Ecosite** SWCM1- White Cedar Coniferous Swamp	**Vegetation Type** SWCM1-1- White Cedar Mineral Swamp

System
Terrestrial [Wetland]
Aquatic

Topographic Feature
Lacustrine Riverine Bottomland Terrace Valley slope [Tableland] Rolling upland
Cliff Talus Crevice Cave Alvar Rockland Beach Bar Sand dune Bluff

Dominant Plant Form
Plankton Submerged Floating-lvd. Graminoid Forb
Lichen Bryophyte Deciduous [Coniferous] Mixed

Cover
Open Shrub
[Treed]

History
[Natural]
Cultural

Community Class
Beach-Bar Sand Dune Bluff Cliff Talus Alvar Rock Barren Crevice-Cave Sand Barren Meadow Tallgrass
Prairie Savannah Woodland Forest Thicket Cultural [Swamp] Fen Bog Marsh Open Water Shallow Water

Stand Description:

Community Age
Pioneer Young [Mid-Aged] Mature Old Growth

Basal Area (m²/ha)

Standing Snags
Rare [Occasional] Abundant Dominant

Deadfall Logs
[Rare] Occasional Abundant Dominant

Health
Low [Medium] High

Sensitivity
Low [Medium] High

Botanical Quality
Low [Medium] High

Slope
none [gentle] moderate steep (simple or complex)

Soil Analysis:

Soil Drainage
Very Rapid Rapid Well Moderately Well Imperfect Poor Very Poor

Soil Moisture Regime
Dry Fresh Moist Wet

Effective Soil Texture

Depth to Mottles / Gley
Sample: M - -- cm / G - -- cm

Depth to Groundwater metres
at surface less than 1m more than 1 m

Depth to Bedrock metres
at surface less than 1m more than 1 m

	Vegetation Layer	Height [1]	Cover [2]	Dominant Species per Vegetation Layer
1	Canopy	2	1	ABIBALS > LARLARI
2	Subcanopy	3	4	THUOCCI >> FRAPENN
3	Understorey	4	2	CORALTE > RHACATH > ACENIGR > PHAARUN
4	Ground Layer	6	3	TUSFARF > ONOSENS > SYMFOET > RANABOR

[1] ***Height Code***: 1=>20m, 2=10m-20m, 3=2m-10m, 4=1m-2m, 5=0.5m-1m, 6=0.2m-0.5m, 7= < 0.2m [2] ***Cover Codes***: 0 = none, 1 = 0%- 10%, 2 = 10%- 25%, 3 = 25%-60%, 4= >60%

Size Class Analysis [3]	O	A	O	R
[3] *Abundance Code*: RS=Rare, O=Occasional, A=Abundant, D=Dominant	**< 10 cm DBH**	**10 to 24 cm DBH**	**25 to 50 cm DBH**	**> 50 cm DBH**

Evidence of Disturbance:

Wildlife / Habitat Observations / Comments:

				Community Name	Code	% Coverage
Inclusion		Complex				
Inclusion		Complex				
Inclusion		Complex				

Plant Species List	**Layer / Abundance** *Abundance Code*: R=Rare, O=Occasional, A=Abundant, D=Dominant			
	1	2	3	4
Trees				
THUJA OCCIDENTALIS		D		
ABIES BALSAMEA	R			
ACER NIGRUM			O-R	
FRAXINUS PENNSYLVANICA		R		
LARIX LARICINA	R			
Shrubs and Woody Vines				
CORNUS ALTERNIFOLIA			O	
RHAMNUS CATHARTICA			O-R	

Plant Species List	**Layer / Abundance** *Abundance Code*: R=Rare, O=Occasional, A=Abundant, D=Dominant			
	1	2	3	4
Ferns & Fern Allies, Herbs, Graminoids				
TRIFOLIUM REPENS				R
PHALARIS ARUNDINACEA			O-R	
TYPHA ANGUSTIFOLIA			R	
TUSSILAGO FARFARA				O
ONOCLEA SENSIBILIS				O
LOTUS CORNICULATUS				R
SYMPLOCARPUS FOETIDUS				O-R
RANUNCULUS ACRIS				R
VICIA CRACCA				R
SCIRPUS CYPERINUS			R	

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Project: Beatty Line **Project #:** 18-030B **Observer(s):** SD

Weather conditions: **Date:** 20/06/2018

Temp (°C)	Wind*	Cloud Cover	Precipitation	Precipitation(24hrs)
19	1	100	None	Light

*Beaufort Scale: 0- (0 km/hr), 1- (1-5km/hr), 2- (6-11km/hr), 3- (12-19km/hr), 4- (20-28km/hr), 5- (29-38km/hr), 6- (39-49km/hr)

Polygon: F	**Polygon UTM** E: 548062.89 N: 4839895.89	**Community Series** SWD- Deciduous Swamp	**Ecosite** SWDO3- Organic Deciduous Swamp	**Vegetation Type** SWDO3-3 Trembling Aspen Organic Deciduous Swamp

System
Terrestrial [Wetland] Aquatic

Topographic Feature
Lacustrine Riverine Bottomland Terrace Valley slope [Tableland] Rolling upland
Cliff Talus Crevice Cave Alvar Rockland Beach Bar Sand dune Bluff

Dominant Plant Form
Plankton Submerged Floating-lvd. Graminoid Forb
Lichen Bryophyte [Deciduous] Coniferous Mixed

Cover
Open Shrub [Treed]

History
[Natural] Cultural

Community Class
Beach-Bar Sand Dune Bluff Cliff Talus Alvar Rock Barren Crevice-Cave Sand Barren Meadow Tallgrass
Prairie Savannah Woodland Forest Thicket Cultural [Swamp] Fen Bog Marsh Open Water Shallow Water

Stand Description:

Community Age
Pioneer Young [Mid-Aged] Mature Old Growth

Basal Area (m²/ha)

Standing Snags
Rare [Occasional] Abundant Dominant

Deadfall Logs
Rare [Occasional] Abundant Dominant

Health
Low [Medium] High

Sensitivity
Low [Medium] High

Botanical Quality
Low [Medium] High

Slope
none [gentle] moderate steep (simple or complex)

Soil Analysis:

Soil Drainage
Very Rapid Rapid Well Moderately Well Imperfect Poor Very Poor

Soil Moisture Regime
Dry Fresh Moist Wet

Effective Soil Texture

Depth to Mottles / Gley
Sample: M - -- cm / G - -- cm

Depth to Groundwater metres
at surface less than 1m more than 1 m

Depth to Bedrock metres
at surface less than 1m more than 1 m

	Vegetation Layer	Height [1]	Cover [2]	Dominant Species per Vegetation Layer
1	Canopy	2	3	POPTREM > FRAPENN > POPBALS
2	Subcanopy	3	3	POPTREM > POPBALS > THUOCCI
3	Understorey	4	3	PHAARUN > CORSERI > SAL SP. > RHACATH
4	Ground Layer	6	4	TUSFARF > SYMFLOET > ONOSENS > IMPCAPE

[1] ***Height Code***: 1=>20m, 2=10m-20m, 3=2m-10m, 4=1m-2m, 5=0.5m-1m, 6=0.2m-0.5m, 7= < 0.2m [2] ***Cover Codes***: 0 = none, 1 = 0%- 10%, 2 = 10%- 25%, 3 = 25%-60%, 4= >60%

Size Class Analysis [3]				
[3] *Abundance Code*: RS=Rare, O=Occasional, A=Abundant, D=Dominant	**< 10 cm DBH**	**10 to 24 cm DBH**	**25 to 50 cm DBH**	**> 50 cm DBH**

Evidence of Disturbance:
Roadside litter, driveways partially bisecting polygon may result in nutrient rich runoff.

Wildlife / Habitat Observations / Comments:
Presumed organic soils due to resources (EIS Addendum (North-South Env. 2011)

				Community Name	Code	% Coverage
Inclusion		Complex				
Inclusion		Complex				
Inclusion		Complex				

Plant Species List	Layer / Abundance *Abundance Code*: R=Rare, O=Occasional, A=Abundant, D=Dominant			
	1	2	3	4
Trees				
THUJA OCCIDENTALIS		R		
POPULUS TREMULOIDES	A-O	O	R	
FRAXINUS PENNSYLVANICA	O	R		R
POPULUS BALSAMEA	R			
ACER NEGUNDO			R	
ACER SACCHARUM			R	
JUGLANS NIGRA			R	
Shrubs and Woody Vines				
RUBUS IDAEUS			R	
SALIX SP.			O	
RHAMNUS CATHARTICA			R	
CORNUS SERICEA			A-O	

Plant Species List	Layer / Abundance *Abundance Code*: R=Rare, O=Occasional, A=Abundant, D=Dominant			
	1	2	3	4
Ferns & Fern Allies, Herbs, Graminoids				
PHAGMITES AUSTRALIS			R	
IMPATIENS CAPENSIS				O
VICIA CRACCA				R
TUSSILAGO FARFARA				A
PHALARIS ARUNDINACEA			A-O	
SYMPLOCARPUS FOETIDUS				A-O
ONOCLEA SENSIBILIS				A-O
LEMNA SP. (WATER SURFACE)				O
LEUCANTHEMUM VULGARE				R
SOLANUM DULCAMARA				R
HESPERIS MATRONALIS			R	

APPENDIX 4

Vascular Plant List

Plant Type [1]	Scientific Name	Common Name	CC [2]	CW [3]	SARO [4] Status	SARA [5] Status	Global [6] Rank	Prov. [7] Rank
TR	Acer negundo	Manitoba Maple	0	-2	NL	NL	G5	S5
TR	Acer nigrum	Black Maple	7	3	NL	NL	G5	S4?
TR	Acer saccharum	Sugar Maple	5	-3	NL	NL	G5	S5
FO	Asclepias syriaca	Common Milkweed	0	5	NL	NL	G5	S5
TR	Betula papyrifera	Paper Birch	2	2	NL	NL	G5	S5
SE	Carex lacustris	Lake-bank Sedge	5	-5	NL	NL	G5	S5
FO	Cirsium arvense	Canada Thistle	*	3	NL	NL	GNR	SNA
SH	Cornus alternifolia	Alternate-leaved Dogwood	6	5	NL	NL	G5	S5
SH	Cornus sericea	Red-osier Dogwood	2	-3	NL	NL	G5	S5
FE	Equisetum arvense	Field Horsetail	0	0	NL	NL	G5	S5
FO	Erigeron philadelphicus	Philadephia Fleabane	1	-3	NL	NL	G5	S5
FO	Eutrochium maculatum var. maculatum	Spotted Joe Pye Weed	3	-5	NL	NL	G5T5	S5
TR	Fraxinus pennsylvanica	Green Ash	3	-3	NL	NL	G5	S4
FO	Hesperis matronalis	Dame's Rocket	*	5	NL	NL	G4G5	SNA
FO	Impatiens capensis	Spotted Jewelweed	4	-3	NL	NL	G5	S5
FO	Iris versicolor	Blue Flag Iris	5	-5	NL	NL	G5	S5
TR	Juglans nigra	Black Walnut	5	3	NL	NL	G5	S4?
FO	Lemna sp.	Duckweed species						
FO	Leucanthemum vulgare	Oxeye Daisy		5	NL	NL	GNR	SNA
FO	Lotus corniculatus	Bird's-foot Trefoil	*	1	NL	NL	GNR	SNA
FE	Onoclea sensibilis	Sensitive Fern	4	-3	NL	NL	G5	S5
FO	Oxalis stricta	European Wood-sorrel	0	3	NL	NL	G5	S5
GR	Phalaris arundinacea	Reed Canary Grass	0	-4	NL	NL	G5	S5
TR	Picea glauca	White Spruce	6	3	NL	NL	G5	S5
TR	Picea pungens	Blue Spruce			NL	NL	G5	SNA
TR	Pinus strobus	Eastern White Pine	4	3	NL	NL	G5	S5
TR	Populus balsamifera	Balsam Poplar	4	-3	NL	NL	G5	S5
TR	Populus tremuloides	Trembling Aspen	2	0	NL	NL	G5	S5
FO	Ranunculus acris	Tall Buttercup	*	-2	NL	NL	G5	SNA
SH	Rhamnus cathartica	Common Buckthorn	*	3	NL	NL	GNR	SNA
SH	Rubus idaeus ssp. strigosus	Wild Red Raspberry	0	-2	NL	NL	G5T5	S5

FO	Rumex obtusifolius	Bitter Dock	*	-3	NL	NL	GNR	SNA
SH	Salix bebbiana	Bebb's Willow	4	-4	NL	NL	G5	S5
SH	Salix purpurea	Basket Willow	*	-3	NL	NL	G5	SNA
SE	Scirpus cyperinus	Cottongrass Bulrush	4	-5	NL	NL	G5	S5
VI	Solanum dulcamara	Climbing Nightshade	*	0	NL	NL	GNR	SNA
FO	Solidago canadensis var. canadensis	Canada Goldenrod	1	3	NL	NL	G5T5	S5
FO	Symplocarpus foetidus	Skunk Cabbage	7	-5	NL	NL	G5	S5
TR	Thuja occidentalis	Eastern White Cedar	4	-3	NL	NL	G5	S5
FO	Trifolium pratense	Red Clover	*	2	NL	NL	GNR	SNA
FO	Tussilago farfara	Colt's-foot	*	3	NL	NL	GNR	SNA
FO	Typha angustifolia	Narrow-leaved Cattail	3	-5	NL	NL	G5	SNA
FO	Vicia cracca	Tufted Vetch	*	5	NL	NL	GNR	SNA

1.	Plant Types: AL = Algae; FE = Fern; FO = Forb; GR = Grass; LC = Lichen; LV = Liverwort; MO = Moss; RU = Rush; SE = Sedge; SH = Shrub; TR = Tree; VI = Herbaceous vine; VW = Woody Vine
2.	CC: Coefficient of Conservatism reflects a species' fidelity to a specific habitat. Range from 0 to 10; 10 = very conservative, not likely in disturbed habitats, 1 = least conservative, likely found in a broad range of habitat. * = value not assigned because they are non-native
3.	CW: Coefficient of Wetness reflects a species' affinity for wet soil conditions. Range from -5 to 5; -5 = obligate wetland species, 5 = obligate upland species.
4.	SARO: Status under the Provincial Endangered Species Act, listed on the Species at Risk in Ontario (SARO) list. In order of severity, statuses include: EXP = Extirpated; END =
5.	SARA: Status under the National Species at Risk Act (SARA), assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). In order of severity, statuses
6.	Global rarity rank. Range from G1 to G5; G1 = Extremely rare, G5 = Very Common. NR = Unranked; U = Unrankable.
7.	Provincial rarity rank. Range from S1 to S5; S1 = Extremely rare, S5 = Very Common. NR = Unranked; U = Unrankable.

APPENDIX 5

Significant Wildlife Habitat Assessment

#	SIGNIFICANT WILDLIFE HABITAT (SWH)	CANDIDATE SWH CRITERIA	CRITERIA FOR SWH CONFIRMATION	SWH PROTECTED AREA	SITE ASSESSMENT DETAILS	CANDIDATE SWH	FIELD STUDIES REQUIRED/ COMPLETED	CONFIRMED SWH
SEASONAL CONCENTRATION AREAS OF ANIMALS								
1	Waterfowl stopover and Staging Areas (terrestrial)	- Fields with Sheet water in spring (incl. agricultural)	- Mixed species aggregations of 100 or more individuals confirms SWH	flooded field ecosite and 100-300m radius is the SWH	No habitat matching criteria identified in Study Area.	No	None required.	No
2	Waterfowl Stopover and Staging (Aquatic)	- Ponds, marshes, lakes, bays, coastal inlets and watercourses and reservoirs - SWTP & SWMP are not SWH	- Aggregations of 100 or more listed species for 7 days (ie. >700 waterfowl use days) confirms SWH	Aquatic ecosite and 100m radius is the SWH	No habitat matching criteria identified in Study Area	No	None required.	No
3	Shorebird Migratory stopover	- Shorelines of Lakes, rivers, wetlands, beaches, bars; seasonally flooded, muddy and un-vegetated shoreline habitat	- 3 or more listed species and >1000 shorebird use days, or >100 whimbrel, confirms SWH	Shoreline ecosite and 100m radius is the SWH	No habitat matching criteria identified in Study Area, >5km from any Lake Ontario	No	None required.	No
4	Raptor Wintering Area	- Combination of upland field and woodland habitat >20ha total (includes,>15ha upland field) - least disturbed sites, idle, fallow or lightly grazed field/meadow best	- 1 or more Short-eared Owl, or, at least 10 individuals and 2 listed species for a minimum of 20 days, and 3 of 5 years, confirms SWH	Ecosite communities (field and woodland) is the SWH	No habitat matching criteria identified in Study Area	No	None required.	No
5	Bat Hibernacula	- Caves, mine shafts, underground foundations, karsts - buildings are not SWH	- All sites with confirmed hibernating bats, confirms SWH	Ecosite and 200m radius is the SWH	No habitat matching criteria identified in Study Area	No	None required	No
6	Bat Maternity Colony	- All forested ecosites, FOD, FOC, FOM, SWD, SWM, SWC with >10/ha trees (>25cm DBH) in early stages of decay (class 1-3) - buildings are not SWH	- >10 Big Brown Bats, >20 Little Brown Myotis, >5 adult female Silver-haired Bats confirms SWH	Entire woodland or forest stand ELC ecosite containing colony is the SWH	Forested ecosites present in Study area with trees >25cm DBH.	Yes	Studies recommended pre-construction in areas where tree removal/damage to occur in candidate habitat.	unknown

#	SIGNIFICANT WILDLIFE HABITAT (SWH)	CANDIDATE SWH CRITERIA	CRITERIA FOR SWH CONFIRMATION	SWH PROTECTED AREA	SITE ASSESSMENT DETAILS	CANDIDATE SWH	FIELD STUDIES REQUIRED/ COMPLETED	CONFIRMED SWH
7	Turtle Wintering Area	- Areas with permanent water deep enough not to freeze, with mud/soft substrates	- 5 over-wintering Midland Painted Turtles, 1 or more Northern Map Turtle or Snapping Turtle confirms SWH	Mapped ELC ecosite, or deep pool element where turtles overwinter is the SWH	No habitat matching criteria identified in Study Area	No	No turtles identified incidentally or observed in community during surveys.	No
8	Reptile Hibernaculum	- Sites below the frost line; rock barren, crevice and cave, talus, alvar, rock piles, slopes, stone fences and crumbling foundations	- Presence of hibernacula with minimum 5 individuals of 1 snake species/ individuals of 2 or more species confirms SWH - Congregations of a minimum of 5 snakes of 1 species/ individuals of 2 or more snake species, near potential hibernacula on sunny warm days in spring and fall confirms SWH	Feature hibernacula is located in, and 30m radius is the SWH	No habitat matching criteria identified in Study Area	No	None required	No
9	Colonially-nesting Bird Habitat (cliff/bank)	- Eroding banks, sandy hills, borrow pits, steep slopes, sand piles, cliff faces, bridge abutments, silos, barns	- 1 or more nest sites with 8 or more Cliff Swallow or, 50 Bank Swallow and Rough-winged Swallow pairs during the breeding season.	Colony and 50m radius around peripheral nest is the SWH	No habitat matching criteria identified in Study Area	No	None required	No
10	Colonially-nesting Bird Habitat (Tree/shrub)	- Live or dead standing trees in wetlands, lakes, islands and peninsulas, occasionally shrubby and emergent vegetation	- 5 or more active Great-blue Heron or other listed species nests	Edge of the colony plus minimum 300m radius, or extent of the forest ecosite, or entire island <15ha is the SWH	Marsh ecosite may provide suitable habitat	Yes	No nests observed during surveys.	No
11	Colonially-nesting Bird Habitat (Ground)	- Rocky islands or peninsulas within a lake or large river(natural or artificial)	- >25 active nests of Herring Gull, Ring-billed Gull, >5 active nests of Common Tern, or >2 active nests of Caspian Tern. 5 or more pairs of Brewer's Blackbird. Any active nesting colony of Little Gull, Great Black-backed Gull.	Edge of colony plus min 150m radius or extent of ELC ecosite, or island <3ha is the SWH	No habitat matching criteria identified in Study Area	No	None required	No
12	Migratory Butterfly Stopover Area	- At least 10ha, with undisturbed field/meadow and forest or woodland edge habitat present, within 5km of Lake Ontario.	- Presence of Monarch use days >5000 or >3000 where there is a mix of Monarch with Painted Ladies or White Admirals	Field/meadow and forest/woodland is the SWH	No habitat matching criteria identified in Study Area, >5km from Lake Ontario	No	None required.	No

#	SIGNIFICANT WILDLIFE HABITAT (SWH)	CANDIDATE SWH CRITERIA	CRITERIA FOR SWH CONFIRMATION	SWH PROTECTED AREA	SITE ASSESSMENT DETAILS	CANDIDATE SWH	FIELD STUDIES REQUIRED/ COMPLETED	CONFIRMED SWH
13	Land bird Migratory Stopover Area	- Woodlots >5ha in size - within 5km of lake Ontario	- Use by >200 birds/day, with >35species, with at least 10sp recorded on 5 different survey dates.	Woodlot is the SWH	No habitat matching criteria identified in Study Area, >5km from Lake Ontario	No	None required.	No
14	Deer Yarding Areas	- ELC communities providing Thermal cover (FOM,FOC,SWM,SWC, CUP2, CUP3, FOD3, CUT)	- Deer yards are managed by MNRF, available through district offices and LIO.	LIO mapping	No Deer yarding areas identified on LIO Mapping	No	None required.	No
15	Deer Winter Congregation Areas	- All forested ecosites >100ha - Conifer Plantations <50ha may be used	- Deer management is the responsibility of the MNRF - Contact MNRF or LIO for known deer winter areas.	LIO mapping	No Deer Winter Congregation areas identified on LIO Mapping	No	None required.	No
RARE VEGETATION COMMUNITIES								
16	Cliffs & Talus Slopes	- Cliff: vertical to near vertical bedrock >3m in height - Talus slope: rock rubble at the base of a cliff made up of coarse rocky debris	- Confirm any ELC Vegetation Type for Cliffs or Talus Slopes	Area of ELC sites: TAO, TAS, TAT, CLO, CLS, CLT	No habitat matching criteria identified in Study Area	No	None required	No
17	Sand Barren	- Exposed, sparsely vegetated & caused by lack of moisture, fires and erosion.	- area >0.5ha in size - Confirm any ELC vegetation Type for Sand Barren - Not dominated by exotic or introduced species	Area of ELC ecosite is the SWH	No habitat matching criteria identified in Study Area	No	None required	No
18	Alvar	- Level, mostly un-fractured calcareous bedrock feature, overlain by a thin veneer or soil	- area >0.5ha in size - Field Studies that identify four of the five Alvar Indicator Species - Not dominated by exotic or introduced species	Area of ELC ecosite is the SWH	No habitat matching criteria identified in Study Area	No	None required	No
19	Old Growth Forest	- >30ha forests with at least 10ha interior habitat and multi-layered canopy	- Dominant Tree Species >140 years old - No recognizable signs forestry practices (old stumps)	Area of ELC ecosite is the SWH	No habitat matching criteria identified in Study Area	No	None required	No
20	Savannah	- Tall Grass Prairie Habitat with 25%-60% Tree cover - Remnant sites such as Railway Right of ways are not SWH	- No minimum size, and must be restored to a natural state. - Confirm one or more savannah indicator species - Not dominated by exotic or introduced species	Area of ELC ecosite is the SWH	No habitat matching criteria identified in Study Area	No	None required	No

#	SIGNIFICANT WILDLIFE HABITAT (SWH)	CANDIDATE SWH CRITERIA	CRITERIA FOR SWH CONFIRMATION	SWH PROTECTED AREA	SITE ASSESSMENT DETAILS	CANDIDATE SWH	FIELD STUDIES REQUIRED/ COMPLETED	CONFIRMED SWH
21	Tallgrass Prairie	- Ground cover dominated by prairie grasses with <25% tree cover - Remnant sites such as Railway Right of ways are not SWH	- No minimum size, and must be restored to a natural state. - Confirm one or more prairie indicator species - Not dominated by exotic or introduced species	Area of ELC ecosite is the SWH	No habitat matching criteria identified in Study Area	No	None required	No
22	Other Rare Vegetation Communities	- All Provincially Rare S1, S2, S3 Vegetation Communities (Appendix M of SWHTG)	- Field Studies Confirming ELC vegetation type is a rare vegetation community	Area of ELC ecosite is the SWH	No communities identified on site are S1-S3 communities	No	None required	No
SPECIALIZED HABITAT FOR WILDLIFE								
23	Waterfowl Nesting Areas	- Upland Habitat, adjacent to Wetland ELC ecosites (except SWC, SWM) - Extends 120m from a wetland (>0.5ha) and any small wetlands (<0.5ha) within a cluster of at least 3 - Upland area at least 120m wide	- Presence of 3 or more nesting pairs of listed species excluding Mallards - Presence of 10 or more nesting pairs including mallards - Any active Black Duck nesting site	SWH may be greater than or less than 120m from the wetland edge and must provide enough habitat for waterfowl to successfully nest	No upland treed communities adjacent to wetlands identified within the study area.	No	None required	No
24	Bald Eagle or Osprey Nesting, Foraging and Perching Habitat	- Forest communities, adjacent to riparian areas - Osprey nests usually at top of tree - Bald Eagle nest usually in super canopy tree in a notch within canopy	- Studies confirm one or more active Bald Eagle or Osprey nest - Alternate nests included in SWH - Nests must be used annually, if found inactive, must be known inactive at least 3 years, or suspected unused for 5 years if unknown	Active nest plus 300m for Osprey Active nest plus 400-800m for Bald Eagle	No habitat matching criteria identified in Study Area	No	None required	No
25	Woodland Raptor Nesting Habitat	- Forested communities, forested swamp communities and cultural Plantations - Natural Forested/conifer plantations >30ha with >10ha interior habitat (200m buffer)	- One or more active nest of listed species	Nest protection radius: - Red-Shouldered Hawk, Northern Goshawk 400m - Barred Owl 200m - Broad-winged Hawk, Coopers Hawk 100m - Sharp-shinned Hawk 50	No forested habitat >30ha with >10ha of interior habitat within the Study Area	No	No stick nests observed during SWH or Winter Wildlife Surveys	No

#	SIGNIFICANT WILDLIFE HABITAT (SWH)	CANDIDATE SWH CRITERIA	CRITERIA FOR SWH CONFIRMATION	SWH PROTECTED AREA	SITE ASSESSMENT DETAILS	CANDIDATE SWH	FIELD STUDIES REQUIRED/ COMPLETED	CONFIRMED SWH
26	Turtle Nesting Areas	- Exposed Mineral soil (sand or gravel) adjacent (<100m) or within shallow marsh, shallow submerged, shallow floating, bog or fen communities - Located in open sunny areas, away from roads and less prone to predation - Municipal and provincial road shoulders are not SWH.	- Confirm 5 or more nesting Midland Painted Turtles, 1 or more nesting Northern Map Turtle or Snapping Turtle	Area or sites with exposed mineral soils, plus a radius of 30-100m around the nesting area is the SWH.	No habitat matching criteria identified in Study Area	No	None required	No
27	Seeps and Springs	- Areas where ground water comes to the surface - Any forested area within the headwaters of a stream or river system	- Confirm site with 2 or more seeps/springs. -	Area of ELC forest ecosite containing seep/spring is the SWH	Seeps and springs possible within forested and wetland communities	Yes	ELC complete, property access restrictions	Unknown
28	Amphibian Breeding Habitat (woodland)	- Breeding pools within woodlands - Wetland, pond or pool >500m^2 within or adjacent (<120m) to a woodland. - Woodlands with permanent ponds, or those with water until mid-July more likely to be used.	- Confirm Breeding population of 1 or more listed newt/salamander species, 2 or more of the listed frog species with at least 20 individuals (adults or egg masses), 2 or more of the listed frog species with call code levels of 3. - Wetland adjacent to woodlands includes travel corridor connecting features as SWH.	Wetland area, plus 230m radius of woodland is the SWH.	No habitat matching criteria identified in Study Area	No	None required.	No

#	SIGNIFICANT WILDLIFE HABITAT (SWH)	CANDIDATE SWH CRITERIA	CRITERIA FOR SWH CONFIRMATION	SWH PROTECTED AREA	SITE ASSESSMENT DETAILS	CANDIDATE SWH	FIELD STUDIES REQUIRED/ COMPLETED	CONFIRMED SWH
29	Amphibian Breeding Habitat (Wetland)	- Swamp, marsh, fen, bog, open aquatic and shallow aquatic ELC communities. - Typically isolated from woodlands (>120m), but includes larger wetlands with primarily aquatic species (bull frogs) that are adjacent to woodlands. - Wetlands >500m2 - Presence of shrubs & logs - Bullfrogs require permanent water bodies and abundant emergent vegetation.	- Confirm Breeding populations of 1 or more listed newt/salamander species, or 2 or more listed frog/toad species with at least 20 individuals (adults or egg masses), or 2 or more listed frog/toad species with a call code level of 3 - Or any wetland with confirmed breeding Bullfrog.	ELC ecosite and shoreline is the SWH Movement corridors (SWH) must be considered if this habitat is significant	Candidate habitat throughout wetland ecosites in Study Area	Yes	None required.	Unknown
30	Area-sensitive Breeding Bird Habitat	- Habitats where interior breeding birds are breeding - Large mature(>60 years) forest stands or woodlots >30ha - Forest and swamp ELC communities - Interior habitat at least 200m from edge	- Presence of nesting or breeding pairs of 3 or more of the listed species - Any site with Cerulean Warbler or Canada Warbler is SWH -	ELC ecosite is the SWH	No interior habitat (>200m) identified in study area	No	None required	No
HABITATS OF SPECIES OF CONSERVATION CONCERN CONSIDERED SWH								

#	SIGNIFICANT WILDLIFE HABITAT (SWH)	CANDIDATE SWH CRITERIA	CRITERIA FOR SWH CONFIRMATION	SWH PROTECTED AREA	SITE ASSESSMENT DETAILS	CANDIDATE SWH	FIELD STUDIES REQUIRED/ COMPLETED	CONFIRMED SWH
31	Marsh Bird Breeding Habitat	- Some meadow marsh, shallows submerged, shallow floating, mixed shallow floating, fen and bog communities (see SWH Ecoregion guide for specifics) - Nesting occurs in wetlands, all wetland habitat is considered with presence of shallow water with emergent aquatic vegetation - Green heron at edge of water sheltered by shrubs and trees.	- 5 or more nesting pairs of Sedge Wren or Marsh Wren, 1 pair of Sandhill Crane, or breeding by any combination of 5 or more of the listed species - Any Wetland with 1 or more breeding pair Black Tern, Trumpeter Swan, Green Heron or Yellow Rail	ELC ecosite is the SWH	The Reed Canargy Grass Marsh identified may provide suitable habitat.	Yes	Marsh birds were not observed during breeding bird surveys or incidentally.	No
32	Open Country Bird Breeding Habitat	- Grassland area >30ha (natural & cultural fields and meadows) - Grasslands not class 1 or 2 agriculture (no row crops or intensive hay or livestock pasturing) - Mature hayfields or pasture at least 5 years old	- Nesting or breeding of 2 or more of the listed species - Field with 1 or more Short-eared Owls	Contiguous ELC ecosite is the SWH	No habitat matching criteria identified in Study Area	No	Breeding Bird Surveys completed	No
33	Shrub/Early Successional Bird Breeding Habitat	- Cultural thickets, savannah and woodland habitat - Large field area succeeding to shrub and thicket habitat >10ha in size - Patches of shrub ecosite may be complexed into larger old field ecosites for some species	- Confirm nesting or breeding of 1 of the listed indicator species and at least 2 of the common species - Habitat with Yellow-breasted Chat Or Golden-winged Warbler is SWH	SWH is contiguous ELC ecosite field/thicket area	No habitat matching criteria identified in Study Area	No	Breeding Bird Surveys completed	No

#	SIGNIFICANT WILDLIFE HABITAT (SWH)	CANDIDATE SWH CRITERIA	CRITERIA FOR SWH CONFIRMATION	SWH PROTECTED AREA	SITE ASSESSMENT DETAILS	CANDIDATE SWH	FIELD STUDIES REQUIRED/ COMPLETED	CONFIRMED SWH
34	Terrestrial Crayfish	- Meadow marsh, shallow marsh, swamp thicket, deciduous swamp and mixed swamp communities - Cultural meadow with inclusions of meadow marsh may be used - Wet edges of marshes and wet meadows should be surveyed for crayfish	- Presence of 1 or more individuals of listed species or their chimneys in suitable habitat	Area of ELC ecosite or Eco element area of meadow marsh or swamp within the larger ecosite area is the SWH	Candidate habitat identified in study area.	Yes	Incidental observation during ELC conducted	No
35	Special Concern & Rare Wildlife Species	- All Special concern and Provincially Rare plant and animal species - Where an element occurrence is identified within a 1 or 10km grid for a species listed, linking candidate habitat on the site must be completed to ELC ecosites	- Assessment/inventory of site for identified special concern or rare species completed during time of year when species is present or easily identifiable - Habitat must be easily mapped and cover an important life stage component (specific nesting habitat, foraging)	SWH is the finest ELC scale that protects the form and function of the habitat	No element occurrences for Special Concern or rare Wildlife Species identified within 1km of the study area Background Atlas review identified 6 Special concern species within 10km of the Study Area - Snapping Turtle (ORAA) - Milksnake (ORAA) - Red-headed Woodpecker (OBBA) - Eastern Wood-pewee (OBBA) - Wood Thrush (OBBA)	Yes-Swamp communities within 120m may provide habitat for Wood Thrush. Marsh and shallow aquatic habitat on site, and within 120m may provide habitat for Common Snapping Turtle	One season Botanical Survey Breeding Bird Survey Incidental wildlife	No
ANIMAL MOVEMENT CORRIDORS								

#	SIGNIFICANT WILDLIFE HABITAT (SWH)	CANDIDATE SWH CRITERIA	CRITERIA FOR SWH CONFIRMATION	SWH PROTECTED AREA	SITE ASSESSMENT DETAILS	CANDIDATE SWH	FIELD STUDIES REQUIRED/ COMPLETED	CONFIRMED SWH
36	Amphibian Movement Corridor	- Corridors may occur in all ecosites associated with water - Presence of significant amphibian breeding indicates the requirement for identifying corridors - Movement corridors between breeding habitat and summer habitat	- Corridors typically include areas with native vegetation, with several layers of vegetation, unbroken by roads, waterways or waterbodies are most significant - At least 15 of vegetation on both sides of the waterway or up to 200m wide of woodland habitat with gaps of <20m - Shorter corridors are more significant than longer, but amphibians must be able to get to and from their summer breeding habitat	Corridor is the SWH	No habitat matching criteria identified in Study Area	No	None required	No
37	Deer Movement Corridor	- May occur in all forested ecosites - Determined when deer wintering habitat is confirmed as SWH	- Corridors at least 200m wide with gaps <20m leading to wintering habitat - Unbroken by roads and residential areas - Shorter corridors are more significant	Corridor is the SWH	No habitat matching criteria identified in Study Area	No	None required	No

APPENDIX 6

Species at Risk Habitat Assessment

COMMON NAME	SCIENTIFIC NAME	SARO	COSEWIC	S-RANK	BACKGROUND SOURCES	HABITAT REQUIREMENTS	SUITABLE HABITAT IN STUDY AREA	FIELD STUDIES COMPLETED/ REQUIRED	OBSERVED BY A & A	REFERENCE
Amphibians										
Jefferson Salamander/Unisexual Ambystoma- Jefferson	*Ambystoma jeffersonianum*	END	END	S2	MNRF (Wellington County)	Adults are found within upland deciduous or mixed forest habitat with suitable breeding ponds, such as kettle ponds, natural basins and limestone sink holes, which can be permanent or ephemeral, and include appropriate egg attachment sites and lack of predatory fish (COSEWIC 2010).	No habitat matching criteria identified in Study Area	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None Observed.	COSEWIC. 2010. COSEWIC assessment and status report on the Jefferson Salamander *Ambystoma jeffersonianum* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 38 pp.
Butterflies, Bees, Damselflies, Dragonflies & Insects										
Monarch	*Danaus plexippus*	SC	SC	S2N, S4B	MNRF (Wellington County)	Requires milkweed for larval feeding, other wildflower species are also important for adult feeding when milkweed is not in flower; often found in abandoned farmland, along roadsides, and other open spaces (COSEWIC 2010b)	No habitat matching criteria identified in Study Area	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC. 2010. COSEWIC assessment and status report on the Monarch Danaus plexippus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 43 pp.
Rusty-patched Bumble Bee	*Bombus affinis*	END	END	S1	MNRF (Wellington County)	Uses a variety of open or semi-open habitat, including meadows, agricultural land and savannah habitat for foraging. Nests are often found underground, in old rodent burrows (COSEWIC 2010c).	No habitat matching criteria identified in Study Area	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC. 2010. COSEWIC assessment and status report on the Rusty-patched Bumble Bee Bombus affinis in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 34 pp.
West Virginia White	*Pieris virginenisis*	SC	NAR	S3	MNRF (Wellington County)	Found in rich deciduous and mixed forests and swamps with a poorly vegetated shrub layer. The larvae feed only on the leaves of a few host plants, including the Two-leaved Toothwort (*Cardamine diphylla*) and cut-leaved toothwort (Burke 2013).	Swamps within study area may provide suitable habitat	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	Peter S. Burke. 2013. Management Plan for the West Virginia White (Pieris virginiensis) in Ontario. Ontario Management Plan Series. Prepared for the Ontario Ministry of Natural Resources, Peterborough, Ontario. v + 44 pp.
Birds										
Acadian Flycatcher	Empidonax Virenscens	END	END	S2S3B	MNRF (Wellington County)	Breeds in mature deciduous and mixed forests, using tableland forests and ravine habitats. Nests are often located over vernal pools, trails or bare ground in tablelands or over streams in ravines (COSEWIC 2010d).	Forested communities within the Study Area may provide suitable habitat	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird Surveys completed.	None observed.	COSEWIC. 2010. COSEWIC assessment and status report on the Acadian Flycatcher *Empidonax virescens* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 38 pp.
Bald Eagle	Haliaeetus leucocephalus	SC	NAR	S2N, S4B	MNRF (Wellington County)	Prefers deciduous and mixed-deciduous mature forest habitat close to water bodies including lakes and rivers; nests in super canopy trees including Pine (Armstrong 2014).	Forested communities within the Study Area may provide suitable habitat	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird Surveys completed.	None observed.	Armstrong, Ted (E.R.). 2014. Management Plan for the Bald Eagle (Haliaeetus leucocephalus) in Ontario. Ontario Management Plan Series. Prepared for the Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario. vii + 53 pp.
Bank Swallow	*Riparia riparia*	THR	THR	S4B	OBBA (2007) MNRF (Wellington County)	Breeds in a variety of natural and artificial bank type habitat, such as bluffs, stream and river banks, sand and gravel pits, piles of sand, topsoil and other material. Nests are typically in vertical or near-vertical surfaces (COSEWIC 2013b).	No habitat matching criteria identified in Study Area	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird Surveys completed.	None observed.	COSEWIC. 2013. COSEWIC assessment and status report on the Bank Swallow Riparia riparia in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 48 pp.

COMMON NAME	SCIENTIFIC NAME	SARO	COSEWIC	S-RANK	BACKGROUND SOURCES	HABITAT REQUIREMENTS	SUITABLE HABITAT IN STUDY AREA	FIELD STUDIES COMPLETED/ REQUIRED	OBSERVED BY A & A	REFERENCE
Barn Swallow	*Hirundo rustica*	THR	THR	S4B	OBBA (2007) MNRF (Wellington County)	Occurs in farmland, along lake/river shorelines, in wooded clearings and in urban populated areas. Nesting may occur inside or outside buildings; under bridges and in road culverts (COSEWIC 2011a).	Culverts and existing structures in the Study Area may provide suitable habitat	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird Surveys completed.	None observed.	COSEWIC. 2011. COSEWIC assessment and status report on the Barn Swallow *Hirundo rustica* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 37 pp.
Barn Owl	Tyto alba	END	END	S1	MNRF (Wellington County)	Requires open habitat for foraging, such as old fields and pastures, that provide habitat for rodents, and uses a variety of natural and man-made structures for nesting (COSEWIC 2010e)	No habitat matching criteria identified in Study Area	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird Surveys completed.	None observed.	COSEWIC. 2010. COSEWIC assessment and status report on the Barn Owl *Tyto alba* (Eastern population and Western population) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xiv + 34 pp.
Black Tern	Chlidonias niger	SC	NAR	S3B	MNRF (Wellington County)	Breeds in large, freshwater marshes, with emergent vegetation, and large areas of open water. Nests are typically within 6 meters of the water, on low emergent vegetation (Burke 2012).	No habitat matching criteria identified in Study Area	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird Surveys completed.	None observed.	Peter S. Burke. 2012. Management Plan for the Black Tern (Chlidonias niger) in Ontario. Ontario Management Plan Series. Prepared for the Ontario Ministry of Natural Resources (OMNR), Peterborough, Ontario. vi + 47 pp.
Bobolink	*Dolichonyx oryzivorus*	THR	THR	S4B	NHIC (2003) OBBA (2007) MNRF (Wellington County)	Nest in grassland habitats, including hayfields and meadows with a mixture of grasses and broad-leaved forbs with a high litter cover. Area Sensitive, with increased density in grasslands greater than 10ha (Renfrew et. al. 2015)	No habitat matching criteria identified in Study Area	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird Surveys completed.	None observed.	Renfrew, R., A.M. Strong, N.G. Perlut, S.G. Martin and T.A. Gavin. 2015. Bobolink (Dolichonyx oryzivorus), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Birds of North America Online: http://bna.birds.cornell.edu/bna/species/176
Canada Warbler	*Wilsonia canadensis*	SC	THR	S4B	MNRF (Wellington County)	Prefers wet coniferous, deciduous and mixed forest types, with a dense shrub layer (COSEWIC 2008b).	Swamp communities within the Study Area may provide suitable habitat	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird Surveys completed.	None observed.	COSEWIC. 2008. COSEWIC assessment and status report on the Canada Warbler Wilsonia Canadensis in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 35 pp. (www.sararegistry.gc.ca/status/status_e.cfm).
Cerulean Warbler	*Setophaga cerulea*	THR	END	S3B	MNRF (Wellington County)	Occur in older, mature, deciduous forests, preferentially oak-maple composition, with a full, to partially open canopy, and little to no understory cover. Often in bottomland forests, or adjacent to treed swamplands (COSEWIC 2010f).	Treed communities outside of Study Area adjacent to swamps may provide suitable habitat	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird Surveys completed.	None observed.	COSEWIC. 2010. COSEWIC assessment and status report on the Cerulean Warbler Dendroica cerulea in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 40 pp.
Chimney Swift	*Chaetura pelagica*	THR	THR	S4B, S4N	OBBA (2007) MNRF (Wellington County)	Typically nests in traditional chimneys of older buildings, which also provide roosting sites for many individuals during spring and fall migration (MNRF 2013).	Swamps and existing structures within the Study Area may provide suitable habitat	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird Surveys completed.	None observed.	MNRF, 2013. General Habitat Description for the Chimney Swift *(Chaeture pelagica)*. Ontario Ministry of Natural Resources and Forestry. July 2, 2013.

COMMON NAME	SCIENTIFIC NAME	SARO	COSEWIC	S-RANK	BACKGROUND SOURCES	HABITAT REQUIREMENTS	SUITABLE HABITAT IN STUDY AREA	FIELD STUDIES COMPLETED/ REQUIRED	OBSERVED BY A & A	REFERENCE
Common Nighthawk	*Chordeiles minor*	SC	THR	S4B	MNRF (Wellington County)	Breeds in open habitat, on the ground, in areas with no vegetation, including sand dunes, burned areas, open forests, railways, and gravel rooftops. Eggs are laid directly on the ground (COSEWIC 2007b).	No habitat matching criteria identified in Study Area	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird Surveys completed.	None observed.	COSEWIC 2007. COSEWIC assessment and status report on the Common Nighthawk *Chordeiles minor* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 25 pp.
Eastern Meadowlark	*Sturnella magna*	THR	THR	S4B	OBBA (2007) MNRF (Wellington County)	Nest in grassland habitats, including hayfields, pasture, savannahs, and other open areas. Preferential habitat includes areas with good grass and thatch (litter) cover (Jaster et. al. 2012).	No habitat matching criteria identified in Study Area	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird Surveys completed.	None observed.	aster, Levi A., William E. Jensen and Wesley E. Lanyon. (2012). Eastern Meadowlark (*Sturnella magna*), The Birds of North America (P. G. Rodewald, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America: https://birdsna.org/Species-Account/bna/species/easmea
Eastern Whip-poor-will	*Caprimulgus vociferus*	THR	THR	S4B	MNRF (Wellington County)	Often found breeding in semi-open habitats, with little ground cover, and canopy openings allowing light to penetrate the forest floor, often associated with pine or oak, savannahs and barrens, early-successional poplar stands and open conifer plantations (COSEWIC 2009a)	No habitat matching criteria identified in Study Area	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird Surveys completed.	None observed.	COSEWIC. 2009. COSEWIC assessment and status report on the Whip-poor-will Caprimulgus vociferus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 28 pp.
Eastern Wood-pewee	*Contopus virens*	SC	SC	S4B	MNRF (Wellington County)	Associated with mid-age mixed and deciduous forest stands, often dominated by Maple (Acer), Elm (Ulmus) or Oak (Quercus), and include areas with clear-cuts, openings or forest edges. Also prefers forest stands with little to no understory vegetation (COSEWIC 2012a).	No habitat matching criteria identified in Study Area	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird Surveys completed.	None observed.	COSEWIC. 2012. COSEWIC assessment and status report on the Eastern Wood-pewee Contopus virens in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 39 pp. (www.registrelep-sararegistry.gc.ca/default_e.cfm).
Golden-winged Warbler	Vermivora chrysoptera	SC	THR	S4B	MNRF (Wellington County)	Nests in early successional shrub habitat, with adjacent forest edges for singing perches, often in hydro cut-overs, recently logged areas and beaver marshes (COSEWIC 2006a).	No habitat matching criteria identified in Study Area	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird Surveys completed.	None observed.	COSEWIC 2006. COSEWIC assessment and status report on the Golden-winged Warbler Vermivora chrysoptera in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 30 pp.
Henslow's Sparrow	*Ammodramus henslowii*	END	END	SHB	MNRF (Wellington County)	Breeds in grassland habitat, and is area sensitive. Grasslands with tall, dense cover a thick thatch layer, and are greater than 30ha, but preferentially larger than 100ha are preferred (COSEWIC 2011b).	No habitat matching criteria identified in Study Area	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird Surveys completed.	None observed.	COSEWIC. 2011. COSEWIC assessment and status report on the Henslow's Sparrow *Ammodramus henslowii* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 37 pp.
Least Bittern	Ixobrychus exilis	THR	THR	S4B	MNRF (Wellington County)	Breeds in large marshes (>5ha) with emergent vegetation, typically cattails, with at least 50% open water, and relatively stable water levels (COSEWIC 2009b).	No habitat matching criteria identified in Study Area	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird Surveys completed.	None observed.	COSEWIC. 2009. COSEWIC assessment and update status report on the Least Bittern Ixobrychus exilis in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 36 pp.
Loggerhead Shrike	*Lanius ludovicianus*	END	END	S2B	MNRF (Wellington County)	Nests in open, low, grassy habitat with scattered shrubs. Presence of thorny shrubs, such as hawthorn, or barbwire fencing required for impaling prey. Only two recent areas of breeding in the province (Carden Plain and Napanee Plain) (Environment Canada 2015).	No habitat matching criteria identified in Study Area	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird Surveys completed.	None observed.	Environment Canada. 2015. Recovery Strategy for the Loggerhead Shrike, migrans subspecies (Lanius ludovicianus migrans), in Canada. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. vii + 35 pp.

COMMON NAME	SCIENTIFIC NAME	SARO	COSEWIC	S-RANK	BACKGROUND SOURCES	HABITAT REQUIREMENTS	SUITABLE HABITAT IN STUDY AREA	FIELD STUDIES COMPLETED/ REQUIRED	OBSERVED BY A & A	REFERENCE
Louisiana Waterthrush	*Seirus motacilla*	SC	THR	S3B	MNRF (Wellington County)	Nests along headwater streams and associated wetlands which occur within large tracts of mature forest especially mixed wood forests with a component of hemlock. Nests are located in stream bank niches, under mossy logs, and within the roots of fallen trees (COSEWIC 2006b)	No habitat matching criteria identified in Study Area	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird Surveys completed.	None observed.	COSEWIC 2006. COSEWIC assessment and update status report on the Louisiana Waterthrush Seiurus motacilla in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 26 pp. (www.sararegistry.gc.ca/status/status_e.cfm).
Northern Bobwhite	*Colinus virginianus*	END	END	S1	MNRF (Wellington County)	Requires early successional habitat with a mix of croplands, dense brush cover and grassland in close proximity for feeding, dusting, roosting, escaping predators and nesting. Only known self-sustaining population found on Walpole island (COEWSIC 2003).	No habitat matching criteria identified in Study Area	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird Surveys completed.	None observed.	COSEWIC 2003. COSEWIC assessment and update status report on the Northern Bobwhite Colinus virginianus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 20 pp.
Olive-sided Flycatcher	*Contupus cooperi*	SC	THR	S4B	MNRF (Wellington County)	Associated with natural forest openings (usually conifer or mixed), and edges of forests adjacent wetlands or watercourses, will also use open and semi-open forests and clear-cuts. Presence of tall snags and residual live trees required for nesting and foraging (COSEWIC 2007c).	Swamps within study area may provide suitable habitat	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird Surveys completed.	None observed.	COSEWIC. 2007. COSEWIC assessment and status report on the Olive-sided Flycatcher Contopus cooperi in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 25 pp.
Red-headed Woodpecker	Melanerpes erythrocephalus	SC	THR	S4B	OBBA (2007) MNRF (Wellington County)	Found in a variety of open areas, with a high density of dead or dying trees, particularly forests dominated by oak or beech (COSEWIC 2007d).	No habitat matching criteria identified in Study Area	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird Surveys completed.	None observed.	COSEWIC 2007. COSEWIC assessment and update status report on the Red-headed Woodpecker *Melanerpes erythrocephalus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 27 pp.
Short-eared Owl	Asio flammeus	SC	SC	S2N, S4B	MNRF (Wellington County)	Breeds in grassland habitat, including pasture and hayfields, meadow marshes and occasionally agricultural fields, nests are scrapes, located on the ground (COSEWIC 2008c).	No habitat matching criteria identified in Study Area	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird Surveys completed.	None observed.	COSEWIC. 2008. COSEWIC assessment and update status report on the Short-eared Owl Asio flammeus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 24 pp.
Wood Thrush	*Hylocichla mustelina*	SC	THR	S4B	OBBA (2007) MNRF (Wellington County)	Prefers second growth moist deciduous forests, with tall trees, and a dense understory of low saplings and an open forest floor with decaying leaf litter. Often nests in saplings, shrubs or occasionally dead stumps (COSEWIC 2012b).	Treed communities may provide suitable habitat	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird Surveys completed.	None observed.	COSEWIC. 2012. COSEWIC assessment and status report on the Wood Thrush Hylocichla mustelina in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 46 pp.
Yellow-breasted Chat	*Icteria virens*	END	END	S2B	MNRF (Wellington County)	Shrub specialist, nesting in early successional, dense, low-shrub habitat, including old fields, hydro-cutovers and forest edges experiencing regeneration (COSEWIC 2011c).	No habitat matching criteria identified in Study Area	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird Surveys completed.	None observed.	COSEWIC. 2011. COSEWIC assessment and status report on the Yellow-breasted Chat auricollis subspecies Icteria virens auricollis and the Yellow-breasted Chat virens subspecies Icteria virens virens in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xvi + 51 pp. (www.registrelep-sararegistry.gc.ca/default_e.cfm).
Fish										

COMMON NAME	SCIENTIFIC NAME	SARO	COSEWIC	S-RANK	BACKGROUND SOURCES	HABITAT REQUIREMENTS	SUITABLE HABITAT IN STUDY AREA	FIELD STUDIES COMPLETED/ REQUIRED	OBSERVED BY A & A	REFERENCE
Black Redhorse	*Moxostoma duquesnei*	THR	THR	S2	MNRF (Wellington County)	Associated with cool, clear streams of moderate size with substrates of rocky, cobble, sand or silt. Found in the Lake Erie and Grand River Watersheds (COSEWIC, 2005a).	Tributary of the Grand River within the Study Area may provide suitable habitat	The Study Area was investigated for habitat during ELC and Vegetation Surveys.	None observed.	COSEWIC 2005. COSEWIC assessment and update status report on the black redhorse Moxostoma duquesnei in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 21 pp.
Redside Dace	*Clinostomus elongatus*	END	END	S2	MNRF (Wellington County)	Associated with small, clear, head water streams and creeks with abundant overhanging vegetation and both pool and riffle habitat, often with gravel substrates and cool water temperature regimes (COSEWIC, 2007e).	Tributary of the Grand River within the Study Area may provide suitable habitat	The Study Area was investigated for habitat during ELC and Vegetation Surveys.	None observed.	COSEWIC 2007. COSEWIC assessment and update status report on the Redside Dace clinostomus elongatus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. Vii + 59pp.
Silver Shiner	*Notropis photogenis*	THR	THR	S2S3	MNRF (Wellington County)	Associated with large, wide streams (usually >20m) in deep riffles and pools, with substrates of gravel, boulder, rubble and sand (COSEWIC, 2011d).	No habitat matching criteria identified in Study Area	The Study Area was investigated for habitat during ELC and Vegetation Surveys.	None observed.	COSEWIC 2011. COSEWIC assessment and status report on the Silver Shiner in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 45 pp.
Mammals										
Eastern Small-footed Myotis	*Myotis leibii*	END	NA	S2S3	MNRF (Wellington County)	Associated with hilly or mountainous terrain, in or near coniferous or deciduous forest habitat. Maternity roosts located n cracks and crevices of talus slopes and rocky outcrops, or, occasionally in bridges, old buildings, hollow trees (or loose bark) and caves and mines during the maternity season. Hibernate singly or in small clusters in mines and caves (NatureServe, 2015).	No habitat matching criteria identified in Study Area	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC. 2013. COSEWIC assessment and status report on the Little Brown Myotis Myotis lucifugus, Northern Myotis Myotis septentrionalis and Tri-colored Bat Perimyotis subflavus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxiv + 93 pp. (www.registrelep-sararegistry.gc.ca/default_e.cfm).
Grey Fox	*Urocyon cineroargenteus*	SC	THR	S1	MNRF (Wellington County)	Often associated with deciduous forested habitats, with open areas. Dens often located in areas of dense brush near a water source, also occur in a variety of other habitats and considered a habitat generalist (COSEWIC, 2002).	Communities surrounding the identified tributary within the Study Area may provide suitable habitat	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC 2002. COSEWIC assessment and update status report on the grey fox Urocyon cinereoargenteus interior in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 32 pp.
Little Brown Myotis	*Myotis lucifugus*	END	END	S4	OMA (1993) MNRF (Wellington County)	Hibernate in Caves; maternity colonies located in warm sites, often associated with human habitation; including attics, old buildings, under bridges, rock crevices and cavities in canopy trees in wooded areas (COSEWIC, 2013c).	Treed communities within Study Area may provide suitable habitat	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC. 2013a COSEWIC assessment and status report on the Little Brown Myotis Myotis lucifugus, Northern Myotis Myotis septentrionalis and Tri-colored Bat Perimyotis subflavus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxiv + 93 pp. (www.registrelep-sararegistry.gc.ca/default_e.cfm).
Northern Myotis	*Myotis septentrionalis*	END	END	S3	MNRF (Wellington County)	Hibernate in Caves; maternity colonies usually located in trees, and are closely associated with specific tree characteristics and density of suitable trees. Characterized by tall, large diameter trees in early stages of decay, located in openings in mature forest canopies (COSEWIC, 2013c).	Treed communities within Study Area may provide suitable habitat	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC. 2013. COSEWIC assessment and status report on the Little Brown Myotis Myotis lucifugus, Northern Myotis Myotis septentrionalis and Tri-colored Bat Perimyotis subflavus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxiv + 93 pp. (www.registrelep-sararegistry.gc.ca/default_e.cfm).

COMMON NAME	SCIENTIFIC NAME	SARO	COSEWIC	S-RANK	BACKGROUND SOURCES	HABITAT REQUIREMENTS	SUITABLE HABITAT IN STUDY AREA	FIELD STUDIES COMPLETED/ REQUIRED	OBSERVED BY A & A	REFERENCE
Tri-colored Bat	Perimyotis subflavus	END	END	S3?		Overwinters in deepest part of caves where temperature is least variable. Summer roosts consist of the same 4-6 trees per year, can also be in dead clusters of leaves on trees (COSEWIC 2013c)	Treed communities within Study Area may provide suitable habitat	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC. 2013. COSEWIC assessment and status report on the Little Brown Myotis Myotis lucifugus, Northern Myotis Myotis septentrionalis and Tri-colored Bat Perimyotis subflavus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxiv + 93 pp. (www.registrelep-sararegistry.gc.ca/default_e.cfm).
Molluscs										
Wavy-rayed lampmussel	*Lampsilis fasciola*	THR	SC	S1	MNRF (Wellington County)	Occur in clear, flowing rivers and large creeks, in riffle areas with sand or gravel substrates, and occasional large substrates (COSEWIC, 2010g)	Tributary within the Study Area may provide suitable habitat	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC. 2010. COSEWIC assessment and status report on the Wavy-rayed Lampmussel Lampsilis fasciola in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 60 pp.
Reptiles										
Blanding's Turtle	*Emydoidea blandingii*	THR	THR	S3	ORAA (2015) MNRF (Wellington County)	Use a variety of eutrophic wetland habitat types, including lakes, ponds, watercourses, marshes, man-made channels, farm fields, coastal areas and bays. Seasonal overland terrestrial movements up to 2.5 km occur to reach nesting and overwintering areas, generally through wooded coniferous or mixed forest habitat. Nests are usually laid in loose sand or organic soil (COSEWIC 2005b).	Wetland communities within the Study Area may provide suitable habitat	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC 2005. COSEWIC assessment and update status report on the Blanding's Turtle Emydoidea blandingii in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. viii + 40 pp. (www.sararegistry.gc.ca/status/status_e.cfm).
Snapping Turtle	*Chelydra serpentina*	SC	SC	S3	ORAA (2017) MNRF (Wellington County)	Inhabit slow-moving waters with soft, muck bottom and dense aquatic vegetation. Ponds, sloughs and shallow bays are all often used as summering and overwintering habitat (COSEWIC 2008d).	Marsh ecosite within the Study Area may provide suitable habitat	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC. 2008. COSEWIC assessment and status report on the Snapping Turtle Chelydra serpentina in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 47 pp. (www.sararegistry.gc.ca/status/status_e.cfm).
Spotted Turtle	*Clemmys guttata*	END	END	S3	MNRF (Wellington County)	Found in wetlands with high organic content, including bogs, fens, marshes, woodland streams, sedge meadows, and shallow bays. Only one population is known from Wellington County, in Luther Marsh. Preferential to unpolluted shallow water with aquatic vegetation and soft substrates. Presence of Sphagnum moss, sedge tussocks, cattails and water lilies, may be important to Canadian populations (COSEWIC, 2002b).	Wetland communities within the Study Area may provide suitable habitat	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC 2004. COSEWIC assessment and update status report on the spotted turtle Clemmys guttata in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 27 pp. (www.sararegistry.gc.ca/status/status_e.cfm).
Butler's Gartersnake	*Thamnophis butleri*	END	END	S2	MNRF (Wellington County)	Occupies open areas with dense grass and thatch cover, including tall grass prairie, old fields, abandoned sites in urban areas, drainage swales and seasonally dry marshes. only one population is known from Wellington County, in Luther Marsh. Artificial cover features such as plywood, concrete, shingles, metal sheets etc., increases probability of encounters, but is not essential (COSEWIC, 2010h).	No habitat matching criteria identified in Study Area	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC. 2010. COSEWIC assessment and status report on the Butler's Gartersnake Thamnophis butler in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 51 pp.

COMMON NAME	SCIENTIFIC NAME	SARO	COSEWIC	S-RANK	BACKGROUND SOURCES	HABITAT REQUIREMENTS	SUITABLE HABITAT IN STUDY AREA	FIELD STUDIES COMPLETED/ REQUIRED	OBSERVED BY A & A	REFERENCE
Eastern Ribbonsnake	*Thamnophis sauritus*	SC	SC	S3	MNRF (Wellington County)	A semi-aquatic species that inhabits dense, low- vegetation, edges of ponds, streams, marshes, fens and bogs, with open sunlit areas for basking (COSEWIC 2002c).	Tributary within Study Area may provide suitable habitat	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC 2002. COSEWIC assessment and status report on the eastern ribbonsnake Thamnophis sauritus. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 24 pp.
Massassauga Rattlesnake	*Sistrurus catenatus*	SC	THR	S3	MNRF (Wellington County)	Only historic observations of Masassauga in the north western portion of Wellington County. Found in wet prairies, old fields, peatlands, rock barrens and coniferous forests, with open-areas, and areas of dense shrub cover. Hibernate in damp areas below the frost line (COSEWIC, 2012b).	Coniferous community within the Study Area may provide suitable habitat	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC. 2012. COSEWIC assessment and status report on the Massasauga Sistrurus catenatus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xiii + 84 pp.
Vascular Plants										
American Chestnut	*Castanea dentata*	END	END	S2	MNRF (Wellington County)	Typically occur in upland deciduous forests in Southern Ontario with dry, sandy, acid-neutral soils, Typical associates include Red Oak, Black Cherry, Sugar Maple, American Beech, White Ash, White Oak, Red Maple and Sassafras (COSEWIC 2004).	No habitat matching criteria identified in Study Area	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC 2004. COSEWIC assessment and status report on the American chestnut Castanea dentata in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 19 pp. (www.sararegistry.gc.ca/status/status_e.cfm)
American Ginseng	*Panax quinquefolius*	END	END	S2	MNRF (Wellington County)	Occur in moist, rich, undisturbed, mature Sugar Maple dominated deciduous woodlands. Often, colonies are located at the bottom of south facing slopes (COSEWIC, 2000).	No habitat matching criteria identified in Study Area	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC 2000. COSEWIC assessment and update status report on the American ginseng Panax quinquefolius in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 17 pp.
Butternut	*Juglans cinerea*	END	END	S3?	MNRF (Wellington County)	Occur in rich moist sites, that are well-drained, often found along stream banks or gravelly sites. Butternut is shade intolerant (COSEWIC, 2003b).	No habitat matching criteria identified in Study Area	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC 2003. COSEWIC assessment and status report on the butternut Juglans cinerea in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 32 pp. (www.sararegistry.gc.ca/status/status_e.cfm)
Hill's Pondweed	*Potamogeton hillii*	SC	SC	S2	MNRF (Wellington County)	Occur in cold clear calcareous streams, ponds and ditches, which are alkaline in nature (COSEWIC 2005c).	Tributary within the Study Area may provide suitable habitat	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC 2005c COSEWIC assessment and update status report on the Hill's pondweed Potamogeton hillii in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 19 pp.

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APPENDIX 7

Background Wildlife List

DATE OBS	COMMON NAME	SCIENTIFIC NAME	SARO	COSEWIC	SARA	S-RANK	G-RANK	AREA SENSITIVE	AREA REQUIRED	PIF SPECIES (BCR 13)	GRCA (date unk.)	WELLINGTON COUNTY (2009)	COMMENTS
	AMPHIBANS												
ORAA (2010)	Eastern Red-backed Salamander	Plethodon cinereus				S5	G5						
ORAA (2017)	Mudpuppy	Necturus maculosus	NAR	NAR		S4	G5					✓	
ORAA (2015)	Red-spotted Newt	Notophthalmus viridescens viridescens				S5	G5					✓	
ORAA (2017)	American Toad	Anaxyrus americanus				S5	G5						
ORAA (1999)	Gray Treefrog	Hyla versicolor				S5	G5						
ORAA (2011)	Spring Peeper	Pseudacris crucifer				S5	G5						
ORAA (1982)	American Bullfrog	Lithobates catesbeianus				S4	G5	✓				✓	
ORAA (1999)	Green Frog	Lithobates clamitans				S5	G5						
ORAA (1997)	Northern Leopard Frog	Lithobates pipiens	NAR	NAR		S5	G5						
ORAA (1996)	Wood Frog	Lithobates sylvaticus				S5	G5						
	SNAKES AND LIZARDS												
ORAA (2017)	Milksnake	Lampropeltis triangulum	SC	SC	SC	S3	G5T5					✓	
ORAA (1988)	Northern Red-bellied Snake	Storeria occipitomaculata occipitomaculata				S5	G5						
ORAA (2017)	Eastern Gartersnake	Thamnophis sirtalis sirtalis				S5	G5T5						
ORAA (2015)	Smooth Greensnake	Opheodrys vernalis				S4	G5					✓	
	TURTLES												
ORAA (2017)	Snapping Turtle	Chelydra serpentina	SC	SC	SC	S3	G5T5					✓	
ORAA (2017)	Midland Painted Turtle	Chrysemys picta marginata				S5	G5T5						
ORAA (2015)	Blanding's Turtle	Emydoidea blandingii	THR	THR	THR	S3	G4					✓	
	BIRDS												
OBBA (2007)	Great Blue Heron	Ardea herodias				S4	G5					✓	
OBBA (2007)	Green Heron	Butorides virescens				S4B	G5				CP	✓	
OBBA (2007)	Canada Goose	Branta canadensis				S5	G5				CP		
OBBA (2007)	Wood Duck	Aix sponsa				S5	G5						
OBBA (2007)	Mallard	Anas platyrhynchos				S5	G5						

OBBA (2007)	Hooded Merganser	Lophodytes cucullatus				S5B,S5N	G5				CP	✓	
OBBA (2007)	Turkey Vulture	Cathartes aura				S5B	G5				CP	✓	
OBBA (2007)	Northern Harrier	Circus cyaneus	NAR	NAR		S4B	G5	✓	>30ha	✓	CP	✓	
OBBA (2007)	Cooper's Hawk	Accipiter cooperii	NAR	NAR		S4	G5	✓	>10ha		CP	✓	
OBBA (2007)	Red-tailed Hawk	Buteo jamaicensis	NAR	NAR		S5	G5						
OBBA (2007)	American Kestrel	Falco sparverius				S4	G5			✓	CP	✓	
OBBA (2007)	Ruffed Grouse	Bonasa umbellus				S4	G5				CP		
OBBA (2007)	Wild Turkey	Meleagris gallopavo				S5	G5						
OBBA (2007)	Killdeer	Charadrius vociferus				S5B,S5N	G5						
OBBA (2007)	Spotted Sandpiper	Actitis macularius				S5	G5				CP		
OBBA (2007)	Upland Sandpiper	Bartramia longicauda				S4B	G5	✓	>25ha		CP	✓	
OBBA (2007)	Wilson's Snipe	Gallinago delicata				S5B	G5				CP		
OBBA (2007)	American Woodcock	Scolopax minor				S4B	G5				CP		
OBBA (2007)	Rock Pigeon	Columba livia				SNA	G5						
OBBA (2007)	Mourning Dove	Zenaida macroura				S5	G5						
OBBA (2007)	Eastern Screech-Owl	Megascops asio	NAR	NAR		S4	G5						
OBBA (2007)	Great Horned Owl	Bubo virginianus				S4	G5						
OBBA (2007)	Chimney Swift	Chaetura pelagica	THR	THR	THR	S4B,S4N	G5			✓		✓	
OBBA (2007)	Ruby-throated Hummingbird	Archilochus colubris				S5B	G5				CP		
OBBA (2007)	Belted Kingfisher	Megaceryle alcyon				S4B	G5			✓		✓	
OBBA (2007)	Red-headed Woodpecker	Melanerpes erythrocephalus	SC	THR	THR	S4B	G5			✓		✓	
OBBA (2007)	Downy Woodpecker	Picoides pubescens				S5	G5						
OBBA (2007)	Hairy Woodpecker	Picoides villosus				S5	G5	✓	4-8ha			✓	
OBBA (2007)	Northern Flicker	Colaptes auratus				S4B	G5			✓		✓	
OBBA (2007)	Pileated Woodpecker	Dryocopus pileatus				S5	G5	✓	>40ha		CP		
OBBA (2007)	Eastern Wood-pewee	Contopus virens	SC	SC		S4B	G5			✓		✓	
OBBA (2007)	Least Flycatcher	Empidonax minimus				S4B	G5	✓	>100ha		CP	✓	
OBBA (2007)	Eastern Phoebe	Sayornis phoebe				S5B	G5				CP		
OBBA (2007)	Great Crested Flycatcher	Myiarchus crinitus				S4B	G5						
OBBA (2007)	Eastern Kingbird	Tyrannus tyrannus				S4B	G5			✓	CP	✓	
OBBA (2007)	Horned Lark	Eremophila alpestris				S5B	G5				CP		
OBBA (2007)	Purple Martin	Progne subis				S4B	G5				CP	✓	
OBBA (2007)	Tree Swallow	Tachycineta bicolor				S4B	G5						
OBBA (2007)	Northern Rough-winged Swallow	Stelgidopteryx serripennis				S4B	G5				CP		
OBBA (2007)	Bank Swallow	Riparia riparia	THR	THR		S4B	G5			✓	CP	✓	
OBBA (2007)	Cliff Swallow	Petrochelidon pyrrhonota				S4B	G5				CP	✓	
OBBA (2007)	Barn Swallow	Hirundo rustica	THR	THR		S4B	G5				CP		
OBBA (2007)	Blue Jay	Cyanocitta cristata				S5	G5						

OBBA (2007)	American Crow	Corvus brachyrhynchos				S5B	G5						
OBBA (2007)	Black-capped Chickadee	Poecile atricapillus				S5	G5				CP		
OBBA (2007)	Red-breasted Nuthatch	Sitta canadensis				S5	G5	✓	>10ha		CP	✓	
OBBA (2007)	White-breasted Nuthatch	Sitta carolinensis				S5	G5	✓	>10ha				
OBBA (2007)	House Wren	Troglodytes aedon				S5B	G5						
OBBA (2007)	Eastern Bluebird	Sialia sialis	NAR	NAR		S5B	G5				CP		
OBBA (2007)	Veery	Catharus fuscescens				S4B	G5	✓	>10ha		CP	✓	
OBBA (2007)	Wood Thrush	Hylocichla mustelina	SC	THR		S4B	G5			✓		✓	
OBBA (2007)	American Robin	Turdus migratorius				S5B	G5						
OBBA (2007)	Gray Catbird	Dumetella carolinensis				S4B	G5				CP		
OBBA (2007)	Brown Thrasher	Toxostoma rufum				S4B	G5			✓	CP	✓	
OBBA (2007)	Cedar Waxwing	Bombycilla cedrorum				S5B	G5						
OBBA (2007)	Warbling Vireo	Vireo gilvus				S5B	G5						
OBBA (2007)	Red-eyed Vireo	Vireo olivaceus				S5B	G5						
OBBA (2007)	Nashville Warbler	Vermivora ruficapilla				S5B	G5				CP		
OBBA (2007)	Yellow Warbler	Dendroica petechia				S5B	G5						
OBBA (2007)	Yellow-rumped Warbler	Dendroica coronata				S5B	G5				CP		
OBBA (2007)	Pine Warbler	Dendroica pinus				S5B	G5	✓	15-30ha		CP	✓	
OBBA (2007)	Black-and-white Warbler	Mniotilta varia				S5B	G5	✓	>100ha		CP		
OBBA (2007)	American Redstart	Setophaga ruticilla				S5B	G5	✓	>100ha		CP	✓	
OBBA (2007)	Mourning Warbler	Oporornis philadelphia				S4B	G5				CP		
OBBA (2007)	Common Yellowthroat	Geothlypis trichas				S5B	G5						
OBBA (2007)	Scarlet Tanager	Piranga olivacea				S4B	G5	✓	>20ha		CP	✓	
OBBA (2007)	Northern Cardinal	Cardinalis cardinalis				S5	G5						
OBBA (2007)	Rose-breasted Grosbeak	Pheucticus ludovicianus				S4B	G5			✓		✓	
OBBA (2007)	Indigo Bunting	Passerina cyanea				S4B	G5						
OBBA (2007)	Chipping Sparrow	Spizella passerina				S5B	G5						
OBBA (2007)	Vesper Sparrow	Pooecetes gramineus				S4B	G5			✓	CP	✓	
OBBA (2007)	Savannah Sparrow	Passerculus sandwichensis				S4B	G5	✓	>50ha	✓	CP	✓	
OBBA (2007)	Song Sparrow	Melospiza melodia				S5B	G5						
OBBA (2007)	Swamp Sparrow	Melospiza georgiana				S5B	G5				CP		
OBBA (2007)	White-throated Sparrow	Zonotrichia albicollis				S5B	G5				CP		
OBBA (2007)	Bobolink	Dolichonyx oryzivorus	THR	THR		S4B	G5	✓	>10ha	✓	CP	✓	
OBBA (2007)	Red-winged Blackbird	Agelaius phoeniceus				S4	G5						
OBBA (2007)	Eastern Meadowlark	Sturnella magna	THR	THR		S4B	G5	✓	>10ha	✓	CP	✓	
OBBA (2007)	Common Grackle	Quiscalus quiscula				S5B	G5						
OBBA (2007)	Brown-headed Cowbird	Molothrus ater				S4B	G5						
OBBA (2007)	Baltimore Oriole	Icterus galbula				S4B	G5			✓		✓	

OBBA (2007)	Purple Finch	Carpodacus purpureus				S4B	G5				CP		
OBBA (2007)	House Finch	Carpodacus mexicanus				SNA	G5						
OBBA (2007)	American Goldfinch	Carduelis tristis				S5B	G5				CP		
OBBA (2007)	House Sparrow	Passer domesticus				SNA	G5						
	MAMMALS												
OMA (1993)	Virginia Opossum	Didelphis virginiana				S4	G5						
OMA (1993)	Little Brown Myotis	Myotis lucifugus	END	END	END	S4	G3G4						
OMA (1993)	Big Brown Bat	Eptesicus fuscus				S5	G5						
OMA (1993)	Eastern Cottontail	Sylvilagus floridanus				S5	G5						
OMA (1993)	European Hare	Lepus europaeus				SNA	G5						
OMA (1993)	Eastern Chipmunk	Tamias striatus				S5	G5						
OMA (1993)	Woodchuck	Marmota monax				S5	G5						
OMA (1993)	Eastern Gray Squirrel	Sciurus carolinensis				S5	G5						
OMA (1993)	Red Squirrel	Tamiasciurus hudsonicus				S5	G5						
OMA (1993)	Beaver	Castor canadensis				S5	G5						
OMA (1993)	Muskrat	Ondatra zibethicus				S5	G5						
OMA (1993)	Norway Rat	Rattus norvegicus				SNA	G5						
OMA (1993)	Porcupine	Erethizon dorsatum				S5	G5						
OMA (1993)	Coyote	Canis latrans				S5	G5						
OMA (1993)	Red Fox	Vulpes vulpes				S5	G5						
OMA (1993)	Northern Raccoon	Procyon lotor				S5	G5						
OMA (1993)	Ermine	Mustela erminea				S5	G5						
OMA (1993)	Long-tailed Weasel	Mustela frenata				S4	G5					✓	
OMA (1993)	American Mink	Mustela vison				S4	G5						
OMA (1993)	Striped Skunk	Mephitis mephitis				S5	G5						
OMA (1993)	White-tailed Deer	Odocoileus virginianus				S5	G5						

Legend:

COSARO: Committee on Species at Risk Ontario
COSEWIC: Committee on the status of endangered wildlife in canada
SARA: Species at Risk Act
ESA: Endangered Species Act
END: Endangered
THR: Threatened
SC: special Concern
NAR: Not At Risk
NL: Not listed
DD: Data Deficient

S-Rank:

S1: Critically Imperiled
S2: Imperiled
S3: Vulnerable
S4: Apparently Secure
S5: Secure
SX: Presumed extirpated
SH: Possibly Extirpated (Historical)
SNR: Unranked
SU: Unrankable— lack of information
SNA: Not applicable— not a suitable target for conservation activities
S#S#: Range Rank— (e.g., S2S3) indicateS any range of uncertainty about the status
S#B- Breeding status rank
S#N- Non Breeding status rank
?: Indicates uncertainty in the assigned rank

G-Rank:

G1: Extremely rare globally
G1G2: Extremely rare to very rare globally
G2: Very rare globally
G2G3: Very rare to uncommon globally
G3: Rare to uncommon globally
G3G4: Rare to common globally
G4: Common globally
G4G5: Common to very common globally
G5: Very common globally; demonstrably secure

T: Denotes that the rank applies to a subspecies or variety

Grand River Conservation Authority:
CP=Conservation Priority

Source codes
OBAO: Ontario butterfly Atlas Online
ORAA: Ontario Reptile and Amphibian Atlas
OMA: Ontario Mammal Atlas
OBBA: Ontario Breeding Bird Atlas

References:

Ontario Partners in Flight (PIF). 2008. Ontario Landbird Conservation Plan: Lower Great Lakes/St. Lawrence Plain (North American Bird Conservation Region 13), Priorities, Objectives and Recommended Actions. Environment Canada (Ontario Region) and Ontario Ministry of Natural Resources. Final Draft, November, 2008.

COSSARO Status Endangered Species Act, 2007 (Bill 184). Schedules 1- 5. June 30 2008.

COSEWIC Status COSEWIC. 2014. Canadian Species at Risk. Committee on the Status of Endangered Wildlife in Canada.

Endangered Species Act, 2007 (Bill 184). Schedules 1- 5. April 21, 2015

Grand River Conservation Authority, date unk., A checklist of Birds Within the Grand River Watershed

Dougan & Associates. 2009. Guelph Natural Heritage Strategy

APPENDIX 8

Glossary of Terms and Impact Ratings

Glossary of Terms and Impacts

Duration of Impact
ST – Short-term (define based on project)
LT- Long-term (define based on project)

Reversibility
R- Reversible
P – Permanent

Geographic Extent of Influence
SA– Subject Area (physical disturbance area)
AA- Assessment Area (120m zone of influence)
LA – Landscape Area (Area outside AA that may be affected)

Frequency of Disturbance
O - Occurs once.
S - Occurs sporadically at irregular intervals.
R - Occurs on a regular basis and at regular intervals.
C – Continuous, ongoing and all the time.

Existing Ecological Site Context
U - Undisturbed: Area relatively or not adversely affected by human activity.
PD – Past Disturbance: Area Adversely affected by human activity in recent past, but regeneration has occurred.
D -Disturbed: Area has been substantially previously disturbed by human development or human development is still present.

Likelihood of impact occurring
If the Proposed activity occurs, the likelihood of the impact occurring is:
L: Low probability of occurrence.
M: Medium probability of occurrence.
H: High probability of occurrence.

Cumulative Environmental Effects
Will the proposed activity interact with other impacts?
Y: Potential for environmental effect to interact with the environmental effects of other past, present or foreseeable future activities
N: Environmental effect will not or is not likely to interact with the environmental effects of other past, present or foreseeable future activities.

Impact Rating
None: An event that, if it occurs, will cause no foreseeable impact.
Minor: An event that, if it occurs, will cause small, reversible and geographically localized impact that can be easily mitigated.
Moderate: Significant but reversible, OR irreversible and geographically localized, impact that requires significant mitigation.
Severe: Significant AND irreversible impact on the environment, impacts cannot be fully mitigated.

Potential vs. Actual impact
[1] *Potential Impact* is a relative rating of the expected impact to occur in the absence of any mitigation measures.
[2] *Actual Impact* is the expected impact in consideration of implementation of mitigation measures or where potential impact may cause little to no actual impact.

APPENDIX 9

Breeding Bird Point Count & Area Search Results

COMMON NAME	SCIENTIFIC NAME	SARO	COSEWIC	SARA	S-RANK	G-RANK	AREA SENSITIVE	AREA REQUIRED	PIF SPECIES	GRCA(date unk.)	PC A													
											round1	date: June 5, 2018					round2	date: June 25, 2018					Max Summaries	
											>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	TOTAL	HBE
Belted Kingfisher	Megaceryle alcyon				S4B	G5			✓						0			1			1	H	1	H
Eastern Kingbird	Tyrannus tyrannus				S4B	G5			✓	CP					0			1			1	H	1	H
Blue Jay	Cyanocitta cristata				S5	G5						1			1	H					0		1	H
American Crow	Corvus brachyrhynchos				S5B	G5						2			2	P					0		2	P
House Wren	Troglodytes aedon				S5B	G5									0			1			1	S	1	S
American Robin	Turdus migratorius				S5B	G5					2				2	P					0		2	P
Cedar Waxwing	Bombycilla cedrorum				S5B	G5									0		1				1	H	1	H
European Starling	Sturnus vulgaris				SNA	G5					2				2	V					0		2	V
Warbling Vireo	Vireo gilvus				S5B	G5									0			1			1	S	1	S
Common Yellowthroat	Geothlypis trichas				S5B	G5						2			2	S					0		2	S
Northern Cardinal	Cardinalis cardinalis				S5	G5					1	1			2	V					0		2	V
Indigo Bunting	Passerina cyanea				S4B	G5									0			1			1	S	1	S
Chipping Sparrow	Spizella passerina				S5B	G5					1				1	S	1	1			2	S	2	S
Song Sparrow	Melospiza melodia				S5B	G5					1				1	S		1			1	S	1	S
Red-winged Blackbird	Agelaius phoeniceus				S4	G5									0		1				1	S	1	S
Baltimore Oriole	Icterus galbula				S4B	G5			✓		1				1	H					0		1	H
American Goldfinch	Carduelis tristis				S5B	G5				CP	2				2	P	2				2	P	2	P

Breeding Evidence

Possible	Probable
H- Suitable Habitat	P- Pair
S- Singing Male	V- Visiting Probable Nest Site

Legend:
COSARO: Committee on Species at Risk Ontario
COSEWIC: Committee on the status of endangered wildlife in canada
SARA: Species at Risk Act
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G-Rank:
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G1G2: Extremely rare to very rare globally
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G2G3: Very rare to uncommon globally
G3: Rare to uncommon globally
G3G4: Rare to common globally
G4: Common globally
G4G5: Common to very common globally
G5: Very common globally; demonstrably secure
T: Denotes that the rank applies to a subspecies or variety

S-Rank:
S1: Critically Imperiled
S2: Imperiled
S3: Vulnerable
S4: Apparently Secure
S5: Secure
SX: Presumed extirpated
SH: Possibly Extirpated (Historical)
SNR: Unranked
SU: Unrankable— lack of information
SNA: Not applicable— not a suitable target for conservation activities
S#S#: Range Rank— (e.g., S2S3) indicateS any range of uncertainty about the status
S#B- Breeding status rank
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Grand River Conservation Authority:
CP=Conservation Priority

References:

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5.Grand River Conservation Authority, date unk., A checklist of Birds Within the Grand River Watershed
6.Dougan & Associates. 2009. Natural Heritage Strategy

COMMON NAME	SCIENTIFIC NAME	SARO	COSEWIC	SARA	S-RANK	G-RANK	AREA SENSITIVE	AREA REQUIRED	PIF SPECIES (BCR 13)	GRCA (date unk.)	WELLINGTON COUNTY (2008)	PC A					
												Date: June 5, 2018		Date: June 25, 2018		Totals	
												COUNT	HBE	COUNT	HBE	MAX	HBE
Green Heron	Butorides virescens				S4B	G5				CP	✓	1	H			1	H
Mallard	Anas platyrhynchos				S5	G5						3	H			3	H
Killdeer	Charadrius vociferus				S5B,S5N	G5								1	H	1	H
Mourning Dove	Zenaida macroura				S5	G5								2	H	2	H
Ruby-throated Hummingbird	Archilochus colubris				S5B	G5				CP				1	H	1	H
Downy Woodpecker	Picoides pubescens				S5	G5						1	H			1	H
Great Crested Flycatcher	Myiarchus crinitus				S4B	G5						1	H	1	H	1	H
Eastern Kingbird	Tyrannus tyrannus				S4B	G5			✓	CP	✓			2	P	2	P
Barn Swallow	Hirundo rustica	THR	THR		S4B	G5				CP				2	H	2	H
Blue Jay	Cyanocitta cristata				S5	G5						1	H	1	H	1	H
American Crow	Corvus brachyrhynchos				S5B	G5						3	H			3	H
Black-capped Chickadee	Poecile atricapillus				S5	G5				CP		2	P	3	P	3	P
House Wren	Troglodytes aedon				S5B	G5						1	S	1	S	1	S
Winter Wren	Troglodytes troglodytes				S5B	G5	✓	>30ha			✓			1	S	1	S
American Robin	Turdus migratorius				S5B	G5								3	P	3	P
Gray Catbird	Dumetella carolinensis				S4B	G5				CP				1	S	1	S
Brown Thrasher	Toxostoma rufum				S4B	G5			✓	CP	✓			1	A	1	A
Cedar Waxwing	Bombycilla cedrorum				S5B	G5								3	P	3	P
European Starling	Sturnus vulgaris				SNA	G5						2	V			2	V
Warbling Vireo	Vireo gilvus				S5B	G5								1	S	1	S
Yellow Warbler	Dendroica petechia				S5B	G5						1	S			1	S
Chestnut-sided Warbler	Dendroica pensylvanica				S5B	G5				CP		1	S			1	S
Common Yellowthroat	Geothlypis trichas				S5B	G5						3	S			3	S
Rose-breasted Grosbeak	Pheucticus ludovicianus				S4B	G5			✓		✓			1	S	1	S
Indigo Bunting	Passerina cyanea				S4B	G5								1	S	1	S
Chipping Sparrow	Spizella passerina				S5B	G5						2	S			2	S
Song Sparrow	Melospiza melodia				S5B	G5						2	S	3	S	3	S
Red-winged Blackbird	Agelaius phoeniceus				S4	G5						6	S	6	FY	6	FY

COMMON NAME	SCIENTIFIC NAME	SARO	COSEWIC	SARA	S-RANK	G-RANK	AREA SENSITIVE	AREA REQUIRED	PIF SPECIES (BCR 13)	GRCA (date unk.)	WELLINGTON COUNTY (2008)	PC A					
												Date: June 5, 2018		Date: June 25, 2018		**Totals**	
												COUNT	HBE	COUNT	HBE	MAX	HBE
Common Grackle	Quiscalus quiscula				S5B	G5						5	P	3	FO	5	P
Baltimore Oriole	Icterus galbula				S4B	G5			✓		✓			2	H	2	H
American Goldfinch	Carduelis tristis				S5B	G5				CP		3	H	10	P	10	P

Breeding Evidence

Possible

H- Suitable Habitat

S- Singing Male

Probable

P- Pair

V- Visiting Probable Nest Site

A- Agitated

Confirmed

FY- Recentlty Fledged Young

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SNR: Unranked
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SNA: Not applicable— not a suitable target for conservation activities
S#S#: Range Rank— (e.g., S2S3) indicateS any range of uncertainty about the status
S#B- Breeding status rank
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Grand River Conservation Authority:
CP=Conservation Priority

References:

1.Ontario Partners in Flight (PIF). 2008. Ontario Landbird Conservation Plan: Lower Great Lakes/St. Lawrence Plain (North American Bird Conservation Region 13), Priorities, Objectives and Recommended Actions. Environment Canada (Ontario Region) and Ontario Ministry of Natural Resources. Final Draft, November, 2008.
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APPENDIX 10

MNRF Request for Information

Natural Heritage Information Request Form – Guelph District MNRF *(updated: Dec. 2017)*

Please be advised that failure to complete this form in its entirety may result in delays in receiving a response from MNRF.
Forward the completed form to: esa.guelph@ontario.ca

Consultant Name:	**Shannon Davison**
Consultant Company:	**Aboud & Associates Inc.**
Email Address:	**sdavison@aboudtng.com**
Phone Number:	**5198226839 x. 5**
Proponent Name:	**Taylor McDaniel**
Proponent Company:	**Jennark Homes**

Project Name:	**Beatty and Farley, Fergus**
Property Address:	**6552-6558 Beatty Line North**
Township/Municipality:	**Fergus**
Lot & Concession:	**Lot 18, Concession 14**

UTM Coordinates (NAD83): **547986.2** Easting (X) **4839827.25** Northing (Y)

Brief Description of Undertaking: **A residential development including semi-detached dwellings, 4-storey apartment building and amenity space is being proposed for 4 existing properties on the corner of Beatty Line and Farley Road.**

Are any municipal planning, provincial or other approvals required for this project? (Check all that apply)

- ☐ Aggregate Resources Act
- ☐ Planning Act
- ☐ Public Lands Act
- ☐ Lakes and Rivers Improvement Act
- ☐ Drainage Act
- ☐ Niagara Escarpment Planning & Development Act
- ☐ Environmental Protection Act
- ☐ Other (specify)

Have you previously contacted someone at MNRF for information on this site? ○ Yes ◉ No

If yes, when and who?

Provide a map (aerial photo preferred) of accurate scale to illustrate footprint/study area of the proposed activity in relation to the surrounding landscape (include property boundaries, roads, waterbodies, natural features etc.).

REQUEST - I would like to request the following information for the property identified above:

- ☒ Wetland Evaluation File (provide name of wetland if known): **Irvine Creek Wetland Complex**
- ☐ Area of Natural and Scientific Interest (ANSI) Checksheet (provide name of ANSI if known)
- ☒ Fish Dot Information (fish and other aquatic species found in a particular area of a watercourse)
- ☒ Species at Risk
- ☒ Other (specify): **Other relevant information**
- ☐ In-Water Work Timing Window

Ontario

Grand River Conservation Authority

Date: May 10, 2018
Author: Aboud & Associates

Beatty Line

Red outline depicts subject lands. Black buffer depicts study area.

Legend

- Regulation Limit (GRCA)
- Regulated Watercourse (GRCA)
- Regulated Waterbody (GRCA)
- Wetland (GRCA)
- Floodplain (GRCA)
  - Engineered
  - Estimated
  - Approximate
  - Special Policy Area
- Slope Valley (GRCA)
  - Steep
  - Oversteep
  - Steep
- Slope Erosion (GRCA)
  - Oversteep
  - Toe
- Lake Erie Flood (GRCA)
- Lake Erie Shoreline Reach (GRCA)
- Lake Erie Dynamic Beach (GRCA)
- Lake Erie Erosion (GRCA)
- Parcel - Assessment (MPAC/MNRF)

This legend is static and may not fully reflect the layers shown on the map. The text of Ontario Regulation 150/06 supercedes the mapping as represented by these layers.

0 20 40 80 120 Metres

N

Map Centre (UTM NAD83 z17): 548,008.11 4,839,803.90

This map is not to be used for navigation | 2015 Ortho (ON)

NAD 1983 UTM Zone 17N

Scale: 3,778

Ministry of Natural Resources And Forestry

Ministère des Richesses naturelles et des Forets

Guelph District
1 Stone Road West
Guelph, Ontario
N1G 4Y2

Telephone: (519) 826-4955
Facsimile: (519) 826-4929

May 28, 2018

Shannon Davison
Aboud & Associates Inc.
190 Nicklin Road
Guelph, ON N1H 7L5
sdavison@aboudtng.com

RE: BEATTY AND FARLEY, FERGUS
ACROSS BEATTY LINE NORTH AT SIDEROAD 18

Dear Ms Davison,

The Ministry of Natural Resources and Forestry (MNRF), Guelph District Office, has reviewed the natural heritage information available for the above-noted property and surrounding area (the "study area"), and offers the following comments:

WETLANDS

The Ministry has identified the following significant wetland (PSW) within the study area:

- Irvine Creek Wetland Complex

As requested, a copy of the wetland evaluation file for the IRVINE CREEK WETLAND COMPLEX is attached. Please be advised that wetland evaluation files are considered "open" files and may be updated from time to time as new information becomes available.

FISHERIES

Restricted activity timing windows are applied to protect fish from impacts of undertakings in and around water during critical life cycle stages. The recommended timing restrictions IRVINE CREEK are MARCH 15TH to JUNE 30TH (Note: dates represent when work should be avoided).

The MNRF has very limited fisheries information for this section of Irvine Creek but notes that the following fish species have been documented in the area:

- Creek Chub
- Brook Stickleback

SPECIES AT RISK

There are records in the area for the following species at risk (SAR):

- Barn Swallow *(Hirundo rustica)* (Threatened)
- Eastern Meadowlark *(Sturnella magna)* (Threatened)

Threatened and Endangered Species receive both individual species and habitat protection under the *Endangered Species Act, 2007* (ESA). SAR habitat prescribed under regulation is listed in Ont. Reg. 242/08 (https://www.ontario.ca/laws/regulation/080242).

Please be advised that because the province has not been surveyed comprehensively for the presence of listed species, the absence of a record does not necessarily indicate the absence of SAR from an area. To determine the presence of SAR for a given study area, the District's recommended approach is as follows:

I. Habitat Inventory

The Ministry recommends undertaking a comprehensive botanical inventory of the entire area that may be subject to direct and indirect impacts from the proposed activity. The vegetation communities should be classified as per the "Ecological Land Classification (ELC) for Southern Ontario" system, to either the "Ecosite" or "Vegetation Type" level. For aquatic habitats in the study area, we recommend that you collect data on the physical characteristics of the waterbodies and inventory the riparian zone vegetation, so that these habitats can be classified as per the Aquatic Ecosites described in the ELC manual.

II. Potential SAR within the Study Area

A list of SAR that have the potential to occur in the area can be produced by cross-referencing the ecosites described during the habitat inventory with the habitat descriptions of SAR known to occur within the planning area. The list of SAR known to occur in the **COUNTY OF WELLINGTON** is attached for your reference. The species-specific COSEWIC status reports (https://www.canada.ca/en/environment-climate-change/services/committee-status-endangered-wildlife.html) are a good source of information on habitat needs and will be helpful in determining the suitability of the study areas ecosites for a given species.

Please note that the Species at Risk in Ontario (SARO) List is a living document that is periodically amended as a result of species assessment and re-assessments conducted by the Committee on the Status of Species at Risk in Ontario (COSSARO). The SARO List can be accessed on the following webpage: https://www.ontario.ca/environment-and-energy/species-risk-ontario-list.

COSSARO also maintains a list of species to be assessed in the future. It is recommended that you take COSSARO's list of anticipated assessments into consideration, especially when the proposed start date of an activity is more than 6 months away, or the project will be undertaken over a period greater than 6 months. This list can be viewed at: https://www.ontario.ca/page/how-comment-protecting-species-risk.

III. SAR Surveys

The Ministry recommends that each potential SAR identified under Step II is surveyed for, regardless of whether or not the species has been previously recorded in the area. The survey report should describe how each SAR was surveyed for, and provide a rationale for why certain species were not afforded a survey (e.g., habitat within the study area is not suitable for a specific SAR). Please note that some targeted surveys may require provincial authorizations (e.g., ESA permit or Wildlife Scientific Collector's Permit).

ADDITIONAL INFORMATION

Natural heritage features (e.g. wetlands, ANSIs) can be viewed for a given study area through the MNRF's "Make a Map" web application: https://www.ontario.ca/page/make-natural-heritage-area-

map. Digital data layers can be obtained through the Land Information Ontario (LIO) geowarehouse https://www.ontario.ca/page/land-information-ontario.

Additionally, the MNRF recommends contacting the municipality and the conservation authority to determine if they have any additional information or records of interest for the study area.

Please be advised that it is your responsibility to comply with all other relevant provincial or federal legislation, municipal by-laws, other MNRF approvals or required approvals from other agencies. If your investigations reveal the presence of Threatened or Endangered species, please contact the MNRF at esa.guelph@ontario.ca for further direction.

I trust that the above information is of assistance.

Sincerely,

Alaina Vandervoort
A/Management Biologist

County of Wellington

Date Generated: May-03-18

Amphibian					
Jefferson Salamander *Ambystoma jeffersonianum*	END	Species Protection and Habitat Regulation	Inhabits deciduous and mixed deciduous forests with suitable breeding areas which generally consist of ephemeral (temporary) bodies of water that are fed by spring runoff, groundwater, or springs.	Active: March – October Hibernates: October – March Breeding: Late March - Mid April	Contact MNRF Guelph District Management Biologist to obtain a copy of the protocol
Unisexual Ambystoma - Jefferson-dominated *Ambystoma laterale - jeffersonianum*	END	Species Protection and General Habitat Protection	Inhabits deciduous and mixed deciduous forests with suitable breeding areas which generally consist of ephemeral (temporary) bodies of water that are fed by spring runoff, groundwater, or springs.	Active: March – October Hibernates: October – March Breeding: Late March - Mid April	Contact MNRF Guelph District Management Biologist to obtain a copy of the protocol
Bird					
Acadian Flycatcher *Empidonax virescens*	END	Species Protection and General Habitat Protection	Generally requires large areas of mature, undisturbed forest; avoids the forest edge; often found in well wooded swamps and ravines.	Migrate South before Winter	Follow Breeding Bird Survey Protocol
Bald Eagle *Haliaeetus leucocephalus*	SC	N/A	Prefers deciduous and mixed-deciduous forest; and habitat close to water bodies such as lakes and rivers. They roost in super canopy trees such as Pine.	Breed and Nest - April or May Some Migrate South when waterbodies freeze over	Follow Breeding Bird Survey Protocol
Bank Swallow *Riparia riparia*	THR	Species Protection and General Habitat Protection	It nests in a wide variety of naturally and anthropogenically created vertical banks, which often erode and change over time including aggregate pits and the shores of large lakes and rivers.	Migrate South before Winter	Follow Breeding Bird Survey Protocol. Colony and Roost information should be recorded and submitted using Bird Studies Canada's Ontario Bank Swallow Project data forms (2010).
Barn Owl *Tyto alba*	END	Species Protection and Habitat Regulation	Generally prefer low-elevation, open country; often associated with agricultural lands, especially pasture. Nests are located in buildings, hollow trees and cavities in cliffs.	Active Year Round Some leave for the Winter	Follow Breeding Bird Survey Protocol Night surveys may be helpful as they are very vocal

Barn Swallow *Hirundo rustica*	THR	Species Protection and General Habitat Protection	Prefers farmland; lake/river shorelines; wooded clearings; urban populated areas; rocky cliffs; and wetlands. They nest inside or outside buildings; under bridges and in road culverts; on rock faces and in caves etc.	Migrate South before Winter	Follow Breeding Bird Survey Protocol
Black Tern *Chlidonias niger*	SC	N/A	Generally prefer freshwater marshes and wetlands; nest either on floating material in a marsh or on the ground very close to water	Migrate South for the Winter	Follow Breeding Bird Survey Protocol
Bobolink *Dolichonyx oryzivorus*	THR	Species Protection and General Habitat Protection	Generally prefers open grasslands and hay fields. In migration and in winter uses freshwater marshes and grasslands	Migrate South for the Winter	Contact MNR Guelph District Management Biologist to obtain a copy of the protocol
Canada Warbler *Cardellina canadensis*	SC	N/A	Generally prefers wet coniferous, decidiuous and mixed forest types, with a dense shrub layer. Nests on the ground, on logs or hummocks, and uses dense shrub layer to conceal the nest.	Arrive in Early May Migrate South for the Winter	Follow Breeding Bird Survey Protocol
Cerulean Warbler *Setophaga cerulea*	THR	Species Protection and General Habitat Protection	Generally found in mature deciduous forests with an open understorey; also nests in older, second-growth deciduous forests.	Migrate South for the Winter	Follow Breeding Bird Survey Protocol
Chimney Swift *Chaetura pelagica*	THR	Species Protection and General Habitat Protection	Historically found in deciduous and coniferous, usually wet forest types, all with a well developed, dense shrub layer; now most are found in urban areas in large uncapped chimneys	Nesting - Late April to Mid-May Migrate South in September or Early October	Chimney Swift Monitoring Protocol. Bird Studies Canada, March 2009

Common Nighthawk *Chordeiles minor*	SC	N/A	Generally prefer open, vegetation-free habitats, including dunes, beaches, recently harvested forests, burnt-over areas, logged areas, rocky outcrops, rocky barrens, grasslands, pastures, peat bogs, marshes, lakeshores, and river banks. This species also inhabits mixed and coniferous forests. Can also be found in urban areas (nest on flat roof-tops).	Migrate South for the Winter	Contact MNR Guelph District Management Biologist to obtain a copy of the protocol
Eastern Meadowlark *Sturnella magna*	THR	Species Protection and General Habitat Protection	Generally prefers grassy pastures, meadows and hay fields. Nests are always on the ground and usually hidden in or under grass clumps.	Migrate South for the Winter	Contact MNR Guelph District Management Biologist to obtain a copy of the protocol
Eastern Whip-poor-will *Caprimlugus vociferus*	THR	Species Protection and General Habitat Protection	Generally prefer semi-open deciduous forests or patchy forests with clearings; areas with little ground cover are also preferred; In winter they occupy primarily mixed woods near open areas.	Nesting: May - July	Contact MNRF Guelph District Management Biologist to obtain a copy of the protocol
Eastern Wood-Pewee *Contopus virens*	SC	N/A	Associated with deciduous and mixed forests. Within mature and intermediate age stands it prefers areas with little understory vegetation as well as forest clearings and edges.	Migrate South for the Winter	Follow Breeding Bird Survey Protocol
Golden-winged Warbler *Vermivora chrysoptera*	SC	N/A	Generally prefer areas of early successional vegetation, found primarily on field edges, hydro or utility right-of-ways, or recently logged areas.	Migrate South for the Winter	Follow Breeding Bird Survey Protocol
Henslow's Sparrow *Ammodramus henslowii*	END	Species Protection and General Habitat Protection	Generally found in old fields, pastures and wet meadows. They prefer areas with dense, tall grasses, and thatch, or decaying plant material	Migrate South for the Winter	Follow Breeding Bird Survey Protocol

Least Bittern *Ixobrychus exilis*	THR	Species Protection and General Habitat Protection	Generally located near pools of open water in relatively large marshes and swamps that are dominated by cattail and other robust emergent plants	Migrate South for the Winter	Follow Marsh Monitoring Protocol; 10 day window of male calling (variable timing). Does not respond well to playback. Very difficult to detect.
Loggerhead Shrike *Lanius ludovicianus*	END	Species Protection and General Habitat Protection	Generally prefer a combination of pasture or other grassland with scattered low trees and shrubs. They build their nests in small trees or shrubs.	Migrate South for the Winter	Follow Breeding Bird Survey Protocol
Louisiana Waterthrush *Seiurus motacilla*	THR	Species Protection and General Habitat Protection	Generally inhabits mature forests along steeply sloped ravines adjacent to running water. It prefers clear, cold streams and densely wooded swamps	Migrate South for the Winter	Follow Breeding Bird Survey Protocol or Marsh Monitoring Protocol
Northern Bobwhite *Colinus virginianus*	END	Species Protection and General Habitat Protection	Generally inhabits a variety of edge and grassland type - habitats including non-intensively farmed agricultural lands.	Acitve Year Round	Follow Breeding Bird Survey Protocol
Olive-sided Flycatcher *Contopus cooperi*	SC	N/A	Generally prefers natural forest edges and openings adjacent to rivers or wetlands. Commonly nest in conifers such as White and Black Spruce, Jack Pine and Balsam Fir.	Migrate South for the Winter	Follow Breeding Bird Survey Protocol
Red-Headed Woodpecker *Melanerpes erythrocephalus*	SC	N/A	Generally prefer open oak and beech forests, grasslands, forest edges, orchards, pastures, riparian forests, roadsides, urban parks, golf courses, cemeteries, as well as along beaver ponds and brooks	Active from May to September	Follow Breeding Bird Survey Protocol
Short-eared Owl *Asio flammeus*	SC	N/A	Generally prefers a wide variety of open habitats, including grasslands, peat bogs, marshes, sand-sage concentrations, old pastures and agricultural fields	Active Year Round	Contact MNRF Guelph District Management Biologist to obtain a copy of the protocol

Wood Thrush *Hylocichla mustelina*	SC	N/A	Nests mainly in second-growth and mature deciduous and mixed forests, with saplings and well-developed understory layers. Prefers large forest mosaics, but may also nest in small forest fragments.	Migrate South for the Winter Arrive in Ontario in mid to late spring	Follow Breeding Bird Survey Protocol
Yellow-breasted Chat *Icteria virens*	END	Species Protection and General Habitat Protection	Generally prefer dense thickets around wood edges, riparian areas, and in overgrown clearings	Migrate South for the Winter Arrive in Ontario Early May	Follow Breeding Bird Survey Protocol
Fish					
Black Redhorse *Moxostoma duquesnei*	THR	Species Protection and General Habitat Protection	Generally lives in moderately sized rivers and streams, with generally moderate to fast currents	Active Year Round	For information please contact your local MNRF office, CA or DFO
Redside Dace *Clinostomus elongatus*	END	Species Protection and Habitat Regulation	Generally found in pools and slow-moving areas of small headwater streams with a moderate to high gradient	Spawning occurs in May Timing Window is Coldwater - June 1 - September 15	Contact MNR Guelph District Management Biologist to obtain a copy of the protocol
Silver Shiner *Notropis photogenis*	THR	Species Protection and General Habitat Protection	Generally prefer moderate to large, deep, relatively clear streams with swift currents, and moderate to high gradients	Spawning occurs in May and June	For information please contact your local MNRF office, CA and/or DFO
Insect					
Monarch Butterfly *Danaus plexippus*	SC	N/A	Exist primarily wherever milkweed and wildflowers exist; abandoned farmland, along roadsides, and other open spaces	Usually migrate south in late September and October	Watch for adults along roadsides and in open fields. Caterpillars feed on milkweeds: Common milkweed grows in open disturbed habitats (fields, roadsides, etc) and swamp milkweed grows in wet habitats (along streams, lakes, marshes) Adults can be spotted from a distance; caterpillars must be looked for carefully on the host plant.

Rusty-patched Bumble Bee *Bombus affinis*	END	Species Protection and General Habitat Protection	Generally inhabits a range of diverse habitats including mixed farmland, sand dunes, marshes, urban and wooded areas. It usually nests underground in abandoned rodent burrows	Active from early Spring to late Fall	Contact MNRF Guelph District Management Biologist to obtain a copy of the protocol
West Virginia White *Pieris virginiensis*	SC	N/A	Generally prefer moist, deciduous woodlands. The larvae feed only on the leaves of the two-leaved toothwort (Cardamine diphylla), which is a small, spring-blooming plant of the forest floor.	Adult butterfly emerges from pupa in late March; flies only in April and May	Watch for adults within moist, deciduous woodlands Caterpillars feed on the two-leaved toothwort: Toothwort grows in damp, open, rich hardwood woodlands and blooms from April to June. Adults can be spotted from a distance; caterpillars must be searched for carefully by checking host plant
Mammal					
Eastern Small-footed Myotis *Myotis leibii*	END	Species Protection and General Habitat Protection	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius Maternal Roosts: primarily under loose rocks on exposed rock outcrops, crevices and cliffs, and occasionally in buildings, under bridges and highway overpasses and under tree bark.	Hibernates in caves and mines during winter	Contact MNRF Guelph District Management Biologist to obtain a copy of the protocol
Gray Fox *Urocyon cinereoargenteus*	THR	Species Protection and General Habitat Protection	Generally prefers deciduous forests, marshes, swampy areas, and urban areas	Active Year Round	Opportunistically or by examining tracks in winter and summer
Little Brown Myotis *Myotis lucifugus*	END	Species Protection and General Habitat Protection	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius Maternal Roosts: Often associated with buildings (attics, barns etc.). Occasionally found in trees (25-44 cm dbh).	Hibernates during winter	Contact MNRF Guelph District Management Biologist to obtain a copy of the protocol

Northern Myotis *Myotis septentrionalis*	END	Species Protection and General Habitat Protection	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius Maternal Roosts: Often asssociated with cavities of large diameter trees (25-44 cm dbh). Occasionally found in structures (attics, barns etc.)	Hibernates during winter	Contact MNRF Guelph District Management Biologist to obtain a copy of the protocol
Tri-colored Bat *Perimyotis subflavus*	END	Species Protection and General Habitat Protection	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius Maternal Roosts: Can be in trees or dead clusters of leaves or arboreal lichens on trees. May also use barns or similar structures.	Hibernates during winter	Contact MNRF Guelph District Management Biologist to obtain a copy of the protocol
Mollusc					
Wavy-rayed Lampmussel *Lampsilis fasciola*	THR	Species Protection and Habitat Regulation	Generally inhabit clear rivers and streams of a variety of sizes, where the water flow is steady and the substrate is stable	Active Year Round	Please reference: Mackie, G, T.J Morris, and D Ming. "Protocol for the Detection and Relocation of Freshwater Mussel Species at Risk in Ontario Great Lakes Area (OGLA)." Fisheries and Oceans Canada. (2008): Print.
Plant					
American Chestnut *Castanea dentata*	END	Species Protection and General Habitat Protection	Found in deciduous forest communities; this tree prefers arid forests with acid and sandy soils.	Flowers occur in Late Spring and Early Summer	Walk slowly and systematically in grid fashion, pausing to scan for plants every 5 meters Use a plant field guide to distinguish from similar species Perform detailed floristic inventory Look for distinictive fruits on the ground
American Ginseng *Panax quinquefolius*	END	Species Protection and General Habitat Protection	Grows in rich, moist, undisturbed and relatively mature deciduous woods in areas of neutral soil (such as over limestone or marble bedrock).	Flowering begins in June and continues until August The fruit develop from July to August and ripen in August and September	Walk slowly and systematically in grid fashion, pausing to scan for plants every 5 meters Use a plant field guide to distinguish from similar species

Butternut *Juglans cinerea*	END	Species Protection and General Habitat Protection	Generally grows in rich, moist, and well-drained soils often found along streams. It may also be found on well-drained gravel sites, especially those made up of limestone. It is also found, though seldomly, on dry, rocky and sterile soils. In Ontario, the Butternut generally grows alone or in small groups in deciduous forests as well as in hedgerows	Flowers from April to June. Fruits reach maturity during the month of September or October	Walk slowly and systematically in grid fashion through suitable habitat pausing every 30 meters for a detailed scan of trees within sight. Areas with dense foliage or many saplings will require a more intensive survey to detect sapling butternut. Use Butternut Health Assessment Protocol if planning on removing trees.
Hill's Pondweed *Potamogeton hillii*	SC	N/A	Generally grows in clear, cold ponds and slow- moving streams where the water is alkaline	Flowers in Summer	Survey in appropriate aquatic habitat Use a plant field guide to distinguish from similar species
Reptile					
Blanding's Turtle *Emydoidea blandingii*	THR	Species Protection and General Habitat Protection	Generally occur in freshwater lakes, permanent or temporary pools, slow-flowing streams, marshes and swamps. They prefer shallow water that is rich in nutrients, organic soil and dense vegetation. Adults are generally found in open or partially vegetated sites, and juveniles prefer areas that contain thick aquatic vegetation including sphagnum, water lilies and algae. They dig their nest in a variety of loose substrates, including sand, organic soil, gravel and cobblestone. Overwintering occurs in permanent pools that average about one metre in depth, or in slow-flowing streams.	Eggs are laid in June, with hatchlings emerging in late September and early October.	Contact MNR Guelph District Management Biologist to obtain a copy of the protocol
Butler's Gartersnake *Thamnophis butleri*	END	Species Protection and General Habitat Protection	Generally prefers open habitats, such as dense grasslands and old fields, where there are small marshes and seasonal wet areas	Active: early April - mid-September Mating: early spring (April) Hatching: June and July	Contact MNR Guelph District Management Biologist to obtain a copy of the protocol

Eastern Ribbonsnake *Thamnophis sauritus*	SC	N/A	Generally occur along the edges of shallow ponds, streams, marshes, swamps, or bogs bordered by dense vegetation that provides cover. Abundant exposure to sunlight is also required, and adjacent upland areas may be used for nesting.	Hibernate: October - April Mating: Early Spring Hatching: Early Fall (September)	Contact MNRF Guelph District Management Biologist to obtain a copy of the protocol
Massassauga Rattlesnake *Sistrurus catenatus*	THR	Species Protection and General Habitat Protection	Generally occur in habitats ranging from tall grass prairie to cedar bogs to shorelines. All habitats require canopies that are not too open, but they also require access to spots where they can get warm enough to effectively digest their food and reproduce. Sufficient moisuture is also required for them to survive the winter, so they are often associated with wetlands or small, wet depressions in the terrain.	Active: Late April - October	Survey for gestating females in appropriate gestation sites Comprehensive survey of habitat for individuals at least 3 days during the active season Survey suitable hibernation sites in late Fall or early Spring during emergence
Snapping Turtle *Chelydra serpentina*	SC	N/A	Generally inhabit shallow waters where they can hide under the soft mud and leaf litter. Nesting sites usually occur on gravely or sandy areas along streams. Snapping Turtles often take advantage of man-made structures for nest sites, including roads (especially gravel shoulders), dams and aggregate pits.	Nesting: Late May and June Hibernate: October - April	Scan offshore rocks and logs for basking turtles (10am-2pm) Snorkel in desired aquatic habitat Nesting Season: Search known or preferred nesting habitat areas for females

Spotted Turtle *Clemmys guttata*	END	Species Protection and General Habitat Protection	Generally prefers the shallow, slow-moving and unpolluted water of ponds, bogs, marshes, ditches, vernal pools and sedge meadows. It can also be found in woodland streams and near the sheltered shores of shallow bays	Hibernate: September - April Breed: May - Early June Nesting: Mid - Late June	Stalk silently along shorelines and from vantage points scan emergent clumps of vegetation, logs, rocks and shorelines for basking turtles and watch for turtles in shallow ponds/pools Wade very slowly through wetland edges being extremely quiet and careful to ensure you see the turtle before it sees you Nesting season: search nesting habitat areas for females Wetlands can be scanned from a greater distance using a spotting scope High quality 10 power binoculars are essential Surveys should be done by looking for basking turtles in early Spring as they come out of hibernation Minimum of 2 days of surveys in appropriate weather (warm sunny spring days) at suitable sites

ONTARIO MINISTRY of NATURAL RESOURCES and FORESTRY | GUELPH DISTRICT OFFICE
1 Stone Road West, Guelph, Ontario, N1G 4Y2 esa.guelph@ontario.ca

- Urban Forestry
- Ecological Restoration
- Landscape Architecture
- Environmental Studies
- Expert Opinion

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