

SCOPED ENVIRONMENTAL IMPACT STUDY ARKELL SUBDIVISION

PREPARED FOR:

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Guelph ON
&
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&
John Sloot Investments Ltd.

PREPARED BY:



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May 2026

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1. INTRODUCTION

1.1 Site Location

Stovel and Associates Inc. ("SAI") was retained by Timberworx Custom Homes Inc. ("Timberworx"), Slood Construction Ltd. ("Slood") and John Slood Investments Ltd. to complete a Scoped Environmental Impact Study ("EIS") for a proposed residential development in the Township of Puslinch, County of Wellington ("Township"). The project is referred to as the Arkell Subdivision. The lands in question are located on Part of Lots 7, 8 and 9, Concession 10.

Watson Road abuts the property on the southwest limits of the site and Wellington County Road 37 (also known as Arkell Road) is located on the west/northwestern limits of the site. The subject lands do not have a civic address. A location map is provided as Figure 1

In the context of this report, the lands in question are referred to as the site, subject lands, or subject property.

1.2 History and Background

In 2006, Mr. Tom Kukovica (the owner of the subject property at the time) applied for Draft Plan of Subdivision (23T-06003), Official Plan Amendment (OP-2006-06) and Zoning Bylaw Amendment (P10/2006). The applications were deemed complete in September 2006. The proposal included 35 residential lots (minimum 1 acre in size) serviced by private individual wells and septic systems. The application was circulated to public agencies for comment and to landowners within 120m of the site. Following the receipt of the comments, replies were prepared by the Kukovica consulting team.

GWS Ecological & Forestry Services Inc. ("GWS") was retained by the Township of Puslinch to conduct a review of the natural environment of the Proposed Subdivision on January 5, 2007. The results of the GWS peer review are summarized below:

- *"The subject property consists of hay fields bounded by hedgerows, as well as woodland that extends along the railway line. The land gently slopes to the north and run-off flows through a culvert that passes under Arkell Road. It is my understanding that an Environmental Impact Study (EIS) was not required in this case because there are no wetlands or significant woodlands found on or nearby the Kukovica property. The subject lands are currently designated as Primary Agricultural, Secondary Agricultural and Hamlet Area in the Wellington County Official Plan and they have been zoned Agricultural by the Township. As a result, an Amendment is required to the Official Plan and Zoning By-law in order for this development to proceed".*
- *"An immature mixed wood plantation occupies approximately 11 acres at the south end of the site. The species composition is estimated to be white pine – 40%, white spruce – 20%, black walnut – 20% and black locust – 20%. These trees are about 25 years old and mostly of pole timber size being 4 to 9 inches in diameter at breast height (dbh). Tree growth has generally been good as the white pine and*

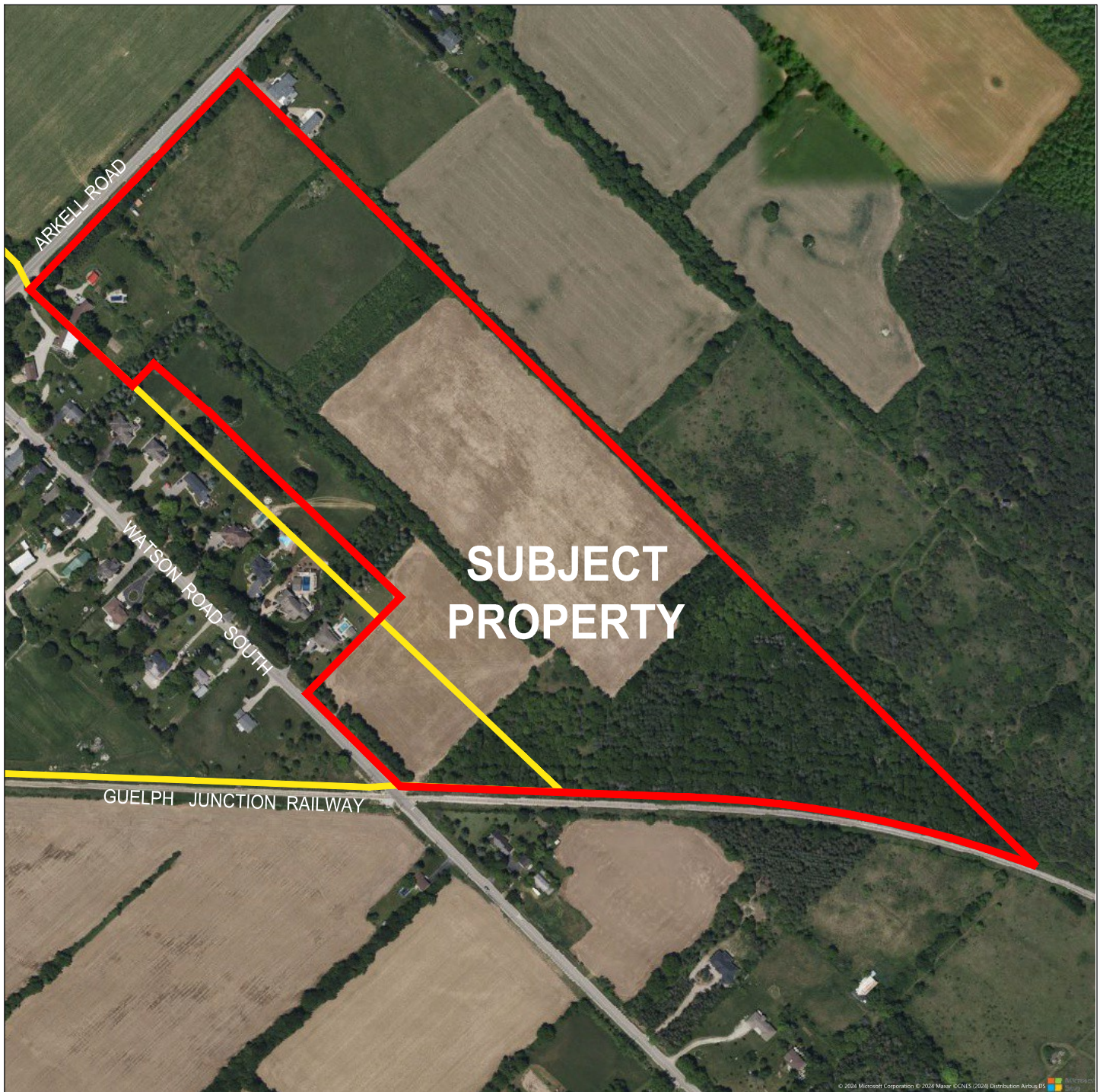


Figure 1

Site Location

Legend



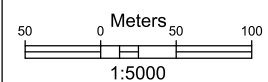
SITE BOUNDARY



HAMLET OF ARKELL LIMITS

Part of Lots 7,8 & 9 Concession 10
Township of Puslinch,
Wellington County Arkell, Ontario

Date: May 29, 2026



Sources:

Aerial Imagery Provided By Microsoft Corporation @
2026 Maxar CNES (2026) Distribution Airbus DS.

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deciduous trees are 25 to 50 feet tall while the spruce are 20 to 35 feet tall. However, where pine and spruce are growing in close proximity to black walnut there has been much dieback and mortality to the conifers due to juglone poisoning from the walnut. In spite of this mortality the overstory is still fully stocked with living trees. The understory consists of a low to moderately dense shrub layer of common buckthorn, red elderberry and raspberry. Common buckthorn is a very aggressive alien species that is undesirable in woodlands due to its high reproductive potential, shade tolerance and rapid growth under a wide variety of site conditions. Garlic mustard, another non-native invasive species, is also abundant throughout the woodland area. No rare or unusual plants were noted and none are expected in this man-made forest. To date, no thinning has been carried out in this plantation. Common wildlife species were observed utilizing this woodland habitat, including white-tailed deer, black squirrel, red squirrel, cottontail rabbit, Blue Jay, Black-capped Chickadee and American Crow. Other common woodland birds and mammals likely inhabit this area. Given the above characteristics there is insufficient justification to consider this plantation as locally significant within Puslinch Township. Development intrusions into this woodland are therefore considered acceptable”.

- *“In summary, there are no significant natural features on the subject lands that warrant protection or the exclusion of development intrusions. The proposal development therefore seems reasonable from a natural environment perspective. The large lots in conjunction with the gently sloping terrain are favourable for tree preservation and healthy, good quality trees should therefore be retained whenever possible. In order to effectively achieve this objective a tree preservation plan should be prepared for the entire site as a condition of Draft Plan approval. Given the high density of trees within the plantation and the tree health problems which exist in this area, more detailed lot specific tree preservation plans should also be prepared for lots 13, 14, 15, 16, 17, 18, 19 and 20 prior to the issuance of building permits. All trees to be retained on these lots should be clearly identified on a site plan along with appropriate tree protection measures to be implemented during construction”.*

The proposed development was placed on hold because of the Growth Plan provisions that only permitted settlement boundary expansions as part of the Municipal Comprehensive Review (“MCR”) process. The County of Wellington initiated the County Official Plan Review in 2019. Of note, the Growth Plan was replaced by the Provincial Planning Statement (“PPS”) in 2024 and the limitation on settlement expansions was removed and replaced by new provisions in the PPS.

At the start of the Municipal Comprehensive Review (“MCR”) conducted by the County of Wellington, the owner of the property retained a planning consultant to ensure that the subject property would be considered in the MCR. Astrid J. Clos Planning Consultants (“AJC Planning”) conducted a review of the Municipal Comprehensive Review from The County of Wellington – Progress Report #3. The letter prepared by Astrid Clos requests that the Proposed Kukovica Subdivision be considered as a Hamlet Expansion (March 19, 2021). The following excerpt from AJC Planning summarizes the proposal:

“JOHN SLOOT INVESTMENTS LIMITED and SLOOT CONSTRUCTION LTD. is the owner of the property abutting the Arkell Hamlet and is legally described as Part of Lots 7, 8 and 9, Concession 10, Township of Puslinch. County Official Plan Amendment, Zone Change and Draft Plan of Subdivision applications were deemed to be complete in September 2006 for this property.

Please find this documentation attached for your reference.

These applications propose to expand the Arkell Hamlet to the east by approximately 18.2 hectares and change the zoning to implement a proposed residential Draft Plan of Subdivision to permit 35 residential lots. The area breakdown is provided below:

1.65 hectares (area of 3 severed lots)

1.83 hectares (area within the Hamlet)

18.2 hectares (area of Hamlet expansion)

21.68 hectares (Total Draft Plan Area)”

In 2021, the current ownership group engaged with the Township of Puslinch and County of Wellington to resolve technical issues associated with the proposed development. Updated technical analysis was submitted to the municipality for technical peer review. The findings of these updated reports are summarized in this document. The updated reports include the following:

- Agricultural Impact Assessment (SAI, 2026).
- Nitrate Impact Assessment (Crozier, 2024).
- Functional Servicing and Stormwater Management Report (Crozier, 2026).
- Groundwater Supply Assessment (ARL Groundwater Resources Ltd, 2023).
- Water Balance Assessment (Crozier, 2025).
- Traffic Impact Study (Crozier, 2025).

A revised development concept was prepared for the site and is described in Section 2 of this report. The main emphasis of the revised concept plan was to minimize disturbance within the plantation.

1.3 County Official Plan and Township Zoning Bylaw

The lands in question are designated Hamlet, Prime Agricultural, and Secondary Agricultural in the County of Wellington Official Plan (“County OP”) (see Figure 2). There are no lands onsite or adjacent lands (i.e., within 120 m of the site) that are designated Greenland or Core Greenland in the County OP. Lands designated Hamlet may be used for residential purposes. An amendment to the County OP is required to expand the settlement boundary to permit residential development outside of the Hamlet limits.

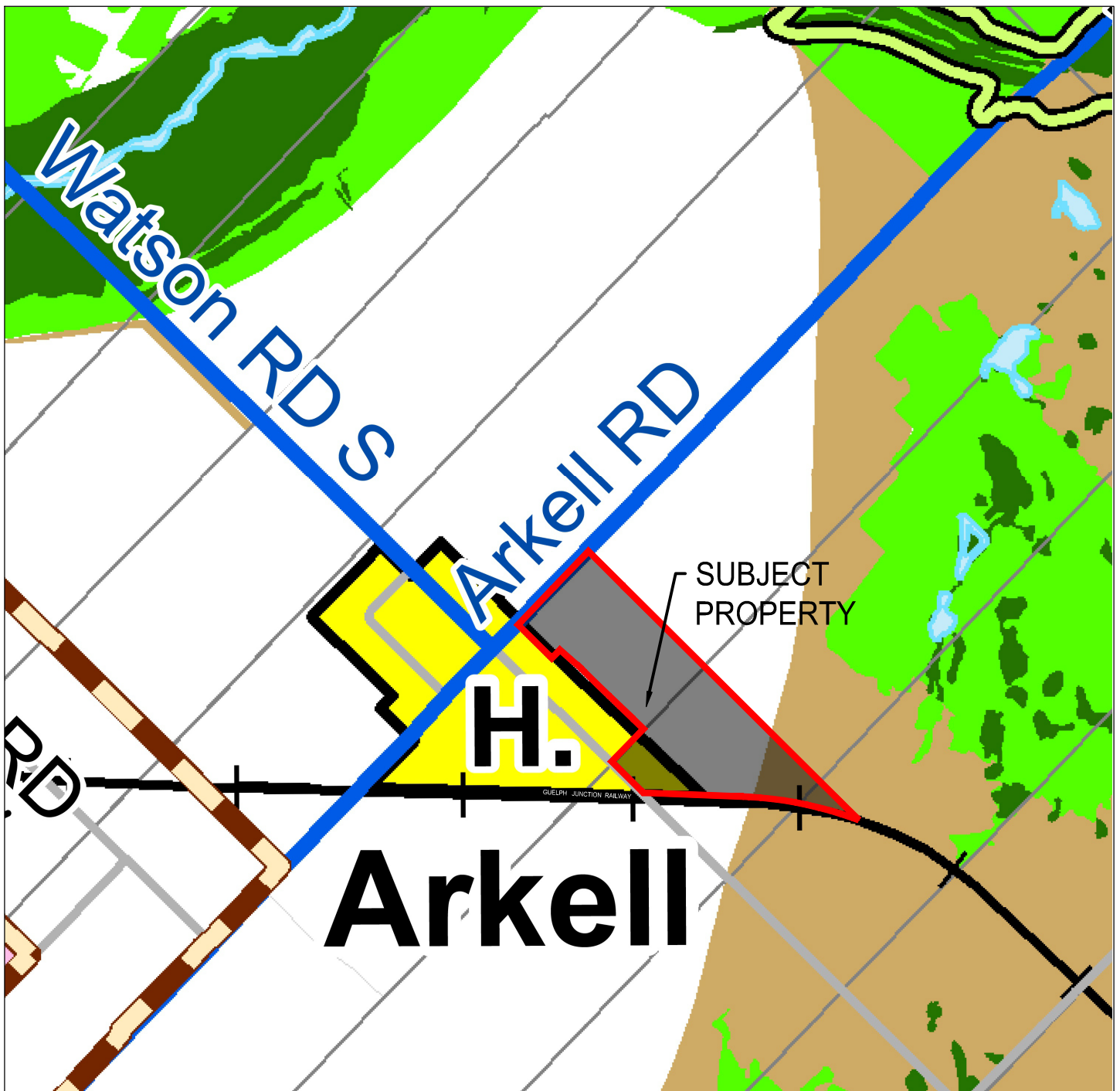


Figure 2
County Official Plan
Land Use Designation

Sources:

County of Wellington Official Plan
Schedule B7 - Land Use - Puslinch

The Greenlands System

- Core Greenlands
- Greenlands
- Earth Science ANSI

The Rural System

- Prime Agricultural
- Secondary Agricultural
- Hamlet Area
- Secondary Urban Centre
- Mineral Aggregate Area
- Recreational
- Rural Employment Area
- Country Residential
- Policy Area
- Regionally Significant Economic Development Study Area

Site Boundary

Other

- Landfill Site
- Proposed Interchange
- Proposed Major Roadways
- County Roads
- Provincial Highway
- Railways
- Waterbody
- Watercourse

Part of Lots 7,8 & 9 Concession 10
Township of Puslinch,
Wellington County Arkell, Ontario

Date: May 29, 2026

NOT TO SCALE
N.T.S.

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The lands in question are zoned Agriculture (Comprehensive Zoning By-Law No. 023-18, Consolidated May 2021) (See Figure 3). The site will need to be rezoned from Agriculture to Hamlet Residential to permit the establishment of a residential subdivision.

At the time of the application was deemed complete in 2006, the Zoning By-Law enforced by the Township was “*Puslinch Township Zoning By-Law 19/85*”, but this bylaw was updated by Comprehensive Zoning By-Law No. 023-18 in 2021. The zoning standards set out in Zoning By-Law No. 023-18 for Hamlet Residential have guided the design of this proposed development.

Policy 4.6.3 of the County of Wellington Official Plan sets out the parameters of an EIS. This EIS evaluates the impacts that the proposed development may have on environmental features and functions onsite and on adjacent lands.

4.6.3 Environmental Impact Assessment

Environmental impact assessments prepared by a qualified person may be required to evaluate the impacts a proposed development may have on the natural environment and the means by which negative impacts may be reduced or eliminated. An environmental impact assessment may include some or all of the following:

- a) a description of the proposal, including a statement of purpose;*
- b) a description of the existing land use on the subject lands and adjacent lands, as well as the relevant land use regulations;*
- c) an identification of proposed land uses and activities and potential environmental impacts;*
- d) a delineation of any environmental constraint area on a site plan;*
- e) a description of the terrestrial and aquatic resources, natural and built landforms, surface and groundwater and other significant environmental features or functions on the site;*
- f) an assessment of the impact on groundwater resources and in particular existing private wells and municipal supply wells in the area;*
- g) a consideration of the need for a subwatershed study;*
- h) an assessment of the impact on groundwater resources and in particular existing private wells and municipal supply wells in the area;*
- i) a statement of the relative environmental and ecological significance of the natural features and functions affected by the proposal;*
- j) a consideration of the potential to maintain, restore or where possible, improve the long-term ecological function and biodiversity of natural heritage systems;*
- k) requirements to be addressed in Site Plans and/or Development Agreements;*

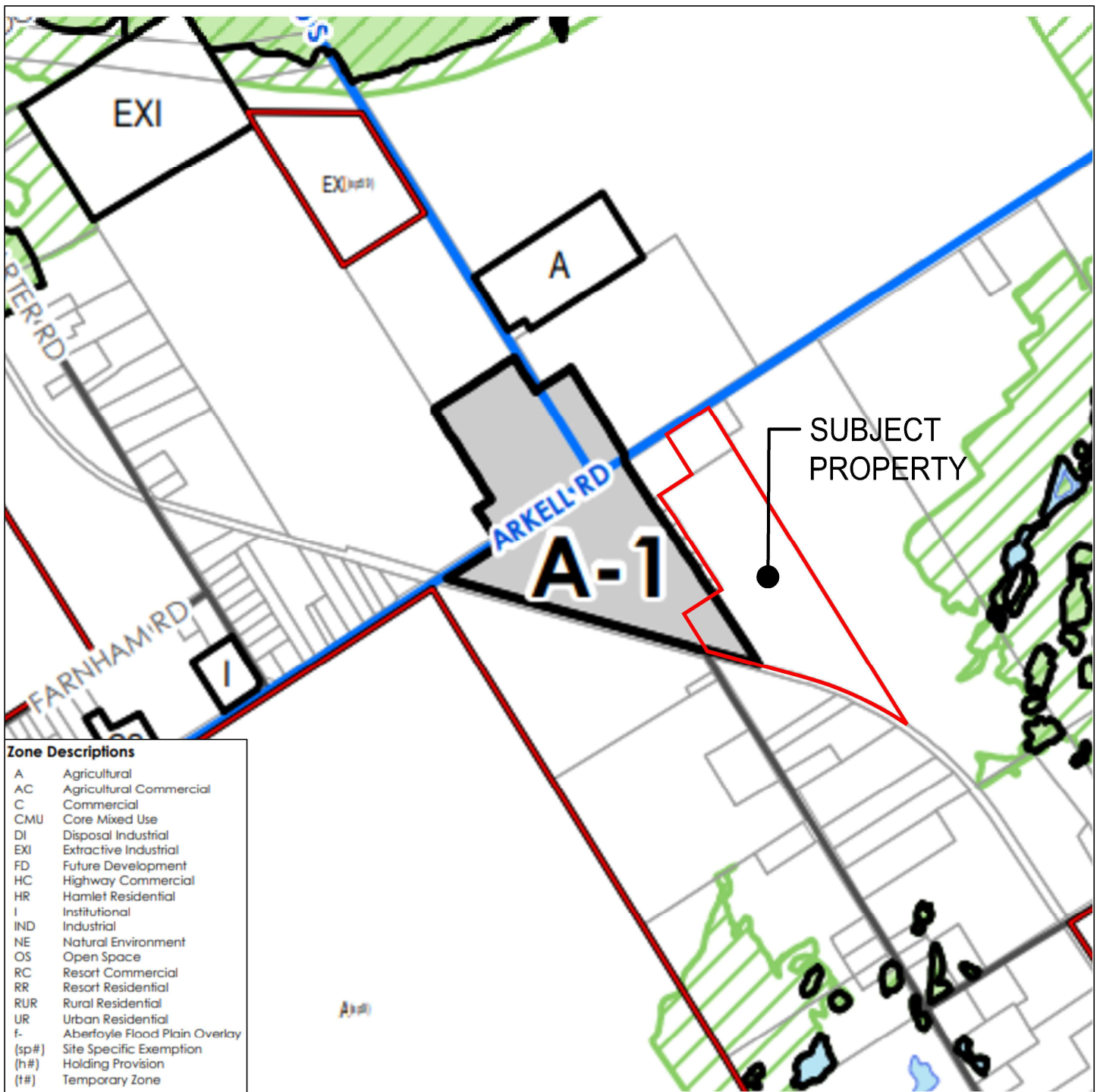


Figure 3

Zoning By-Law

Sources:

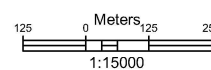
TOWNSHIP OF PUSLINCH - ZONING BY-LAW
No. 023-18 SCHEDULE 'A'

Legend

- ZONING LIMITS
- ENVIRONMENTAL PROTECTION OVERLAY
- NATURAL ENVIRONMENT
- SITE BOUNDARY

Part of Lots 7,8 & 9 Concession 10
Township of Puslinch,
Wellington County
Arkell, Ontario

Date: March 5, 2024



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l) a statement that there are no negative impacts on provincially significant greenland features and functions and a description of the means by which negative environmental impacts will be mitigated in other greenland areas.

m) a consideration of the potential for enhancement of environmental features or functions through site design alternatives;

n) a proposal for monitoring, where needed;

o) such additional concerns as a Council may consider relevant.

The County may, in consultation with Conservation Authorities, provide consideration for a scoped environmental impact assessment format for use by proponents of development applications, which are generally minor in nature with limited potential impacts.

The purpose of this EIS is to address Policy 4.6.3 of the County OP.

2. DESCRIPTION OF PROPOSED DEVELOPMENT

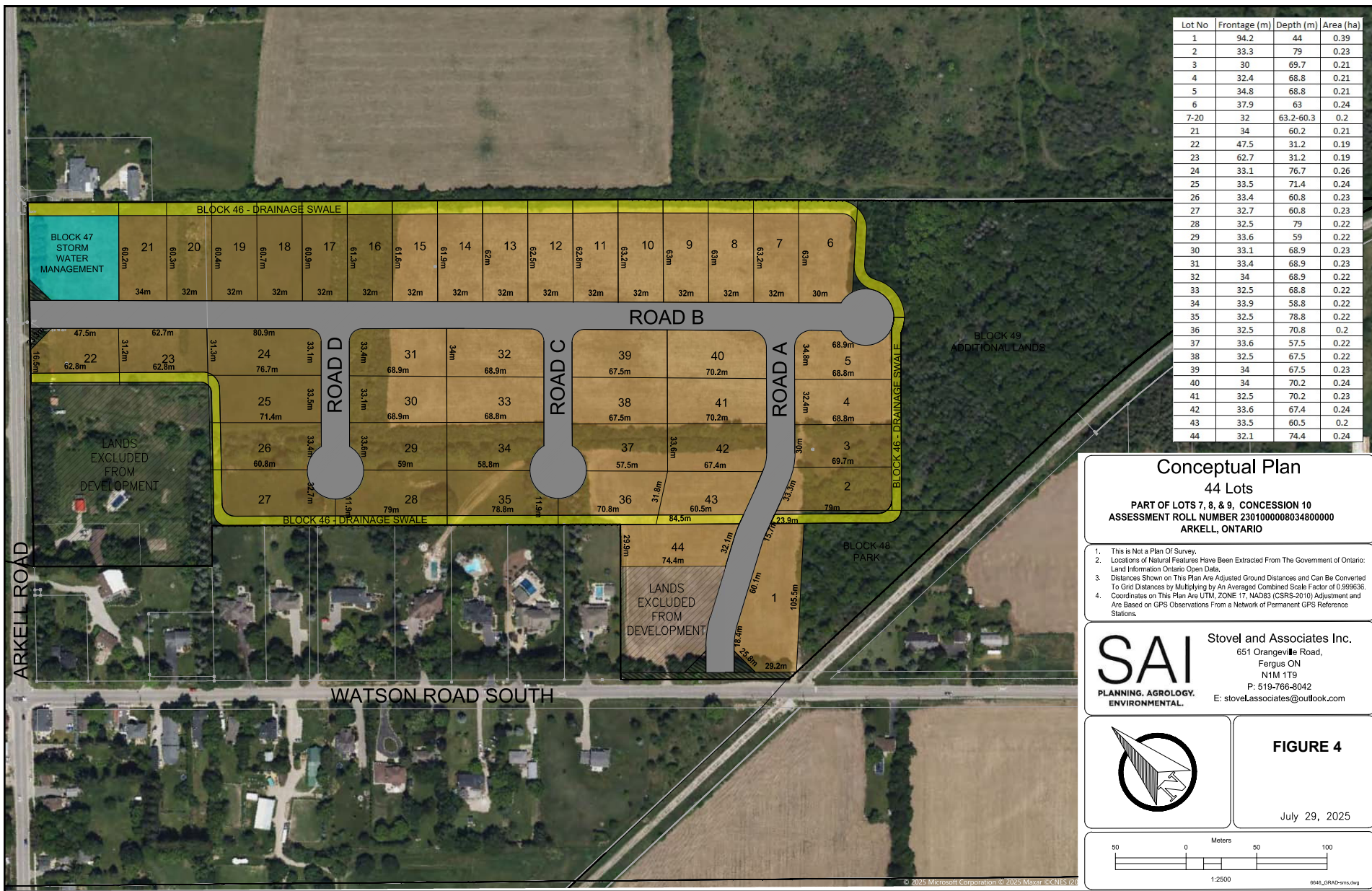
The Arkell Subdivision is proposed as a 44-lot residential plan of subdivision. The residential lots are proposed to be created through a Plan of Subdivision and will be serviced by advanced tertiary septic systems and private drilled individual wells. Lot sizes range from approximately 0.2 ha (0.49 ac) to 0.3 ha in size, with frontages ranging from approximately 30 to 40 metres, exclusive of lots located on curves or cul-de-sacs. Each dwelling unit is expected to include a double-car garage with a minimum of two additional parking spaces within each driveway. Figure 4 illustrates the revised concept plan. This plan will be the focus of impact assessment for this EIS.

The internal road network comprises approximately 1,200 metres of roadway within a 20-metre right-of-way. The roads will provide a full urban cross-section with curb and gutter and sidewalks. For the most part, the internal roads are double-loaded.

A passive stormwater management approach is proposed to preserve and maintain the rural character of the property. Water quality controls, erosion protection, and water balance will be provided through bioswale systems pretreated by oil-grit separators (OGS) within the municipal roadway storm system. A stormwater management pond of approximately 0.38 ha is located on the north side of the proposed internal road. The bioswale system with OGS pretreatment and dry pond treatment train will provide water quality treatment meeting or exceeding the Enhanced Protection criteria by retaining, treating, and infiltrating runoff volumes equal to or greater than those generated during a 25 mm rainfall event. No additional water quantity storage beyond that provided by the bioswale system and dry pond is required, as post-development peak flows do not exceed pre-development peak flows at the outlet culvert at Arkell Road for the 2-year to 100-year design storm events.

In preparation of the development concept, the applicant was aware of the potential concerns related to tree removal, particularly the removal of the onsite plantation. The recommendations provided by the Township's ecological consultant, GWS, set out important guidance for the development of the plan, i.e. preparation of a Tree Protection and Maintenance Plan. This recommendation can be included as a condition of draft plan approval.

It is noted, however, that the proposed conceptual plan does not propose significant development envelopes within the plantation; Lots 1, 4, 5 and 6 primarily backlot along the edge of the plantation. Lots 2 and 3 partially backlot into the plantation and the impact of these lots on the plantation will be evaluated in this EIS.



Lot No	Frontage (m)	Depth (m)	Area (ha)
1	94.2	44	0.39
2	33.3	79	0.23
3	30	69.7	0.21
4	32.4	68.8	0.21
5	34.8	68.8	0.21
6	37.9	63	0.24
7-20	32	63.2-60.3	0.2
21	34	60.2	0.21
22	47.5	31.2	0.19
23	62.7	31.2	0.19
24	33.1	76.7	0.26
25	33.5	71.4	0.24
26	33.4	60.8	0.23
27	32.7	60.8	0.23
28	32.5	79	0.22
29	33.6	59	0.22
30	33.1	68.9	0.23
31	33.4	68.9	0.23
32	34	68.9	0.22
33	32.5	68.8	0.22
34	33.9	58.8	0.22
35	32.5	78.8	0.22
36	32.5	70.8	0.2
37	33.6	57.5	0.22
38	32.5	67.5	0.22
39	34	67.5	0.23
40	34	70.2	0.24
41	32.5	70.2	0.23
42	33.6	67.4	0.24
43	33.5	60.5	0.2
44	32.1	74.4	0.24

Conceptual Plan 44 Lots

PART OF LOTS 7, 8, & 9, CONCESSION 10
ASSESSMENT ROLL NUMBER 2301000008034800000
ARKELL, ONTARIO

1. This is Not a Plan Of Survey.
2. Locations of Natural Features Have Been Extracted From The Government of Ontario: Land Information Ontario Open Data.
3. Distances Shown on This Plan Are Adjusted Ground Distances and Can Be Converted To Grid Distances by Multiplying by An Averaged Combined Scale Factor of 0.999636.
4. Coordinates on This Plan Are UTM, ZONE 17, NAD83 (CSRS-2010) Adjustment and Are Based on GPS Observations From a Network of Permanent GPS Reference Stations.

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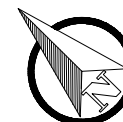
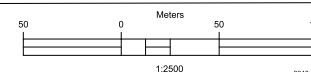


FIGURE 4

July 29, 2025



3. DESCRIPTION OF STUDY APPROACH and the NATURAL ENVIRONMENT

In addition to the plans and reports that were specifically prepared for the submission of the planning applications, the following background materials were also reviewed:

- Soil data resource information which includes Ontario Soil Survey reports and mapping, the provincial digital soil resource database and information from on-site investigations.
- Aerial photography (historic and recent drone survey) with scale of 1:10,000 or smaller.
- on-line data base queries at the Ontario Natural Heritage Information Centre (NHIC) web site. A review of the Natural Heritage Information Centre (NHIC) database was conducted for the 10 km UTM squares encompassing and adjacent to the subject lands. The following squares were reviewed: 17NJ6720, 17NJ6721, and 17NJ6820.
- on-line mapping provided by the Grand River Conservation Authority ("GRCA").
- County of Wellington Official Plan.
- Township of Puslinch Zoning By-law.
- Selected Atlas sources: Butterfly, Reptile and Amphibian, and Breeding Birds.

The subject land is primarily disturbed and/or used for agricultural purposes. The 2025 crop was soybeans (approximately 18 ha). The property has been cultivated for common field crop production over the past several years. There are no natural or semi-natural vegetation communities located within the area proposed to be developed. Following the 2025 harvest, the site was planted in a cover crop.

Prior to completing field investigations in 2026, relevant background data were reviewed documenting rare species in the County, the presence of significant natural heritage features onsite and within 120 m of the site, and rare species in the County of Wellington. This background data review provided requisite scoping for the environmental inventories. Much of the area proposed to be developed is cultivated for agricultural production. Appendix A provides an outline for this scoped EIS.

Ecological Land Classification ("ELC") System was used to describe onsite vegetation communities. Vegetation community boundaries were established on an aerial photo-mosaic base map and field checked. As documented later in this report, the only vegetation communities that were described are hedgerows and the onsite plantation. A working list of vascular plants is provided in Appendix B.

A land use survey was also conducted (2025), with additional information gathered from Google Satellite Imagery. Aerial photographic mapping and roadside images have been utilized to gain a better understanding of the ecological features and activities onsite and on adjacent lands (see Section 2.0).

The following site visits were completed:

- Breeding Bird Survey – May 23, June 10, June 25, 2023, by Colville Consulting Ltd.
- Leaf Off Bat Survey – May 5, 2026 – by R. J. Burnside.

- Habitat for Endangered or Threatened Species (Butternut and Black Ash) – April 27, 2026, by Williams and Associates, Professional Foresters.
- Butternut Health Assessment – May 11, 2026 - by Williams and Associates.
- Good Forestry Permit Application – 2023 - Aborland Forestry Consulting.

3.1 Geology and Soils

Quaternary geological mapping by P.F. Karrow in the 1960s (Map 2153, Geological Report 61, Ontario Department of Mines, 1968) indicates that the surficial sediments on the property are described as outwash gravel. Wentworth Till occurs to the east and north of the property where it occurs as a surface expression of the Paris Moraine. Karrow (1968) describes the Wentworth Till as predominantly a sand till (typically 49% sand, 33% silt, 18% clay). The Port Stanley Till (sandy silt till) is present in the general area, but this is not evident from the mapping by Karrow. Kame and esker deposits (consisting of sand and gravel) are mapped directly beneath the centre of the Hamlet of Arkell and to the north of the Hamlet where Arkell Road rises in elevation towards an intersection with the Paris Moraine. It is estimated that overburden sediment thickness beneath the proposed development property is approximately 15 - 20 m. Sediment types are shown to consist of sand, gravel and stones to silty sand, clay, and stones. In general, the overburden materials appear to be mostly coarse-grained materials.

Geological mapping of the Toronto to Windsor corridor by Sanford (Geological Survey of Canada, 1969) includes the study area. The mapping indicates that the Hamlet of Arkell and the proposed development property are underlain by the Eramosa Member of the Guelph Formation. The Eramosa Member is shown as occurring as a relatively narrow band in the area and is described as a dark brown to black bituminous dolomite and shale that intertongues with the basal Guelph Formation. The Eramosa Member is bordered to the west/southwest by the main Guelph Fm. unit, described by Sanford as a cream to brown, fine to medium crystalline dolomite containing numerous bioherm reefs. The Guelph Formation sub-crop is shown to extend over a wide area to the west of Arkell, including the cities of Guelph, Cambridge, and a large part of Kitchener. The Eramosa Member is bordered on the east/northeast side by the Amabel Group, described as a grey and blue-grey medium crystalline dolomite containing numerous bioherm reefs. Stratigraphically, the Guelph Formation overlies the Eramosa Member, which overlies the Amabel Group. The regional dip of the formations is to the southwest towards the Michigan Basin. The bedrock nomenclature associated with the Guelph-Eramosa-Amabel stratigraphic sequence was revised by Brunton in about 2006. The corresponding revised stratigraphic sequence in descending order (Brunton 2006) is as follows: Guelph Fm., Eramosa Fm., Goat Island Fm., Gasport Fm., and Irondequoit Fm. In general, the former un-subdivided Amabel Fm. has now been subdivided into 3 separate formations (Goat Island, Gasport, Irondequoit).

The southeast corner of the site is located within the Paris and Galt Moraine Policy Area. There are no surface water features or wetlands on or in the immediate vicinity of the property. The lands proposed for development were observed to be relatively flat with no obvious evidence onsite of the hummocky terrain that characterizes the Paris and Galt Moraines. ARL Groundwater Resources Ltd. (“ARL”) completed a Groundwater Supply Assessment (March 2023). The report identified that the *“southeast corner of the site is*

located within the Paris and Galt Moraine Policy Area”, while also noting there was “no obvious evidence onsite of the hummocky terrain that characterizes the Paris and Galt Moraines.” The report further states that “the surficial sediments on the property are described as outwash gravel” and that “the overburden materials appear to be mostly coarse-grained materials.”

3.2 Land Use and Surficial Drainage

Land Use planning maps indicate that the nearest Greenlands are about 200 - 400 m to the northeast of the site. The nearest surface/groundwater features are the springs at the Arkell Springs property approximately 500 - 1000 m to the north of the site. The nearest continuous surface water feature is the Eramosa River beyond the Arkell Springs property. There are no wetlands in proximity to the subject property.

Much of the site is tilled for agricultural purposes. Agricultural land is mapped east and north of the site. The southern limits of the site are demarcated by the Guelph Junction Railroad. Further to the south are scattered non-farm residential units and small patches of farmland. West of the site is the Hamlet of Arkell, with a small portion of the Hamlet included on the site. North of the site is agricultural land and some residences.

3.3 Description of Plantation

A mixed plantation is located at the southern portion of the site (see Figure 5 ELC Map). The mixed plantation started out as white pine/black walnut, with some black locust, white spruce, white ash and poplar (Aborland Forestry Consulting 2023). Most of the pine has declined because of the walnut. The plantation is approximately 4.7 ha in size.

The black walnut are planted in rows with white pine and black locust. This would provide for the walnut to grow straight and self prune for clear saw logs. The walnut subsequently kills the white pine with juglone in the root contact zone.

At this stage, the plantation is in poor condition and requires silviculture management. As noted in Section 2 of this report, the proposed lot fabric largely avoids development within the plantation, however, Lots 2 and 3 are located within the edge of the plantation. The attached photographs (Photos A and B) illustrate the condition of the plantation in relation to Lots 2 and 3.

It is estimated that approximately 50% of the plantation contains dead or dying trees, due to Walnut Juglone toxicity in the root zone. The estimated age of the plantation is 45-50 years. Canopy closure is variable due to die off. Tree heights range from 12-20 m. The shrub and ground layers have limited plant diversity due to the Walnut Juglone toxicity. On the edges of the plantation, buckthorn, hawthorn, honeysuckle and basswood are noted. No black ash trees were identified on the site. Appendix F provides a Good Forestry Permit Application for the subject plantation by Aborland Forestry Consulting in 2023. The plantation is largely isolated from adjacent natural heritage features by the presence of GJR (to the south and west) and agricultural lands (to the north and east). There are no significant natural heritage features located within 120m of the plantation. It is recognized that a small woodland unit extends into the easterly farm property. The total size of this unit is approximately 6.5 ha.

Ecological Land Classification Map Figure

PART OF LOTS 7, 8, & 9 CONCESSION 10
ARKELL, ON
PUSLINCH TOWNSHIP
COUNTY OF WELLINGTON

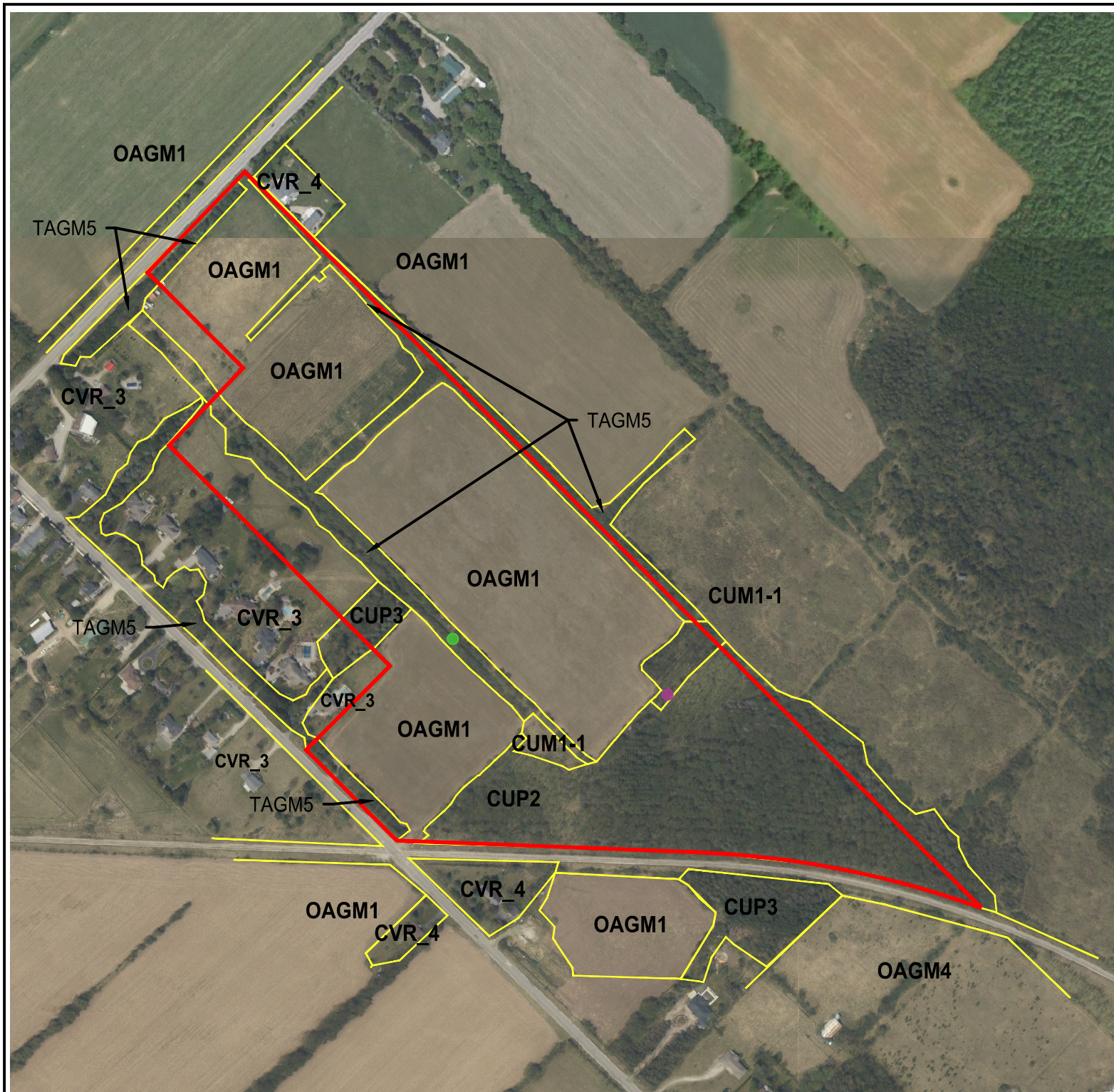
Legend

Subject Lands

Limit of Vegetation Unit

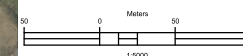
Approx. Location of
Eastern Wood Peewee

Approx. Location of
Butternut Tree



SAI
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ENVIRONMENTAL.

Stovel and Associates Inc.
651 Orangeville Road
Fergus, Ontario
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T: 519-766-8042
E: stovel.associates@outlook.com



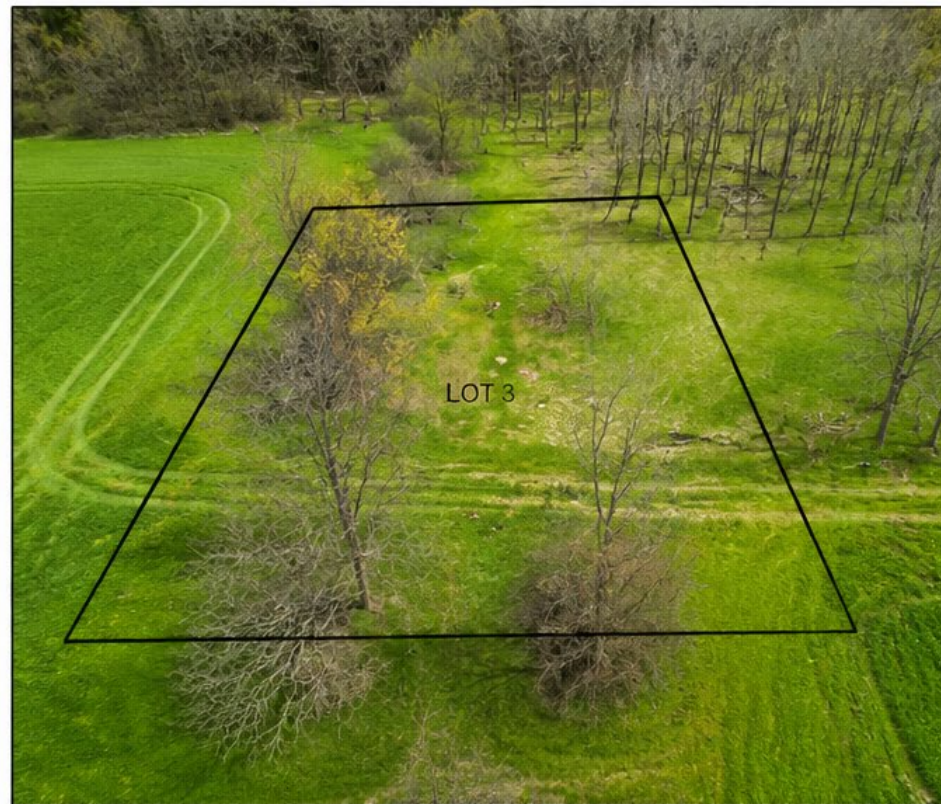
DATE:
27-May-26



Photo A



Photo B – Lot 3 (SE)

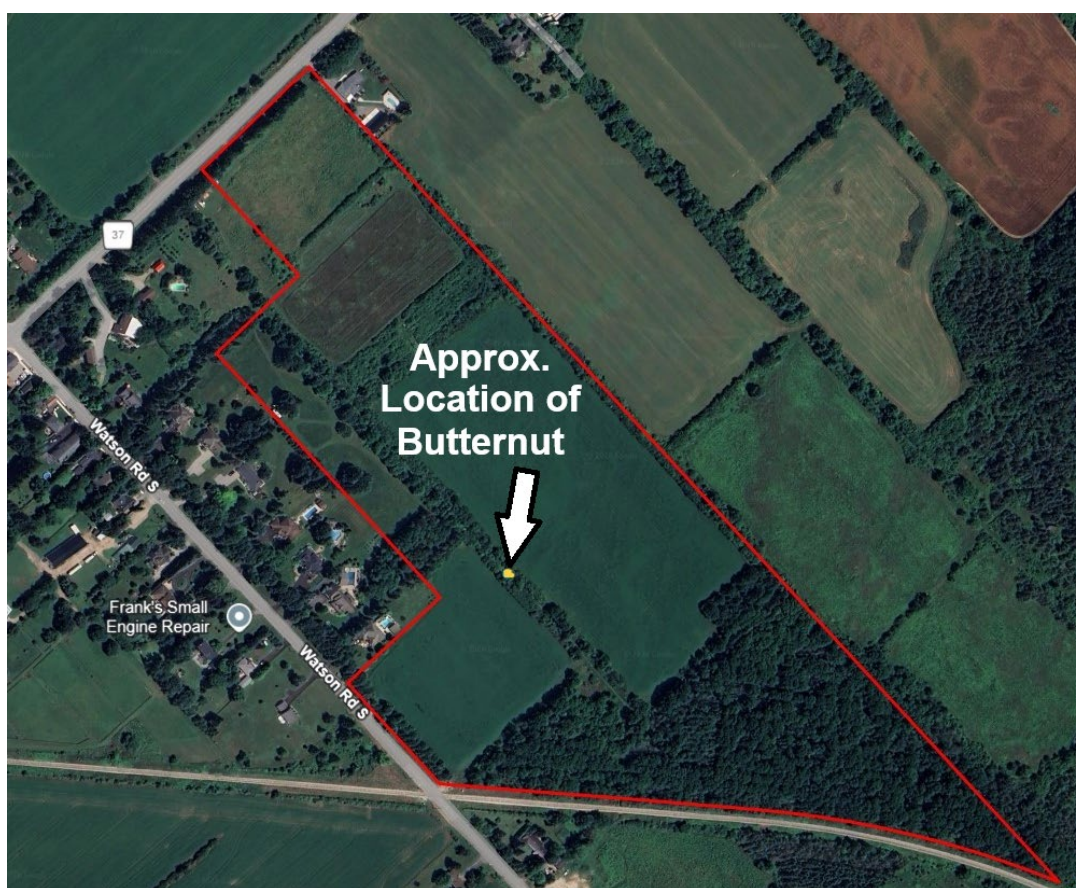


3.4 Description of Hedgerows

The perimeter of the subject lands is demarcated by hedgerows. These hedgerows are described as follows:

- West along Watson Road – Norway spruce hedgerow with some sugar maple and buckthorn along the edges.
- East along the property line – mostly a buckthorn hedgerow with some choke cherry, apple, honeysuckle.
- Central hedgerow – mostly buckthorn hedgerow with some black walnut, sugar maple. A Butternut was identified in the central hedgerow. The location is marked on Figure 6. The butternut was flagged in the field for easy identification in the future.
- North along Arkell Road – Norway spruce and sugar maple with buckthorn in the hedgerow.

Figure 6: Location of Butternut



3.5 Description of Birds

Two breeding bird surveys were completed by Colville Consulting Ltd. (Ian Barrett, M.Sc.) on May 23, June 10, and June 25, 2023 (Appendix I). Surveys were conducted between dawn and no later than 10:00 am under suitable weather conditions. All birds seen or heard calling were recorded and the highest breeding evidence per species was

determined in accordance with the criteria of the Atlas of the Breeding Birds of Ontario (Cadman et al. 2007). The results of the surveys are summarized below:

"A total of 44 species of birds were observed or heard on or above the Subject Property and two additional species were observed on adjacent lands. According to Ontario conservation status ranks (S-rank) designations, with the exception of two non-native species, all recorded species are considered to be "secure" (S5) or "apparently secure" (S4) in the province of Ontario.

Eastern Wood-pewee were documented in the woodland during each of the breeding bird surveys and this species is considered to be breeding in this woodland. One meadow species (Savannah Sparrow) was documented using the agricultural portions of the property and Eastern Meadowlark was documented east of this parcel. No use of the property by Eastern Meadowlark was documented during our surveys and no active nests were verified on the adjacent lands. It is therefore our observation that the Subject Property is not providing significant habitat for this species. Several Barn Swallows were observed flying, foraging and calling over the agricultural portions of the property on the first and second site visits. As no buildings or structures suitable for nesting are present on the property, use of this property by Barn Swallows is considered to be opportunistic." (Colville Consulting Inc., September 19, 2023).

The approximate location of the Eastern Wood-pewee is shown on Figure 7.

Figure 7: Location of Eastern Wood-pewee



3.6 Description of Bats

There are seven SAR bats in Ontario, as per the provincial Protected Species in Ontario (PSO) list, O.Reg. 60/26. Of these, three utilize snag trees for maternity roosting habitat; Little Brown Myotis (*Myotis lucifugus*), Silver-haired bat (*Lasionycteris noctivagans*) and Northern Myotis (*Myotis septentrionalis*). As per the MECP's *Species at Risk Bats Survey Note 2022*, potential woodland SAR bat habitat should be assessed according to the protocol *Treed Habitats –Maternity Roost Surveys (2022)*.

Snag surveys are best performed during the fall to early spring, before leaves have started growing and when visibility of cracks or crevices in trees is greatest. Snag surveys were conducted on April 13, 2026 by ecological staff of R. J. Burnside & Associates Limited ("Burnside"), to identify potential snag bat maternity roosting habitat within the subject lands.

The following criteria were considered when identifying a candidate maternity roosting tree during this survey: Snag Height, presence of habitat characteristics, diameter at breast height (DBH), within 10 m of another tree and / or snag, amount of peeling bark, cavity height, species, percent canopy cover, decay class.

A total of ten snags were identified on the subject lands, as shown on Figure 8 and detailed in Table 1. Of those, eight snags are located within the subject lands area of impact. Six snags are located within hedgerow communities and two are located within wooded areas. These eight snags are anticipated to be removed as per the proposed conceptual development plans. The two snags recorded outside of the area of impact were located immediately adjacent to the proposed drainage swale in the south end of the subject lands and along Watson Road S. which is part of the lands excluded from development.

Table 1: Candidate Bat Maternity Habitat Snags

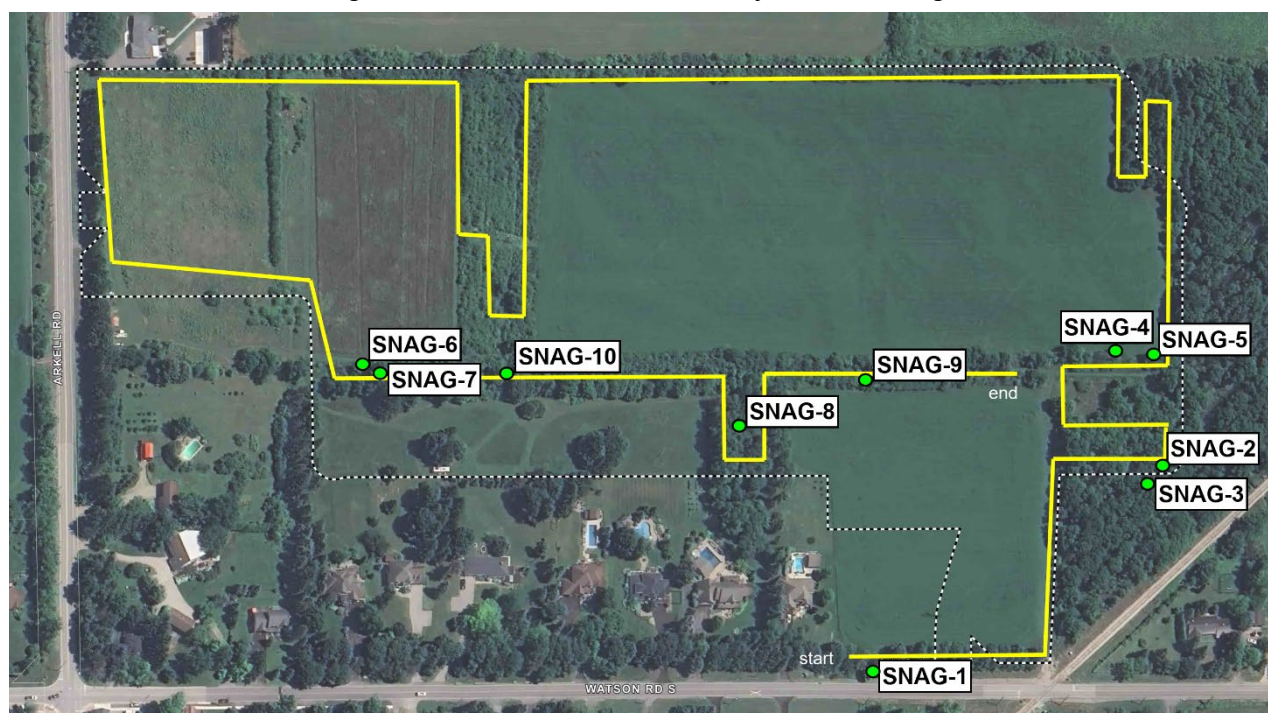
Snag ID	Species	DBH (CM)	Candidate Ranking	Proposed Impact
1	Sugar Maple (<i>Acer saccharum</i>)	37	Medium	No Impact
2	Not Identifiable	39	Medium	Removal
3	Black Locust (<i>Robinia pseudoacacia</i>)	Multi Stemmed 37, 34, 28	Medium	No Impact
4	Not Identifiable	80	Medium	Removal
5	Not Identifiable	Multi Stemmed 26, 26, 38	Low	Removal
6	Not Identifiable	50	Medium	Removal

7	Not Identifiable	66	Medium	Removal
8	Not Identifiable	29	Low	Removal
9	Not Identifiable	Multi Stemmed 33, 39	Medium	Removal
10	Not Identifiable	38	Medium	Removal

Candidate ranking is based on a weighted calculation considering the criteria listed above.

Figure 8 illustrates the Candidate Bat Maternity Habitat Snags. The full Burnside report is attached to this report, as Appendix G.

Figure 8: Candidate Bat Maternity Habitat Snags



4. SIGNIFICANT FEATURES

4.1 Significant Woodland

Figure 2 identifies the Greenlands System in proximity to the subject property. The Greenland System is a composite of many natural heritage features, flood prone areas and hazardous lands. The boundaries of many natural heritage features overlap and inter-relationships frequently exist between these areas. The system is divided into two broad categories: Core Greenlands and Greenlands.

“The Greenlands System will be maintained or enhanced. Activities which diminish or degrade the essential functions of the Greenlands System will be prohibited. Activities which maintain, restore or, where possible, enhance the health of the Greenlands System will be encouraged where reasonable”.

“While the Greenlands System designated on Schedule B is based on those features that have been mapped at a municipal scale, 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 linkage between and among natural heritage features and areas, surface water features and ground water features.”

5.4 CORE GREENLANDS

“Within the Greenlands System certain areas have greater sensitivity or significance. These areas are identified in policy and protected. These areas have been included in the “Core” Greenlands designations and include:

- provincially significant wetlands*
- all other wetlands;*
- habitat of endangered or threatened species and fish habitat; and*
- hazardous lands” (Page 52, Wellington County Official Plan, December 2025)*

5.5 GREENLANDS

Other significant natural heritage features including habitat, areas of natural and scientific interest, streams and valleylands, woodlands, environmentally sensitive areas, ponds, lakes and reservoirs and natural links are also intended to be afforded protection from development or site alteration which would have negative impacts.

5.5.4 Woodlands

In the Rural System, woodlands over 4 hectares and plantations over 10 hectares are considered to be significant by the County, and are included in the Greenlands system. Woodlands of this size are important due to their contribution to the amount of forest cover on the County landscape. Exceptions may include a plantation established and continuously managed for the sole purpose of complete removal at rotation without a reforestation objective, as demonstrated with documentation acceptable to the County.

In the Urban System, woodlands over 1 hectare are considered to be significant by the County and are included in the Greenlands System. Woodlands of this size are important due to their economic, visual and environmental contributions to the urban landscape.

Detailed studies such as environmental impact assessments may be used to identify, delineate and evaluate the significance of woodlands based on other criteria such as: proximity to watercourses, wetlands, or other woodlands; linkage functions; age of the stand or individual trees; presence of endangered or threatened species; or overall species composition.

Significant woodlands will be protected from development or site alterations which would negatively impact the woodlands or their ecological functions. Good forestry practices will be encouraged and tree removal shall be subject to the Wellington County Forest Conservation By-law. Smaller woodlands may also have local significance and, where practical, these smaller woodlands should be protected. (Pages 54-55, Wellington County Official Plan, December 2025)

As previously noted, there are no Core Greenlands or Greenlands designated on the subject property. The onsite, mixed plantation is less than 10 ha in size (the estimated of the plantation is approximately 4.7 ha). The plantation was clearly established with the intended purpose of providing timber/wood products. This plantation is in poor condition and requires silviculture management. The plantation has limited connectivity to adjacent woodland systems and provides limited wildlife habitat functions.

4.2 Significant Wildlife Habitat and Species at Risk

There are three species that have been identified on the subject property that need to be assessed: Butternut, Eastern Wood-pewee, Bat Habitat.

4.2.1 Butternut Description

The Butternut was assessed as endangered and added to the Endangered Species Act, 2007 (ESA) in 2008. A reassessment in November 2017 confirmed this status. On March 30, 2026, the Province repealed the Endangered Species Act, 2007 (the “ESA”) and replaced it with the Species Conservation Act, 2025 (“SCA”). The SCA fundamentally changes how activities affecting species at risk are regulated in Ontario, introducing a registration-first system that is expected to reduce permitting timelines but shift greater responsibility onto applicants and their consultants. Under this model, eligible projects can proceed once registered, provided they follow prescribed mitigation measures and conservation requirements. This replaces the ESA’s “approval-first” system, which required permits prior to project initiation for most activities.

Ontario Regulation 60/26 of the SCA sets out the protected species in Ontario. Butternut is listed.

Butternut is a medium-sized tree that can reach up to 30 m in height. It belongs to the walnut family and produces edible nuts in the fall. The bark of younger trees is grey and smooth, becoming ridged as it ages.

In Ontario, Butternut is usually associated with deciduous forests, establishing under canopy openings or along forest edges. It is also found in treed fence lines. It prefers moist, well-drained soil and frequently occurs within the floodplains of streams or small rivers. It is also found on well-drained gravel sites and rarely on dry rocky soil.

This species does not do well in the shade and often grows in sunny openings and near forest edges.

Butternut Canker is a fungal disease that spreads quickly and can kill a tree within a few years. This fungus has already had a devastating impact on North American Butternut populations. Surveys in eastern Ontario show that most trees are infected.

A Butternut Health Assessment was completed by Williams and Associates, 2026. Appendix H provides a copy of this Assessment.

“The assessed tree was determined to be a Category 2 tree. A Category 2 tree is not affected by Butternut Canker or the Butternut tree is affected by Butternut Canker but the degree to which it is affected is not as advanced as a Category 1 Butternut tree and retaining the tree could support the protection or recovery of Butternut trees in the area in which the tree is located. The tree was a multi-stemmed (2 stems) and the main stem was marked with orange paint at the base of the tree.

This butternut will be killed for the purpose of constructing the proposed development.

As less than five Category 3 and less than fifteen Category 2 butternut trees will be killed as a result of construction, no replacement planting will be required, as outlined in Ontario Regulation 830/21 Section 25(3).”

4.2.2 Eastern Wood-Pewee Description

The Eastern Wood-pewee is a small forest bird that grows to about 15 cm long. Adults are generally greyish-olive on their upper parts and pale on the under parts with pale bars on their wings. Males and females are similar in appearance.

This bird is often observed perched in an upright position. It eats mostly small, flying insects. In Ontario, the eastern wood-pewee inhabits a wide variety of wooded upland and lowland habitats, including deciduous, coniferous, or mixed forests. It occurs most frequently in forests with some degree of openness. Intermediate-aged forests with a relatively sparse midstory are preferred. In younger forests with a relatively dense midstory, it tends to inhabit the edges. Also occurs in anthropogenic habitats providing an open forested aspect such as parks and suburban neighborhoods.

Possible threats to the Eastern Wood-pewee are poorly known but may include:

- loss and degrading of habitat due to urban development and/or changes in how forests are managed,
- reductions in the availability of the flying insects they eat, the cause of which is not known,
- loss of eggs and fledgling birds from increasing numbers of predators such as blue jays and red squirrels,

- changes to the make-up of forests due to white-tailed deer over-browsing, which may reduce the number of insects available to eat

These birds may also face other threats during their migration and in their wintering habitat in South America.

With the removal of the automatic listing of the species classified by COSSARO, in accordance with the SCA, the Lieutenant Governor in Council prescribed new Ontario Regulation 60/26, which sets out the list of Protected Species in Ontario. The list maintains all 168 of the species that COSSARO classified as 'extirpated', 'endangered' or 'threatened', but it no longer includes aquatic species and migratory birds as these are protected under the federal government's *Species at Risk Act* ("SARA"). The list also does not include species identified by COSSARO as 'special concern'. While 'special concern' species were listed in former Ontario Regulation 230/08, they were not afforded protection by the *ESA*.²

Ontario Regulation 60/26 of the SCA sets out the protected species in Ontario. The Eastern Wood-pewee is not listed. This species is not designated as may be at risk under the federal government's *Species at Risk Act* (Apparently Secure - S4B).

Threats and Limiting Factors

Threats and limiting factors affecting Eastern Wood-pewees have not been clearly identified and are poorly known, largely because of a lack of research. Possible threats and limiting factors have been suggested as including: 1) loss and degradation of habitat quality on the breeding grounds due to urban development and/or changes in forest management; 2) loss and/or degradation of habitat on the wintering grounds; 3) large-scale changes in the availability of flying-insect prey due to unknown causes; 4) high rates of mortality during migration and/or on the wintering grounds; 5) high rates of nest predation from increasing numbers of avian predators; and 6) changes in forest structure due to White-tailed Deer over-browsing.

Protection, Status, and Ranks

*The Eastern Wood-pewee was ranked as 'globally secure' (G5) in 1996 by NatureServe and is considered 'Least concern' according to the IUCN Red List. In Canada, its nests and eggs are protected under the Migratory Birds Convention Act. Similar protection is afforded under various kinds of provincial legislation. It is considered 'secure and common' nationally; 'apparently secure' in Saskatchewan, Manitoba, Ontario, and Prince Edward Island; 'secure' in New Brunswick; and 'vulnerable' to 'apparently secure' in Québec. COSEWIC. 2012. (Eastern wood-pewee (*Contopus virens*): COSEWIC assessment and status report)*

Suitable habitat for this species is abundant in the local area. The onsite plantation is not considered to be critical to the life functions of this species. The onsite plantation is not considered to be significant wildlife habitat. Protection of this species is required under the Migratory Birds Convention Act. Tree removal work windows are required, i.e., no tree removal during breeding bird season (March 01 – August 31st)

4.2.3 Bat Habitat Description

The following assessment is taken from the Burnside (2026) report.

Based on observations and data collected, the candidate snags identified on the subject lands have the potential to be maternity roost habitat for three species of protected bats: Little Brown Myotis, Silver-haired Bat, and Northern Myotis.

MECP's Species at Risk Bats Survey Note (2022) states that if the proposed activity will only remove a proportionately small number of candidate roosts and thus avoid impairing the function of habitat for supporting bats, and occurs outside the bat active window, then there is no need to conduct additional SAR bat surveys. Please note, that if it is decided to not conduct further acoustic surveys it will be assumed that SAR bats are present on site, due to the presence of snags, and further mitigation, including vegetation removal timing windows, will be applicable.

Reviewing the general area, it is noted that there are large swaths of wooded communities within a 1 km distance of the subject lands, including a large wooded riparian area surrounding the Eramosa River. These areas would provide ample maternity roosting habitat, as well as foraging habitat, for SAR bats.

Since the number of identified candidate snags constitutes a small number of trees on the landscape, it is Burnside's opinion that they can be removed without negatively impacting SAR maternity roost habitat. However, to avoid contravention of the SCA, tree removal must be completed between December 1 and March 14 (of any given year) to mitigate negative impacts. If tree removal is proposed to occur within the active bat window (March 15 to November 30), further consideration will need to be given to registering the project with the Species Conservation Registry as tree removals will then be causing direct impact to the assumed present SAR bat species and their habitat.

5. IMPACT ASSESSMENT

5.1 Mapping and Assessment of Potential Impacts

Figure 9 illustrates that proposed development plan and the environmental features associated with the site. The butternut tree is the single-most significant environmental feature on the site. The butternut tree is located on Lot 37. This tree was assessed by a Butternut Health Assessor as a Category 2 tree. No replacement planting is required as outlined in Ontario Regulation 830/21 Section 25(3).

The lot fabric for the conceptual development plan largely avoids intrusions into the plantation. The onsite plantation is not considered to be a sensitive feature. This limits the potential for environmental impacts. Minor intrusions occur at Lot Nos. 2 and 3.

Lot 2 is approximately 0.23 ha in size. A rough count of trees indicated that approximately 30 healthy walnut trees (less than 20 cm DBH) are in this lot and over 30 unhealthy or dead trees (mainly Black Locust) are on the lot. Lot 2 should be a focus of the Tree Protection and Compensation Plan.

Lot 3 is approximately 0.21 ha in size. It is estimated that 5-10 healthy walnut will be impacted through development of this lot. The specific details of tree loss/compensation should be evaluated in the Tree Protection and Compensation Plan.

A by-pass swale has been recommended by Crozier (Figure 10). This swale varies in depth from 0.8 m (lot 2-3) to 1.4 m (cul de sac). The side slope is engineered to a 3:1 slope. The width of the bypass swale is approximately 6.6 m (Lots 2-5). From Lot 5 to Lot 6 (and the proposed cul-de-sac), the width of the bypass swale is 7.5 m.

Much of the area impacted by the bypass swale consists of buckthorn and hawthorn trees along the edge of the plantation (with limited ecological function). However, it is recognized that a portion of the plantation could be impacted by the bypass swale and for this reason, the Tree Protection and Compensation Plan is an important mitigation measure. Tree removal within this area should recognize the recommended work window (see Section 5.2).

Along the eastern limit of the site, a bypass drain is also proposed by Crozier. This drain will be established in a hedgerow. The hedgerow is dominated by buckthorn and has limited ecological function.

As previously noted, several candidate snags have been identified on the subject land. Snag Nos. 2, 3, and 4 are ranked Medium while Snag 5 is ranked Low. These snags have the potential to be maternity roost habitat for Little Brown Myotis, Silver-haired Bat, and Northern Myotis. At this stage, it is anticipated that tree removal will occur outside of the bat active window and no additional SAR bat surveys will be conducted. Since the number of identified candidate snags constitutes a small number of trees on the landscape, the snags can be removed without negatively impacting SAR maternity roost habitat.

Figure 9: Environmental Constraints Map

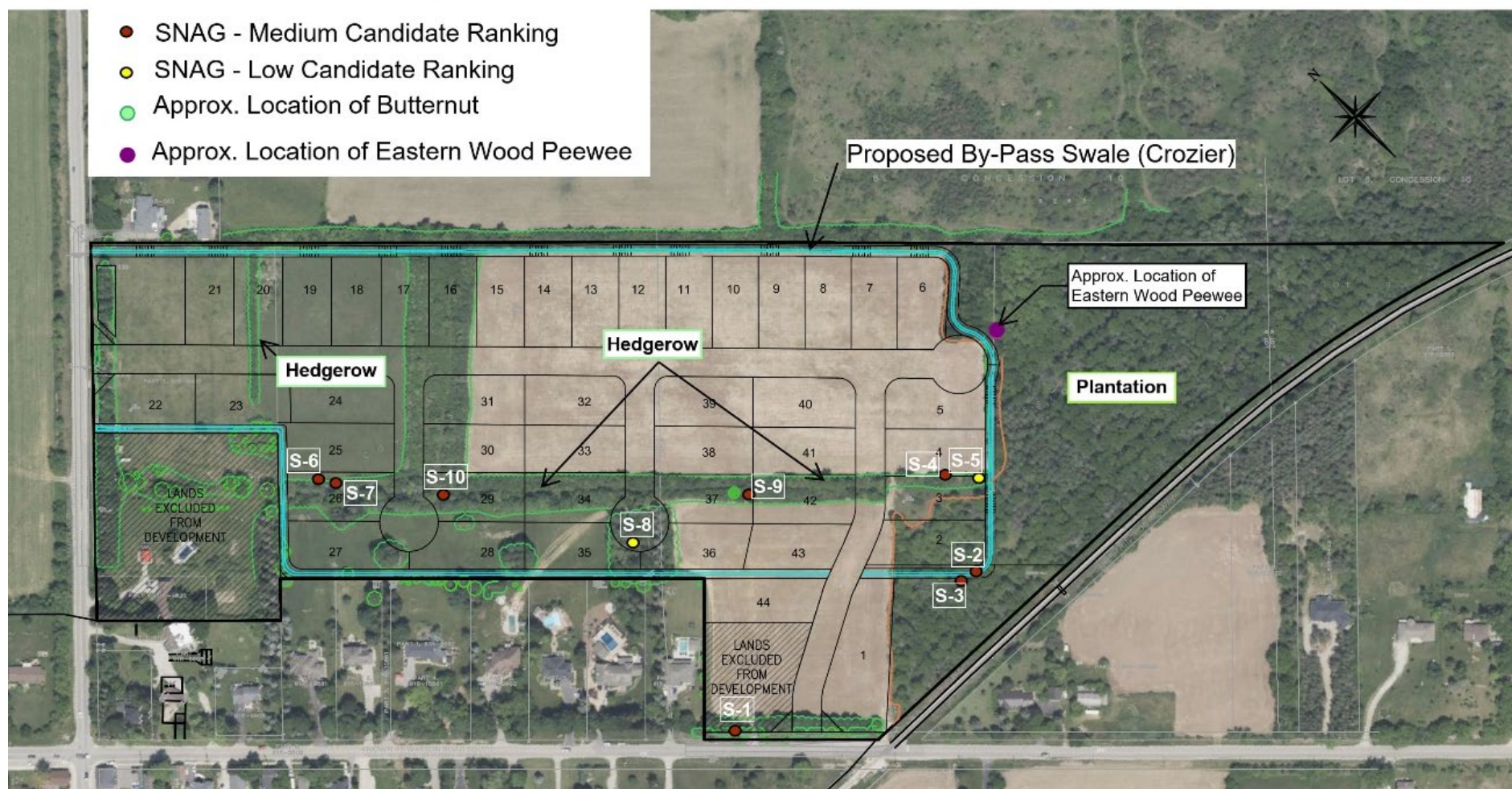
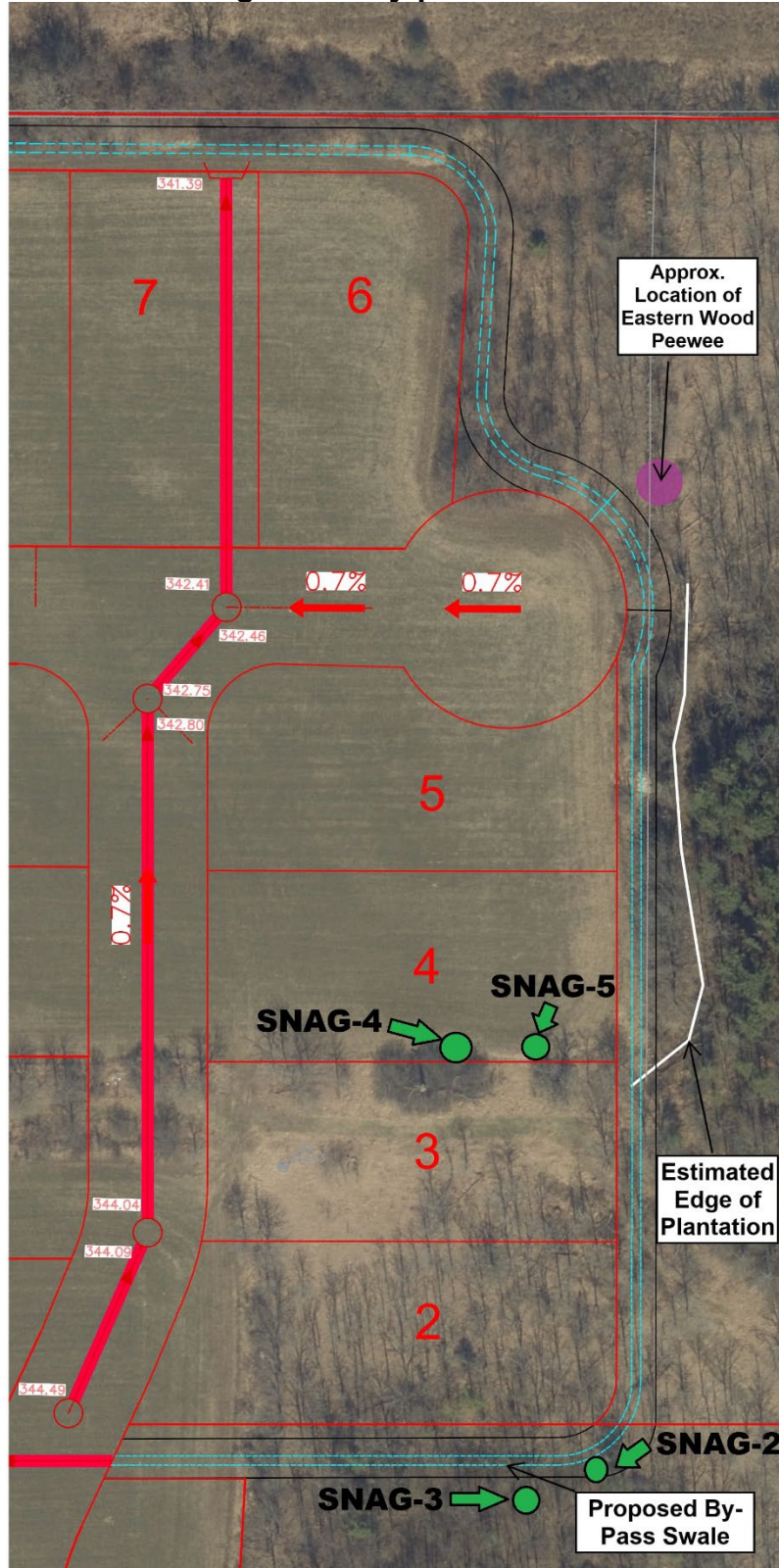


Figure 10: By-pass Swale



5.2 Mitigation Measures

The following mitigation measures are recommended:

- Butternut health assessment was undertaken by a qualified professional during the appropriate leaf-on survey window. The assessment is used to inform activities undertaken to assist in the protection and recovery of Butternut (e.g., to identify trees for seed collection, archiving or breeding programs, or for research). The results of the Butternut Assessment indicate that the onsite tree is a Category 2 tree. No replacement planting is required as outlined in Ontario Regulation 830/21 Section 25(3).
- Window for Tree Removal - to avoid contravention of the SCA, tree removal must be completed between December 1 and March 14 (of any given year) to mitigate negative impacts. If tree removal is proposed to occur within the active bat window (March 15 to November 30), further consideration will need to be given to registering the project with the Species Conservation Registry as tree removals will then be causing direct impact to the assumed present SAR bat species and their habitat.
- Native tree and shrub plantings could enhance the local environment. In addition, the removal of buckthorn and other non-native species will be an improvement. A list of preferred native trees and shrubs should be developed for the edge areas along the plantation and for use along the public road system through a Tree Protection and Compensation Plan that would be implemented as part of a condition for draft plan approval. Regular monitoring of the newly planted trees and shrubs should be a requirement of the overall landscaping plan for the site.
- Silviculture Prescription Plan, approved through a Good Forestry Permit, should be implemented as soon as possible, within the prescribed work window (i.e., December 1 and March 14 of any given year). The onsite plantation is in poor condition, with many unsafe trees, and would benefit from management efforts.
- Heavy-Duty Silt Fencing will be installed around the proposed development. Silt fencing along the southern limits, in proximity to the plantation is recommended. The precise location of the silt fence should be assessed as part of the Tree Protection and Compensation Plan. It is recommended that the integrity of the silt fencing should be regularly monitored.
- Rear and Side Yard Grading in proximity to lots 2-6 and the cul de sac could be reviewed by Crozier. The level of detail required to assess the potential for impacts of the bypass drain is appropriate at the Draft Plan of Subdivision stage. The objective for this detailed assessment is to minimize the encroachment into the plantation. This work should be completed in conjunction with the Tree Protection and Compensation Plan. These features should be surveyed/staked in the field to ensure an accurate understanding of the extent of onsite disturbance. Edge management efforts, including appropriate fencing, invasive species management,

no dumping provisions and native buffer plantings, should be considered as part of this Plan.

5.3 Net Effects

Table 2 provides the results of a net effects analysis for the proposed development. Through the implementation of native tree/shrub plantings, it is concluded that the proposed development could have a net benefit to the local ecological community.

Table 2: Net Results of Ecological Impact Assessment						
Anticipated Impact	Key Natural Heritage Sensitivity	Magnitude, Duration and Frequency of Impact	Avoidance / Mitigation Strategy	Residual Impact	Enhancement Strategy	Net Ecological Result
DIRECT: Tree and vegetation removal	No woodlands or significant water features/wetland onsite. There is an onsite plantation. It is anticipated that approximately 30-40 walnut trees will be removed. Site is mostly a farm field.	None	Tree Protection and Compensation Plan	No significant impact anticipated.	Planting of native trees and shrubs around perimeter of site and rear lots of proposed development.	No Net negative impact anticipated and possible Net positive impact.
INDIRECT: Temporary disturbance of wildlife	No significant features onsite. No woodlots or wetlands onsite. Minimal tree in plantation removal to occur.	None	Tree Protection and Compensation Plan	No significant impact anticipated.	None	No net impact anticipated.
INDIRECT: Alterations to water balance and drainage patterns	No significant habitat onsite. Site is mainly a farm field.	None	Stormwater strategy to balance water.	No significant impact anticipated.	None	No net impact anticipated.
INDIRECT: Sedimentation and erosion	No significant water features onsite.	From Start of development until finish.	Use of heavy-duty silt fence. Erosion and sedimentation plan.	No significant impact anticipated.	None	No net impact anticipated.
CUMULATIVE: Land Use Transition and Human Encroachment	No significant features onsite. Site is mainly a farm field.	None	N/A	No significant impact anticipated.	None needed.	No cumulative impact on significant natural heritage features and functions.

6. POLICY CONFORMITY

6.1 Provincial Planning Statement (2024)

The Provincial Planning Statement, 2024 (“PPS”) came into effect on October 20, 2024, and provides policy direction on matters of provincial interest related to land use planning and development in Ontario. Decisions affecting planning matters are required to be consistent with the policies of the PPS.

Policy 4.1 of the PPS addresses Natural Heritage and establish direction regarding the consideration and protection of natural heritage features and areas from development and site alteration.

The subject lands do not contain Significant Wetlands, Significant Valleylands, Areas of Natural and Scientific Interest, or other identified provincially significant natural heritage features (see Figure 11). The primary natural heritage features associated with the subject lands consist of a mixed plantation, hedgerows, and habitat considerations associated with Butternut and Eastern Wood-pewee and Bats.

This Scoped Environmental Impact Study evaluates the potential impacts of the proposed development on natural heritage features and ecological functions onsite and adjacent to the subject lands and identifies mitigation measures where appropriate.

4.1 Natural Heritage

1. *Natural features and areas shall be protected for the long term.*
2. *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.*
3. *Natural heritage systems shall be identified in Ecoregions 6E & 7E¹, recognizing that natural heritage systems will vary in size and form in settlement areas, rural areas, and prime agricultural areas.*
4. *Development and site alteration shall not be permitted in:*
 - a) *significant wetlands in Ecoregions 5E, 6E and 7E¹; and*
 - b) *significant coastal wetlands.*
5. *Development and site alteration shall not be permitted in:*
 - *significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E¹;*
 - *significant woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River)¹;*
 - *significant valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River)¹;*

- *significant wildlife habitat;*
- *significant areas of natural and scientific interest; and*
- *coastal wetlands in Ecoregions 5E, 6E and 7E1 that are not subject to policy 4.1.4.b),*

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

6. Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.

7. Development and site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements.

8. Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 4.1.4, 4.1.5, and 4.1.6 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.

9. Nothing in policy 4.1 is intended to limit the ability of agricultural uses to continue.

Policy 4.1.1 states that natural features and areas shall be protected for the long term.

The proposed development generally avoids significant intrusions into the onsite plantation. Habitat of endangered and threatened species will be addressed in accordance with Provincial and Federal requirements. The proposed development therefore maintains the long-term ecological function of the existing natural features to the extent feasible.

As previously noted, the site is not located in or adjacent to a significant wetland, significant woodland, significant valleyland, significant wildlife habitat, or area of natural and scientific interest. Policy 4.1.4 states that development and site alteration shall not be permitted in habitat of endangered and threatened species except in accordance with provincial and federal requirements.

A single Butternut tree was identified within a hedgerow onsite. The tree was assessed by a qualified Butternut Health Assessor. Removal of the Butternut tree is permitted as less than five Category 3 and less than fifteen Category 2 butternut trees will be killed as a result of construction, no replacement planting will be required, as outlined in Ontario Regulation 830/21 Section 25(3)

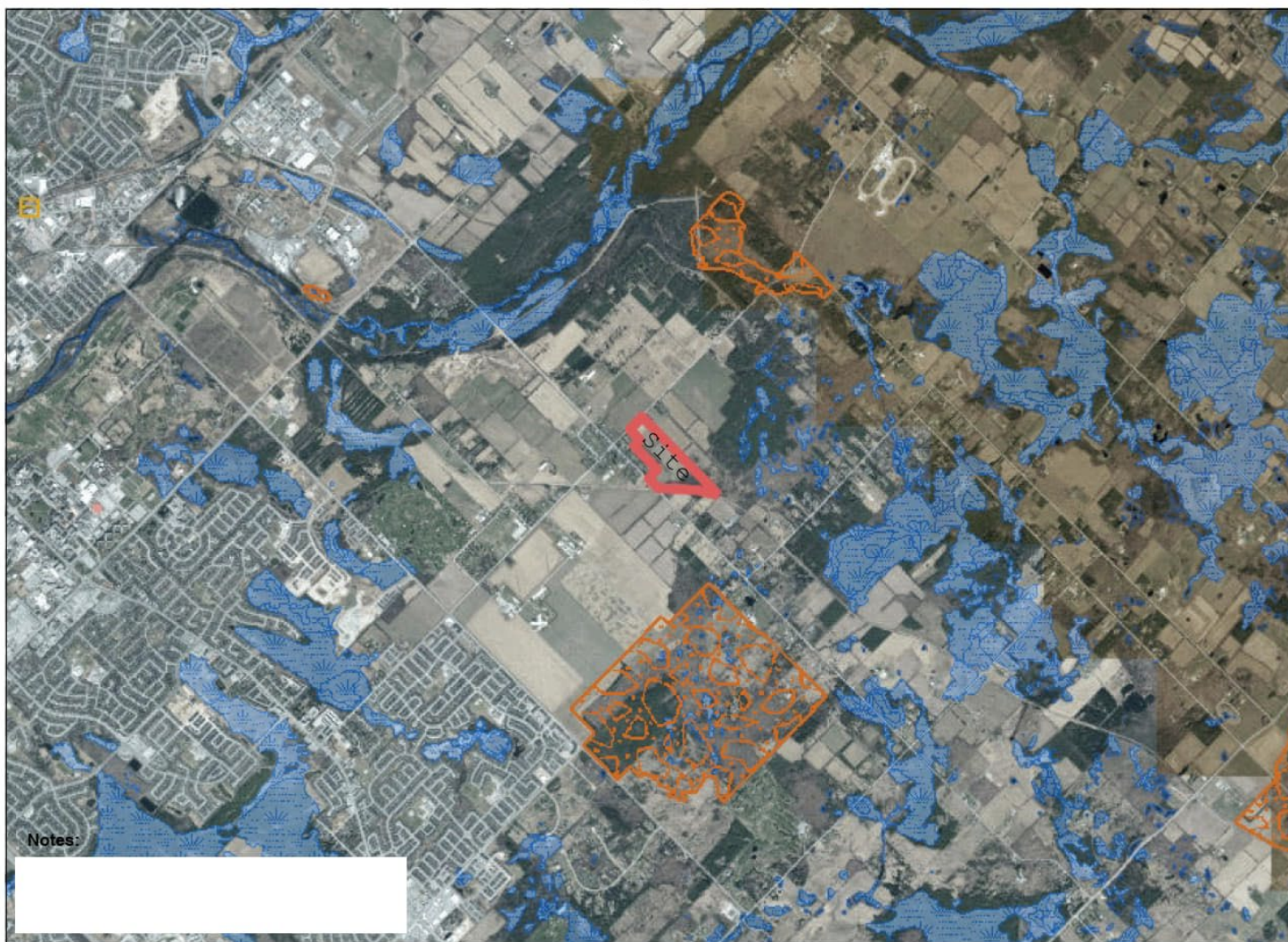
Figure 11: ANSI - Wetland

Map created: 5/27/2026

Legend

ANSI

-  Earth Science Provincially Significant/sciences de la terre d'importance provinciale
-  Earth Science Regionally Significant/sciences de la terre d'importance régionale
-  Life Science Provincially Significant/sciences de la vie d'importance provinciale
-  Life Science Regionally Significant/sciences de la vie d'importance régionale
-  Evaluated Wetland
-  Provincially Significant/considérée d'importance provinciale
-  Non-Provincially Significant/non considérée d'importance provinciale
-  Unevaluated Wetland
-  Conservation Reserve
-  Provincial Park



Notes:

2.7 0 1.33 2.7 Kilometres

Absence of a feature in the map does not mean they do not exist in this area.

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

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Eastern Wood-pewee was identified within the plantation; however, the species is not listed as a protected species under Ontario Regulation 60/26 and is not considered a significant constraint to development under the current provincial framework.

Any tree removal will occur within the established work window (i.e., December 1 and March 14 (of any given year) to mitigate negative impacts on bat habitat. This work window will also ensure protection of migratory birds, such as the Eastern Wood-pewee.

Therefore, the proposed development is consistent with the provisions of Policy 4.1 of the PPS, 2024.

6.2 County of Wellington Official Plan

The County of Wellington Official Plan (“County OP”) provides the policy framework for managing growth, protecting environmental resources, and guiding development throughout the County. The subject lands are designated Hamlet, Prime Agricultural, and Secondary Agricultural on Schedule B7 of the County OP. The proposed development requires a settlement boundary expansion and associated planning approvals to permit residential development on the subject lands.

Section 4.6.3 of the County OP establishes the framework for Environmental Impact Assessments (“EIS”). Policy 4.6.3 states:

“Environmental impact assessments prepared by a qualified person may be required to evaluate the impacts a proposed development may have on the natural environment and the means by which negative impacts may be reduced or eliminated. An environmental impact assessment may include some or all of the following:

- a) a description of the proposal, including a statement of purpose;*
- b) a description of the existing land use on the subject lands and adjacent lands, as well as the relevant land use regulations;*
- c) an identification of proposed land uses and activities and potential environmental impacts;*
- d) a delineation of any environmental constraint area on a site plan;*
- e) a description of the terrestrial and aquatic resources, natural and built landforms, surface and groundwater and other significant environmental features or functions on the site;*
- f) an assessment of the impact on groundwater resources and in particular existing private wells and municipal supply wells in the area;*
- g) a consideration of the need for a subwatershed study*
- h) an assessment of the impact on groundwater resources and in particular existing private wells and municipal supply wells in the area;*

- i) a statement of the relative environmental and ecological significance of the natural features and functions affected by the proposal;*
- j) a consideration of the potential to maintain, restore or where possible, improve the long-term ecological function and biodiversity of natural heritage systems;*
- k) requirements to be addressed in Site Plans and/or Development Agreements;*
- l) a statement that there are no negative impacts on provincially significant greenland features and functions and a description of the means by which negative environmental impacts will be mitigated in other greenland areas.*
- m) a consideration of the potential for enhancement of environmental features or functions through site design alternatives;*
- n) a proposal for monitoring, where needed*
- o) such additional concerns as a Council may consider relevant.*

The County may, in consultation with Conservation Authorities, provide consideration for a scoped environmental impact assessment format for use by proponents of development applications, which are generally minor in nature with limited potential impacts.

This Scoped Environmental Impact Study has been prepared in accordance with the intent of Policy 4.6.3 and evaluates the existing environmental conditions onsite, ecological functions associated with the subject lands, and the potential impacts of the proposed development.

Table 3 provides an assessment of the proposed development in the context of Policy 4.6.3 of the County OP.

Table 3: County of Wellington Official Plan Policy 4.6.3 Assessment

#	Policy	Conformity
a)	<i>a description of the proposal, including a statement of purpose;</i>	Section 2.0 of this EIS describes the proposed 44-lot residential plan of subdivision, including the purpose and nature of the proposed development.
b)	<i>a description of the existing land use on the subject lands and adjacent lands, as well as the relevant land use regulations;</i>	Existing land uses onsite and on adjacent lands are described throughout Sections 1.0 and 3.0 of this EIS. The lands consist mainly of farmlands and a small plantation. Applicable County Official Plan designations and Township zoning are described in Section 1.3.

c)	<i>an identification of proposed land uses and activities and potential environmental impacts;</i>	The proposed residential land uses and associated environmental considerations are evaluated in Section 5.0 of this EIS.
d)	<i>a delineation of any environmental constraint area on a site plan;</i>	Environmental features and constraints associated with the subject lands, including the plantation, hedgerows, Butternut tree, and candidate bat snag trees, are identified on the figures prepared in support of this EIS.
e)	<i>a description of the terrestrial and aquatic resources, natural and built landforms, surface and groundwater and other significant environmental features or functions on the site;</i>	Sections 3.1 through 3.8 describe the environmental conditions of the subject lands, including geology, vegetation communities and wildlife habitat. The southern portion of the site includes a small plantation.
f)	<i>an assessment of the impact on groundwater resources and in particular existing private wells and municipal supply wells in the area;</i>	Groundwater and servicing considerations have been evaluated through supporting technical studies, including the Groundwater Supply Assessment prepared in support of the application.
g)	<i>a consideration of the need for a subwatershed study;</i>	Based on the limited environmental features onsite, absence of significant aquatic features, and nature of the proposed development, a subwatershed study is not considered necessary.
h)	<i>an assessment of the impact on groundwater resources and in particular existing private wells and municipal supply wells in the area;</i>	Groundwater resources and servicing impacts have been evaluated through supporting hydrogeological and servicing studies prepared for the proposed development.
i)	<i>a statement of the relative environmental and ecological significance of the natural features and functions affected by the proposal;</i>	This EIS concludes that the onsite plantation is not considered a significant woodland under the County Official Plan and that no Core Greenlands or Greenlands features are located within the proposed development area and is not connected to significant natural heritage features.
j)	<i>a consideration of the potential to maintain, restore or where possible, improve the long-term ecological</i>	The proposed development has generally been designed to avoid significant intrusions into the plantation and minimize environmental disturbance where feasible.

	<i>function and biodiversity of natural heritage systems;</i>	Opportunities for tree preservation and mitigation will be addressed through future detailed design.
k)	<i>requirements to be addressed in Site Plans and/or Development Agreements;</i>	Future detailed design, including tree protection measures, compensation planting, and mitigation requirements, can be addressed through future planning approvals and development agreements.
l)	<i>a statement that there are no negative impacts on provincially significant greenland features and functions and a description of the means by which negative environmental impacts will be mitigated in other greenland areas.</i>	No significant Greenland features have been identified on the subject lands. Based on the findings of this EIS, the proposed development is not anticipated to result in negative impacts on significant natural heritage features or ecological functions.
m)	<i>a consideration of the potential for enhancement of environmental features or functions through site design alternatives;</i>	The conceptual development plan was revised to minimize disturbance within the plantation and reduce impacts to existing vegetation communities where feasible.
n)	<i>a proposal for monitoring, where needed;</i>	Monitoring requirements, if determined necessary through future approvals, may be addressed through detailed design and implementation stages of the development process.
o)	<i>such additional concerns as a Council may consider relevant.</i>	Additional environmental matters identified through agency or municipal review can be addressed through future planning approvals and detailed design processes, where required.

Based on the findings of this Scoped EIS, the proposed development is not anticipated to result in negative impacts on significant natural heritage features or ecological functions and conforms with the environmental policy framework of the County of Wellington Official Plan.

7. CONCLUSIONS AND RECOMMENDATIONS

This Scoped Environmental Impact Study (“EIS”) was prepared in support of a proposed 44-lot residential plan of subdivision on lands located within and adjacent to the Hamlet of Arkell in the Township of Puslinch.

The purpose of this EIS was to evaluate the existing environmental conditions associated with the subject lands, identify ecological features and functions onsite and within the adjacent area, assess the potential impacts of the proposed development, and identify mitigation measures where appropriate.

The subject lands are primarily actively cultivated agricultural lands with limited natural heritage features. The primary environmental features associated with the site include a mixed plantation located in the southern portion of the property, perimeter hedgerows, a single Butternut tree, habitat associated with Eastern Wood-pewee and potential Bat habitat.

The onsite plantation is approximately 4.7 ha in size and does not meet the County of Wellington Official Plan criteria for a significant plantation woodland. The plantation is in generally poor condition and exhibits substantial mortality associated with walnut juglone toxicity. No Provincially Significant Wetlands, Areas of Natural and Scientific Interest, significant valleylands, or other provincially significant natural heritage features were identified onsite or adjacent to the proposed development area.

Breeding bird surveys confirmed the presence of single Eastern Wood-pewee along the edge of the plantation. The conceptual development plan has generally been designed to avoid significant intrusions into the plantation and minimize environmental disturbance where feasible. Impacts associated with the proposed development are expected to be limited primarily to minor edge disturbances adjacent to the plantation.

A single Butternut tree was identified within the central hedgerow onsite. The tree was assessed by a qualified Butternut Health Assessor. Subject to the recommendations of the assessment and implementation of appropriate mitigation measures, impacts associated with the proposed development can be appropriately addressed.

Mitigation measures, including future tree protection measures and compensation plantings where required can be implemented by a Tree Protection and Compensation Plan.

Based on the findings of this Scoped EIS, the proposed development is not anticipated to result in negative impacts on significant natural heritage features or ecological functions and is generally consistent with the Provincial Planning Statement (2024) and conforms to the County of Wellington Official Plan.

7.1 Recommendations for Future Studies

Based on the findings of this Scoped Environmental Impact Study, the following recommendations are provided for consideration through future planning approvals, detailed design, and Draft Plan of Subdivision conditions:

- 1) A Tree Protection and Compensation Plan should be prepared as part of future detailed design to identify trees proposed to be retained, applicable tree protection measures, compensation planting requirements, and long-term management considerations associated with retained vegetation communities. Any tree removal will occur within the established work window (i.e., December 1 and March 14 (of any given year) to mitigate negative impacts on bat habitat. This work window will also ensure protection of migratory birds, such as the Eastern Wood-pewee. This Plan should be tied to detailed engineering drawings (at the Draft Plan Approval stage) and field surveyed to provide the consulting arborist/ecologist the opportunity to visually inspect the extent of proposed disturbance and the potential effect on adjacent trees. Edge management efforts, including appropriate fencing, invasive species management, no dumping provisions and native buffer plantings, should be considered as part of this Plan.

7.2 Future Approvals

In addition to the planning applications associated with the proposed development (i.e., OPA and ZBA), several future approvals, permits, and detailed design requirements may be required prior to construction and implementation of the proposed development.

The following future approvals and requirements may apply:

1. Draft Plan of Subdivision approval and registration of the Plan of Subdivision.
2. Approval of detailed engineering and servicing drawings, including stormwater management, grading, erosion and sediment control, and road design.
3. As a condition of draft plan approval, the preparation and implementation of a Tree Protection and Compensation Plan to the satisfaction of the Township and County.
4. Implementation of any mitigation measures or recommendations identified through supporting technical studies, including hydrogeological, stormwater management, erosion and sediment control plan, noise, and transportation studies.
5. Any additional approvals or permits identified through the municipal review process, agency circulation, or future detailed design stages.
6. If required, registration under the *Species Conservation Act*.

Robert Stovel

ROBERT P. STOVEL, MCIP, RPP, P.A.G.

Appendix A: Terms of Reference

Stovel and Associates Inc.

Planners, Agrologists and Environmental Consultants

April 10, 2026

Dan Stuart, M.Env.Sc.
Azimuth Environmental Consulting, Inc.
624 Welham Road
Barrie, ON
L4N 9A1

**RE: Part of Lots 7–9, Concession 10 (Arkell), Township of Puslinch
Terms of Reference and Table of Contents - Scoped Environmental Impact
Study**

Dear Mr. Stuart:

This Terms of Reference (ToR) outlines the scope of work for the preparation of a scoped Environmental Impact Study (EIS) in support of the proposed residential development on lands described as Part of Lots 7–9, Concession 10 (Arkell), Township of Puslinch.

The purpose of the Scoped EIS is to evaluate potential impacts of the proposed development on natural heritage features and functions, and to demonstrate conformity with applicable policies of the Provincial Planning Statement, 2024 (PPS), the Wellington County Official Plan (OP) and the Township of Puslinch Zoning Bylaw (ZB).

This ToR is informed by agency comments and peer review, including the natural heritage review completed by Azimuth Environmental Consulting, Inc.

Background and Study Rationale

Recent peer reviews have identified:

- Presence of a plantation (~7–7.5 ha) that may qualify as Significant Woodland.
- Potential habitat for Species at Risk (SAR) (e.g., Black Ash, Butternut).
- Observations of Eastern Wood-pewee, indicating potential Significant Wildlife Habitat (SWH).
- Concerns related to the use of outdated environmental data (2007) requiring updated (but scoped) field investigations.

As such, Azimuth Environmental Consulting, Inc. has determined that a scoped EIS is required to:

- Confirm feature significance.
- Assess potential development impacts (including potential encroachment into woodland areas).

-
- Identify mitigation measures, including the need for future studies that could be implemented via a condition of Draft Plan approval.

Policy and Legislative Context

The scoped EIS will address:

- Provincial Planning Statement, 2024 (PPS) – Natural Heritage Policies.
- Wellington County Official Plan, including:
 - Section 4.6.3 (EIS requirements)
 - Section 5.4 (Species at Risk)
 - Section 5.5 (Natural Heritage System)

The following surveys will not be conducted:

- Wetland survey (the site is comprised of tableland areas).
- Offsite surveys (only the breeding bird survey conducted by Colville Consulting described offsite findings).
- Amphibian surveys (the site is comprised of tableland areas).
- Bat acoustic surveys will not be conducted; however, a leaf-off bat habitat assessment will be completed.
- Fisheries survey (the site is comprised of tableland areas).

These scoped exclusions reflect the absence of aquatic and wetland features on the subject lands and are consistent with a risk-based approach to addressing natural heritage constraints identified through background review and previous field investigations.

Scope of Work

A. Background Review

1. Describe the proposed development. Include map of current lot fabric making note of the areas of the plantation that could be encroached by the proposed development plan (i.e. building envelope, road network, drainage channels as a result of the SWM plan, noise mitigation features such as berms and fences).
2. Review relevant background information, including:
 - Previous environmental studies (e.g., GWS 2007; Arborland Forestry Consulting 2023).
 - Wellington County OP mapping and planning provisions and Puslinch Township ZB mapping and provisions.
 - Natural Heritage Information Centre (NHIC) and MNR Natural Areas mapping.
 - Results from Species atlases (breeding birds – appendix material).
3. Complete a MECP/MNRF information request for Species at Risk and natural heritage features.

B. Field Investigations

4. Breeding Bird Surveys

- Two breeding bird surveys were completed by Colville Consulting.
- The results of the surveys will be described.
- Assess significance of Eastern Wood-pewee observation with respect to Significant Wildlife Habitat criteria.

5. Vegetation Community Mapping

- Classify vegetation communities using Ecological Land Classification (ELC) system.
- Description of onsite vegetation and species list.

6. Woodland/Plantation Survey

- Document stocking density and health of plantation.
- Delineate woodland boundaries (dripline).
- Confirm presence of Butternut and Black Ash.
- Assess for Significant Woodland criteria (Wellington OP).

7. Bat Survey (limited to leaf-off survey)

8. Wildlife and Habitat Assessment

- Identify Significant Wildlife Habitat (SWH).
- Identify Species at Risk habitat.
- Record incidental wildlife observations.

C. Scoped Environmental Impact Study (EIS)

9. Mapping and Analysis – identify potential environmental constraints.

10. Impact Assessment – assess potential for environmental impacts based on the potential for encroachment into the plantation (including drainage channels that will be graded in the woodland as part of the SWM program).

11. Mitigation Measures

12. Edge Management and Restoration

13. Policy Conformity

14. Recommendations for future studies (condition of draft plan approval) if needed.

Please confirm that this approach is satisfactory. We will be conducting the leaf-off survey and SAR investigation (butternut and black ash) next week.

Yours truly,

Robert Stovel

Robert P. Stovel, M.Sc., M.C.I.P., R.P.P., P. Ag.

cc. Shawn Marsh



Environmental Assessments & Approvals

April 21, 2026

AEC 24-348

Township of Puslinch
7404 Wellington Road 34
Puslinch, Ontario N0B 2J0

Attention: Monika Farncombe

Re: Natural Heritage Peer Review of a Terms of Reference for an Environmental Impact Study – Part of Lots 7-9, Concession 10 (Arkell), Township of Puslinch, County of Wellington

Monika Farncombe:

Azimuth Environmental Consulting, Inc. (Azimuth) is pleased to provide this natural heritage peer review letter for Stovel and Associates Inc. with regards to a Scoped Environmental Impact Study (EIS) Terms of Reference prepared for Part of Lots 7-9, Concession 10 (Arkell) in the Township of Puslinch ("Township"), County of Wellington ("County"). It is noted that applications for an Official Plan Amendment (OP-2006-06), Zoning By-law Amendment (P10/2006), and Draft Plan of Subdivision (23T-06003) were previously submitted in 2006.

Azimuth completed a Pre-consultation Ecology Peer Review for the proposed development (File #D00/KUK) on May 11, 2023 that provided a preliminary background review of natural heritage features and functions associated with the property and adjacent lands, and recommended that an Environmental Impact Study (EIS) be prepared including a suite of vegetation and wildlife surveys.

Azimuth subsequently reviewed relevant documents and issued comments as part of a natural heritage peer review letter dated October 14, 2025 as part of the initial submission package, on behalf of the Township. The initial submission natural heritage review letter reiterated the pre-consultation recommendation that an Environmental Impact Study/Environmental Impact Assessment (EIS/EIA) be prepared in accordance with Section 4.6.3 of the Wellington OP and the recommended field program initially described in the May 2023 pre-consultation peer review letter and updated in the October 2025 letter. In the initial submission natural heritage review it was noted



that the Results of Breeding Bird Surveys memo (Colville) is generally acceptable and can be incorporated into a future EIS/EIA report.

After the completion of the initial natural heritage review, Azimuth reviewed additional documents of potential relevance to natural heritage matters, on behalf of the Township, and issued comments as part of a natural heritage peer review letter dated February 12, 2026 (hereafter referred to as the “2nd Review”). It is noted that additional materials submitted January 2026 did not include an EIS/EIA or similar documentation. The 2nd Review continued to reiterate that an EIS/EIA be prepared in accordance with Section 4.6.3 of the Wellington OP and the recommended field program outlined in the May 2023 pre-consultation peer review letter and updated in the October 2025 letter.

Subsequent to 2nd Review, the following document has been reviewed:

- Part of Lots 7–9, Concession 10 (Arkell), Township of Puslinch Terms of Reference and Table of Contents - Scoped Environmental Impact Study (received April 10, 2026).

The document reviewed presents a Terms of Reference for the completion of a Scoped EIS pertaining to Part of Lots 7-9, Concession 10 (Arkell) in the Township of Puslinch, County of Wellington. Azimuth’s scope is to provide a technical peer review of the Terms of Reference for the development application from a natural heritage perspective. A site visit was not conducted as a component of this peer review. Therefore, the review and recommendations presented below are based on background sources and information provided by Stovel and Associates Inc., as well as recommendations provided by Azimuth in the May 2023, October 2025 and February 2026 letters.

Review of Terms of Reference

The Terms of Reference dated April 10, 2026 was prepared by Stovel and Associates Inc., and proposes the following background review, field investigations and Scoped EIS, as summarized below:

- Background Review;
 - Figure depicting proposed development and areas of encroachment into the woodland;
 - Review relevant background information;
 - Submit a Species at Risk (SAR) and natural heritage features information request to the Ministry of Environment, Conservation and Parks (MECP)/ Ministry of Natural Resources (MNR);
- Field Investigations;



- Summarize results of breeding bird surveys previously completed by Colville in spring 2023;
- Ecological Land Classification (ELC) and delineation of vegetation communities;
- Vascular plant inventory;
- Woodland boundary delineation and assess woodland health and tree density;
- Bat habitat survey during leaf conditions;
- Identify potential Significant Wildlife Habitat (SWH) and SAR, and record incidental wildlife observations;
- Scoped EIS;
 - Preparation of mapping identifying potential environmental constraints;
 - Impact assessment of the proposed development upon the woodland, including mitigation measures;
 - Recommendations for Edge Management and Restoration;
 - Policy conformity review; and
 - Recommendation for future studies should they be required.

Recommendations

Based on the above review, **Azimuth is accepting of the Terms of Reference proposed by Stovel and Associates Inc., pending incorporation of the following additional comments/requests into the EIS:**

- **MECP SAR and Information Request:** The Terms of Reference proposes issuing a SAR and natural heritage features information request to MECP/MNR. Given the low complexity of the site and the current direction from MECP, an information request is not likely necessary for this project, however Azimuth defers to the consultant's best judgement regarding MECP engagement with respect to SAR.
- **Environmental Features Mapping:** The Terms of Reference proposes mapping the current lot fabric, making note of areas of encroachment into the plantation, as well as including mapping potential environmental constraints. To provide a more comprehensive representation of the natural heritage features present and potential impacts, it is recommended that the Scoped EIS include a map of the environmental features (*e.g.* ELC and other mapped features) present on-site, as well as a figure overlaying the proposed development over the environment features.
- **Vascular Plant Inventory:** The field program proposes completing a vascular plant inventory but does not indicate the number of surveys or when survey(s) will be completed. Given the minor encroachment within natural features, a single vascular plant inventory during the spring or summer season (*i.e.* approximately late-May to



September) would be deemed sufficient. This survey can be completed in conjunction with the ELC mapping survey.

- **Natural Features Assessment:** The Terms of Reference verifies a review and assessment of impacts that will occur for woodlands, SAR, and SWH, as a component of the Scoped EIS. The report should also consider presence/absence of wetlands, Significant Valleyland, Areas of Natural and Scientific Interest, fish habitat, and natural linkages, and if determined to be present (or if treated as present), should be incorporated into the impact assessment and policy conformity reviews. It is understood that based on materials reviewed to date these features are unlikely to be present, however this should be acknowledged in the Scoped EIS.
- **Impact Assessment:** The Terms of Reference proposes assessing potential impacts based on the potential for encroachment into the plantation. While the significant natural heritage features present within the study area are anticipated to be primarily limited to within the plantation, the impact assessment should also consider features (e.g. hedgerows, open areas) located outside of the woodland where they occur.

Closure

Azimuth trusts this Terms of Reference peer review provides suitable natural heritage direction for the Township as the project application progresses toward submission of a Scoped EIS. If you have any questions, please do not hesitate to contact the undersigned.

Yours truly,

AZIMUTH ENVIRONMENTAL CONSULTING, INC.


Alexa Pompilio-Grant, F.B.Sc.
Terrestrial Ecologist

Appendix B: Working Vascular Plant List

Arkell Subdivision – Township of Puslinch		ELC – Vegetation Communities		Conservation Status	
Plant List – May 2026		1	2	Global	Provincial
Scientific Name	Common Name	Mixed Plantation	Hedgerows	GRANK	SRANK
Rubus idaeus ssp. Idaeus	Wild Red Raspberry	X	X	G5T5	SE5
Soncha arvensis ssp. arvensis	Sow thistle		X	GNRTNR	SNA
Solidago Canadensis	Canada Goldenrod	X	X	G5	S5
Solidago flexicaulis	Zigzag Goldenrod	X		G5	S5
Solanum Linnaeus	Enchanter's Nightshade	X	X	G5	S5
Taraxacum officinale	Common Dandelion	X	X	G5	SNA
Thalictrum polygamum	Tall Meadowrue	X	X	G5	S5
Thuja occidentalis	E. White Cedar	X	X	G5	S5
Tilia americana	Basswood	X		G5	S5
Trillium grandiflorum	White Trillium	X		G5	S5
Viola sororia	Blue Violet	X		G5	S5
Vitis aestivalis	Summer Grape	X	X	G5	S4
Geranium robertianum	Herb Robert	X	X	G5	SE5
Fraxinus Americana	White Ash	X		G5	S5
Lonicera tatarica	Tatarian Honeysuckle	X	X	G5	SNA
Maianthemum stellatum	Star-flowered Solomons Seal	X		G5	S5, G5
Nepeta cataria	Catnip	X	X	G5	SE5
Parthenocissus quinquefolia	Virginia Creeper	X	X	G5	S4, G5
Plantago major	Common Plantain	x	X	G5	SE5
Pinus strobus	White Pine	x	x		
Picea glauca	White Spruce	x	x		
Populus tremuloides	Aspen Poplar	x	X	G5	S5
Prunus serotina	Black Cherry	X	x	G5	S5
Prunus virginiana ssp. virginiana	Choke Cherry	X	x	G5	S5
Ribes cynosbati	Prickly Gooseberry	X	X	G5	S5
Rhamnus cathartica	Common Buckthorn	X	X	GNR	SNA
Acer saccharum ssp. saccharum	Sugar Maple	X	X	G5T5	S5
Achillea millefolium	Common Yarrow	X	X	G5T5	S5

<i>Alliaria petiolata</i>	Garlic Mustard	X	X	GNR	SE5
<i>Anemone canadensis</i>	Canada Anemone		X	G5	S5
<i>Arctium minus</i> ssp. <i>minus</i>	Common Burdock	X	X	GNRTNR	SNA
<i>Asarum canadense</i>	Wild Ginger	X		G5	S5
<i>Aster novae-angliae</i>	New England Aster		X	G5	S5
<i>Cornus alternifolia</i>	Alternate-leaved Dogwood	X	X	G5	S5, G5
<i>Cornus stolonifera</i>	Red-osier Dogwood		X	G5	S5
<i>Daucus Carota</i>	Wild Carrot	X	X	GNR	SNA
<i>Diervilla lonicera</i>	Bush Honeysuckle	X	X	G5	S5
<i>Dipsacus fullonum</i>	Teasel	X	X	GNR	SNA
<i>Erigeron annuus</i>	Daisy Fleabane	X	X	G5	S5
<i>Erythronium americanum</i>	Trout Lily	X		G5T5	S5
<i>Juglans cinerea</i>	Butternut		x	G4	S3?
<i>Juglans nigra</i>	Black Walnut	x	x	G5	S5
<i>Malus domestica</i>	Apple Tree	x	x	GNA	SNA
<i>Picea abies</i>	Norway Spruce		x	G5	SNA
<i>Crataegus</i> spp.	Hawthorn		x	G5	S5
<i>Robinia pseudoacacia</i>	Black Locust	x	x	G5	SNA
<i>Ostrya virginiana</i>	Ironwood	x		G5	S5
<i>Lycoperdon</i> spp.	Puff Ball	x		GNR	SNR
<i>Poaceae</i> spp.	Grasses	x	x	GNR	SNR
<i>Fragaria virginiana</i> ssp. <i>virginiana</i>	Wild Strawberry	x	x	G5	S5
<i>Frangula alnus</i>	Buckthorn	X	X	G?	SE5
<i>Leucanthemum vulgare</i>	Ox-eye Daisy	X	X	G?	SE5

Appendix C: Significant Wildlife Habitat Screening

Significant Wildlife Habitat Assessment Tables

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E

	Wildlife Species	Candidate SWH		Confirmed SWH	Study Area
		ELC Codes	Ecosite Habitat Criteria and Information Sources	Criteria for Consideration	Assessment Details
Wildlife Habitat: Waterfowl Stopover and Staging Areas (Terrestrial)					
<u>Rationale:</u> Habitat important to migrating waterfowl.	American Black Duck Wood Duck Green-winged Teal Blue-winged Teal Mallard Northern Pintail Northern Shoveler American Wigeon Gadwall	CUM1 CUT1 - Plus evidence of annual spring flooding from melt water or run-off within these Ecosites.	Fields with sheet water during Spring (mid March to May). - Fields flooding during spring melt and run-off provide important invertebrate foraging habitat for migrating waterfowl. - Agricultural fields with waste grains are commonly used by waterfowl, these are not considered SWH unless they have spring sheet water available. <u>Information Sources</u> - Anecdotal information from the landowner, adjacent landowners or local naturalist clubs may be good information in determining occurrence. - Reports and other information available from Conservation Authorities (CAs) - Sites documented through waterfowl planning processes (eg. EHJV implementation plan) - Field Naturalist Clubs - Ducks Unlimited Canada - Natural Heritage Information Centre (NHIC) Waterfowl Concentration Area	Studies carried out and verified presence of an annual concentration of any listed species, evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". - Any mixed species aggregations of 100 or more individuals required. - The area of the flooded field ecosite habitat plus a 100-300m radius buffer dependent on local site conditions and adjacent land use is the significant wildlife habitat. - Annual use of habitat is documented from information sources or field studies (annual use can be based on studies or determined by past surveys with species numbers and dates).	No aquatic features onsite or on adjacent lands. No evidence of waterfowl observed. Not SWH

Wildlife Habitat: Waterfowl Stopover and Staging Areas (Aquatic)

Rationale: Important for local and migrant waterfowl populations during the spring or fall migration or both periods combined. Sites identified are usually only one of a few in the eco-district.	Canada Goose Cackling Goose Snow Goose American Black Duck Northern Pintail Northern Shoveler American Wigeon Gadwall Green-winged Teal Blue-winged Teal Hooded Merganser Common Merganser Lesser Scaup Greater Scaup Long-tailed Duck Surf Scoter White-winged Scoter Black Scoter Ring-necked Duck Common Goldeneye Bufflehead Redhead Ruddy Duck Red-breasted Merganser Brant Canvasback	MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7	- Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration. Sewage treatment ponds and storm water ponds do not qualify as a SWH, however a reservoir managed as a large wetland or pond/lake does qualify. - These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water). <u>Information Sources</u> - Environment Canada - OMNRF Wetland Evaluations indicate presence of locally and regionally significant waterfowl staging. - Sites documented through waterfowl planning processes. - Ducks Unlimited projects - NHIC Waterfowl Concentration Area	Studies carried out and verified presence of: - Aggregations of 100 or more of listed species for 7 days, results in > 700 waterfowl use days. - Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWH. - The combined area of the ELC ecosites and a 100m radius area is the SWH. - Wetland area and shorelines associated with sites may be significant wildlife habitat. - Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power." - Annual Use of Habitat as documented from Information Sources or Field Studies.	No aquatic features onsite or on adjacent lands. No evidence of waterfowl observed. Not SWH
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Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E (continued)

	Wildlife Species	Candidate SWH		Confirmed SWH	Study Area
		ELC Codes	Ecosite Habitat Criteria and Information Sources	Criteria for Consideration	Assessment Details
Wildlife Habitat: Shorebird Migratory Stopover Area					
<u>Rationale:</u> High quality shorebird stopover habitat is extremely rare and typically has a long history of use.	Greater Yellowlegs Lesser Yellowlegs Marbled Godwit Hudsonian Godwit Black-bellied Plover American Golden-Plover Semipalmated Plover Solitary Sandpiper Spotted Sandpiper Semipalmated Sandpiper Pectoral Sandpiper White-rumped Sandpiper Baird's Sandpiper Least Sandpiper Purple Sandpiper Stilt Sandpiper Short-billed Dowitcher Red-necked Phalarope Whimbrel Ruddy Turnstone Sanderling Dunlin Whimbrel	BBO1 BBO2 BBS1 BBS2 BBT1 BBT2 SDO1 SDS2 SDT1 MAM1 MAM2 MAM3 MAM4 MAM5	Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats. Great Lakes coastal shorelines are important for migratory shorebirds in May to mid-June and early July to October. Sewage treatment ponds and storm water ponds do not qualify as a SWH. <u>Information Sources</u> · Western hemisphere shorebird reserve network. · CWS Ontario Shorebird Survey. · Bird Studies Canada · Ontario Nature · NHIC Shorebird Migratory Concentration Area	Studies confirming: · Presence of 3 or more of listed species and > 1000 shorebird use days during spring or fall migration period. · Whimbrel stop briefly (<24hrs) during spring migration, any site with >100 Whimbrel used for 3 years or more is significant. · The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100m radius area. · Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects".	No aquatic features onsite or on adjacent lands. Not SWH.
Wildlife Habitat: Raptor Wintering Area					

<u>Rational:</u> Sites used by multiple species, a high number of individuals and used annually are most significant	Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl <u>Special Concern:</u> Short-eared Owl Bald Eagle	Hawks/Owls: Combination of ELC Community Series; need to have present one Community Series from each land class: Forest: FOD, FOM, FOC Upland: CUM, CUT, CUS, CUW	The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. Raptor wintering sites need to be > 20 ha with a combination of forest and upland. Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15ha) with adjacent woodlands. Field area of the habitat is to be wind swept with limited snow depth or accumulation. Eagle sites have open water, large trees and snags available for roosting <u>Information Sources</u> • OMNRF Ecologist or Biologist • Natural Heritage Information Center (NHIC) Raptor Winter Concentration Area • Data from Bird Studies Canada	Studies confirm the use of these habitats by: • One or more Short-eared Owls or; One or more Bald Eagles or; At least 10 individuals and two listed hawk/owl species. • A site should be used regularly (3 in 5 years) for a minimum of 20 days by the above number of birds • The habitat area for an eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects".	There is a plantation/ woodland onsite. Adjacent lands consist of agricultural fields. No Eagle, Hawks, Kestrels, Owls identified during bird survey. Not SWH.
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Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E (continued)

Table 11: Characteristics of Seasonal Concentration Areas for Ecoregion 02 (continued)					
	Wildlife Species	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Criteria for Consideration	Assessment Details
Wildlife Habitat: Bat Hibernacula					
<u>Rationale</u> Bat hibernacula are rare habitats in Ontario landscapes.	Big Brown Bat Tri-coloured Bat	Bat Hibernacula may be found in these ecosites: CCR1 CCR2 CCA1 CCA2 (Note: buildings are not considered to be SWH)	· Hibernacula may be found in caves, mine shafts, underground foundations and Karsts. · Active mine sites should not be considered as SWH · The locations of bat hibernacula are relatively poorly known. <u>Information Sources</u> · OMNRF for possible locations and contact for local experts · NHIC Bat Hibernaculum · Ministry of Northern Development and Mines for location of mine shafts. · University Biology Departments with bat experts.	· All sites with confirmed hibernating bats are SWH. · The habitat area includes a 200m radius around the entrance of the hibernaculum for most. · Studies are to be conducted during the peak swarming period (Aug. – Sept.). Surveys should be conducted following methods outlined in the "Bats and Bat Habitats: Guidelines for Wind Power Projects".	Suitable habitat not present within the subject property. Not SWH.
Wildlife Habitat: Bat Maternity Colonies					
<u>Rationale:</u> Known locations of forested bat maternity colonies is extremely rare in all Ontario landscapes.	Big Brown Bat Silver-haired Bat	Maternity colonies considered SWH are found in forested Ecosites. All ELC Ecosites in ELC Community Series: FOD FOM SWD SWM	Maternity colonies can be found in tree cavities, vegetation and often in buildings (buildings are not considered to be SWH). · Maternity roosts are not found in caves and mines in Ontario · Maternity colonies located in Mature deciduous or mixed forest stands with >10/ha large diameter (>25cm dbh) wildlife trees · Female Bats generally prefer wildlife (snags) in early stages of decay. · Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred. <u>Information Sources</u> · OMNRF for possible locations.	· Maternity Colonies with confirmed use by: · >10 Big Brown Bats · >5 Adult Female Silver-haired Bats · The area of the habitat includes the entire woodland or a forest stand ELC Ecosite or an Eco-element containing the maternity colonies. · Evaluation methods for maternity colonies should be conducted following methods outlined in the "Bats and Bat Habitats: Guidelines for wind Power Projects"	Onsite snags to be investigated to determine if suitable habitat.

			• University Biology Departments with bat experts.		
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Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E (continued)

	Wildlife Species	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Criteria for Consideration	Assessment Details
Wildlife Habitat: Bat Migratory Stopover Area					
	Hoary Bat Eastern Red Bat Silver-haired Bat	No specified ELC types.	Long distance migratory bats typically migrate during late summer and early fall from summer breeding habitats throughout Ontario to southern wintering areas. Their annual fall migrations concentrate these species of bats at stopover areas. The location and characteristics of stopover habitats are generally unknown. <u>Information Sources</u> · OMNR for possible locations. · University of Waterloo, Biology Department	Long Point has been identified as a significant stopover habitat for fall migrating Silver-haired Bats, due to significant increases in abundance, activity and feeding that was documented during fall migration. · The confirmation criteria and habitat areas for this SWH are still being determined.	Suitable habitat not present within the subject property. Not SWH.
Wildlife Habitat: Turtle Wintering Area					
<u>Rationale:</u> Generally, sites are the only known sites in the area. Sites with the highest number of individuals are most significant	Midland Painted Turtle <u>Special Concern:</u> Northern Map Turtle Snapping Turtle	Snapping and Midland Painted Turtles - ELC Community Classes: SW, MA, OA and SA; ELC Community Series: FEO and BOO Northern Map Turtle - Open Water areas such as deeper rivers or streams and lakes with current can also be used as over-wintering habitat.	For most turtles, wintering areas are in the same general area as their core habitat. Water has to be deep enough not to freeze and have soft mud substrates. · Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate Dissolved Oxygen. Man-made ponds such as sewage lagoons or storm water ponds should not be considered SWH. <u>Information Sources</u> · EIS studies carried out by Conservation Authorities. · OMNRF ecologist or biologist · NHIC	· Presence of 5 over-wintering Midland Painted Turtles is significant. · One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significant. · The mapped ELC ecosite area with the over wintering turtles is the SWH. If the hibernation site is within a stream or river, the deep-water pool where the turtles are over wintering is the SWH. · Over wintering areas may be identified by searching for congregations (Basking Areas) of turtles on warm, sunny days during the fall (Sept. – Oct.) or spring (Mar. – May).	Potential turtle overwintering habitat not present onsite or on adjacent lands. Not SWH

				Congregation of turtles is more common where wintering areas are limited and therefore significant.	
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Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E (continued)

	Wildlife Species	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Criteria for Consideration	Assessment Details
Wildlife Habitat: Snake Hibernaculum					
<u>Rationale:</u> Generally, sites are the only known sites in the area. Sites with the highest number of individuals are most significant	<u>Snakes:</u> Eastern Gartersnake Northern Watersnake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake <u>Special Concern:</u> Milksnake Eastern Ribbonsnake <u>Lizard:</u> <u>Special Concern</u> (Southern Shield population): Five-lined Skink	For all snakes, habitat may be found in any ecosite other than very wet ones. Talus, Rock Barren, Crevice and Cave, and Alvar sites may be directly related to these habitats. Observations of congregations of snakes on sunny warm days in the spring or fall is a good indicator. For Five-lined Skink, ELC Community Series of FOD and FOM and Ecosites: FOC1 FOC3	- For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural locations. The existence of features that go below the frost line; such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying candidate SWH. - Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line. - Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover. - Five-lined skink prefer mixed forests with rock outcrop openings providing cover rock overlaying granite bedrock with fissures cciii. Information Sources - In spring, local residents or landowners may have observed the emergence of snakes on their property (e.g. old dug wells). - Reports and other information from CAs. - NHIC - OMNRF ecologist or biologist may be aware of locations of wintering skinks	Studies confirming: - Presence of snake hibernacula used by a minimum of five individuals of a snake sp. <u>or</u>; individuals of two or more snake spp. - Congregations of a minimum of five individuals of a snake sp. <u>or</u>; individuals of two or more snake spp. near potential hibernacula (eg. foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct). <u>Note:</u> If there are Special Concern Species present, then site is SWH <u>Note:</u> Sites for hibernation possess specific habitat parameters (e.g. temperature, humidity, etc.) and consequently are used annually, often by many of the same individuals of a local population [i.e. strong hibernation site fidelity]. Other critical life processes (e.g. mating) often take place in close proximity to hibernacula. The feature in which the hibernacula is located plus a 30m buffer is the SWH. - Presence of any active hibernaculum for skink is significant.	No potential snake hibernaculum habitat found within the agricultural fields of proposed development area of the site. Potential snake habitat could occur in stone piles in hedgerows and woodland. Stone piles were inspected in Apr/May and no snakes were observed. Not SWH.
Wildlife Habitat: Colonially - Nesting Bird Breeding Habitat (Bank and Cliff)					

<u>Rationale:</u> Historical use and number of nests in a colony make this habitat significant. An identified colony can be very important to local populations. All swallow populations are declining in Ontario.	Cliff Swallow Northern Rough-winged Swallow (this species is not colonial but can be found in Cliff Swallow colonies)	Eroding banks, sandy hills, borrow pits, steep slopes, and sand piles Cliff faces, bridge abutments, silos, barns Habitat found in the following ecosites: CUM1 CUT1 CUS1 BLO1 BLS1 BLT1 CLO1 CLS1 CLT1	Any site or areas with exposed soil banks, undisturbed or naturally eroding that is not a licensed/permitted aggregate area. - Does not include man-made structures (bridges or buildings) or recently (2 years) disturbed soil areas, such as berms, embankments, soil or aggregate stockpiles. - Does not include a licensed/permitted Mineral Aggregate Operation. <u>Information Sources</u> - Reports and other information available from CAs - Ontario Breeding Bird Atlas - Bird Studies Canada	Studies confirming: - Presence of 1 or more nesting sites with 8 or more cliff swallow pairs and/or rough-winged swallow pairs during the breeding season. - A colony identified as SWH will include a 50m radius habitat area from the peripheral nest. - Field surveys to observe and count swallow nests are to be completed during the breeding season Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”	No banks and slopes occur on the subject property. Not SWH.
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Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E (continued)

	Wildlife Species	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Criteria for Consideration	Assessment Details
Wildlife Habitat: Colonially - Nesting Bird Breeding Habitat (Tree/Shrubs)					
<u>Rationale:</u> Large Colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Great Blue Heron Black-crowned Night-heron Great Egret Green Heron	SWM2 SWM3 SWM5 SWM6 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7 FET1	• Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used. • Most nests in trees are 11 to 15m from ground, near the top of the tree. <u>Information Sources</u> • Ontario Breeding Bird Atlas, colonial nest records. • Ontario Heronry Inventory 1991 available from Bird Studies Canada or NHIC (OMNR). • NHIC Mixed Wader Nesting Colony • Aerial photographs can help identify large heronries • Reports and other information available from CAs • MNRF District Offices	Studies confirming: • Presence of 5 or more active nests of Great Blue Heron or other listed species. • The habitat extends from the edge of the colony and a minimum 300m radius or extent of the Forest Ecosite containing the colony or any island <15 ha with a colony is the SWH. • Confirmation of active heronries are to be achieved through site visits conducted during the nesting season (April to August) or by evidence such as the presence of fresh guano, dead young and/or eggshells	Suitable habitat is not present within the subject property or adjacent lands. Not SWH
Wildlife Habitat: Colonially - Nesting Bird Breeding Habitat (Ground)					
<u>Rationale:</u> Colonies are important to local bird populations, typically sites are only known colony in area and are used annually.	Herring Gull Great Black-backed Gull Little Gull Ring-billed Gull Common Tern Caspian Tern Brewer's Blackbird	Any rocky island or peninsula (natural or artificial) within a lake or large river (two-lined on a 1:50,000 NTS map). Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird) MAM1 – 6	Nesting colonies of gulls and terns are on islands or peninsulas associated with open water or in marshy areas. • Brewers Blackbird colonies are found loosely on the ground in or in low bushes in close proximity to streams and irrigation ditches within farmlands. <u>Information Sources</u> • Ontario Breeding Bird Atlas, rare/colonial species records. • Canadian Wildlife Service • Reports and other information available from CAs • NHIC Colonial Waterbird Nesting Area	Studies confirming: • Presence of >25 active nests for Herring Gulls or Ring-billed Gulls, >5 active nests for Common Tern or >2 active nests for Caspian Tern. • Presence of 5 or more pairs for Brewer's Blackbird. • Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant. • The edge of the colony and a minimum 150m area of habitat, or the extent of the ELC ecosites containing the colony or any island	Suitable habitat is not present on the subject property or adjacent lands. Not SWH

		MAS1 – 3 CUM CUT CUS	. MNRF District Offices	<3.0ha with a colony is the SWH. Studies would be done during May/June when actively nesting. Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”.	
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Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E (continued)

	Wildlife Species	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Criteria for Consideration	Assessment Details
Wildlife Habitat: Migratory Butterfly Stopover Areas					
<u>Rationale:</u> Butterfly stopovers areas are rare habitats and are biologically important for butterfly species that migrate south for the winter.	Painted Lady Red Admiral <u>Special Concern:</u> Monarch	Combination of ELC Community Series: Need to have present one Community Series from each land class: <u>Field:</u> CUM CUS CUT <u>Forest:</u> FOC FOM FOD CUP	A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Ontario. . The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south. . The habitat should not be disturbed, fields/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat. . Staging areas usually provide protection from the elements and are often spits of land or areas with the shortest distance to cross the Great Lakes. <u>Information Sources</u> . NHIC . Agriculture Canada . Conservation Authorities	Studies confirm: . The presence of Monarch Use Days (MUD) during fall migration (Aug/Oct). MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/day, significant variation can occur between years and multiple years of sampling should occur. . Observational studies are to be completed and need to be done frequently during the migration period to estimate MUD . MUD of >5000 or >3000 with the presence of Painted Ladies or Red Admiral's is to be considered significant.	The subject property or adjacent lands are not located within 5km of Lake Ontario. Not SWH
Wildlife Habitat: Landbird Migratory Stopover Areas					

<u>Rationale:</u> Sites with a high diversity of species as well as high number are most significant	All migratory songbirds. All migrant raptors species: Ontario Ministry of Natural Resources: Fish and Wildlife Conservation Act, 1997. Schedule 7: Specially Protected Birds (Raptors)	All Ecosites associated with these ELC Community Series: FOC FOM FOD SWC SWM SWD	Woodlots need to be >10 ha in size and within 5km of Lake Ontario. · If multiple woodlands are located along the shoreline, those woodlands <2km from Lake Ontario are more significant. · Sites have a variety of habitats, forest, grassland and wetland complexes. · The largest sites are more significant. Woodlots and forest fragments are important habitats to migrating birds. These features located along the shore and located within 5km of Lake Ontario are Candidate SWH. <u>Information Sources</u> · Bird Studies Canada · Ontario Nature	Studies confirm: · Use of the woodlot by >200 birds/day and with >35 spp. with at least 10 bird spp. recorded on at least 5 different survey dates. This abundance and diversity of migrant bird species is considered above average and significant. · Studies should be completed during spring (Apr/May) and fall (Aug/Oct) migration using standardized assessment techniques. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects".	The subject property and adjacent lands are not located within 5km of Lake Ontario. Not SWH
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Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E (continued)

Table 11: Characteristics of Seasonal Concentration Areas for Ecotone 02 (continued)					
	Wildlife Species	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Criteria for Consideration	Assessment Details
Wildlife Habitat: Deer Yarding Areas					
<u>Rationale:</u> Winter habitat for deer is considered to be the main factor for northern deer populations. In winter, deer congregate in "yards" to survive severe winter conditions. Deer yards typically have a long history of annual use by deer.	White-tailed Deer	Note: OMNRF to determine this habitat. ELC Community Series providing a thermal cover component for a deer yard would include: FOM, FOC, SWM and SWC. Or these ELC Ecosites: CUP2 CUP3 FOD3 CUT	- Deer yarding areas or winter concentration areas are areas deer move to in response to the onset of winter snow and cold. This is a behavioural response and deer will establish traditional use areas. The yard is composed of two areas referred to as Stratum I and Stratum II. Stratum II covers the entire winter yard area and is usually a mixed or deciduous forest with plenty of browse available for food. Deer move to these areas in early winter and generally, when snow depths reach 20cm, most of the deer will have moved here. If the snow is light and fluffy, deer may continue to use this area until 30cm snow depth. In mild winters, deer may remain in the Stratum II area the entire winter. - The Core of a deer yard (Stratum I) is located within the Stratum II area and is critical for deer survival in areas where winters become severe. It is primarily composed of coniferous trees (pine, hemlock, cedar, spruce) with a canopy cover of more than 60%. - OMNRF determines deer yards following methods outlined in "Selected Wildlife and Habitat Features: Inventory Manual". - Woodlots with high densities of deer due to artificial feeding are not considered to be significant.	Snow depth and temperature are the greatest influence on deer use of winter yards. Snow depths > 40cm for more than 60 days in a typically winter are minimum criteria for a deer yard to be considered as SWH. - Deer Yards are mapped by OMNRF District offices. Locations of Core or Stratum 1 and Stratum 2 Deer yards considered significant by OMNRF will be available at local MNRF offices or via Land Information Ontario (LIO). - Field investigations that record deer tracks in winter are done to confirm use (best done from an aircraft). Preferably, this is done over a series of winters to establish the boundary of the Stratum I and Stratum II yard in an "average" winter. - MNRF is responsible for completing these field investigations.	Deer overwintering habitat has not been mapped within or adjacent to the subject property by the MNR. Not SWH
Wildlife Habitat: Deer Winter Congregation Areas					

<u>Rationale:</u> Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer may congregate in large numbers in suitable woodlands to reduce or avoid the impacts of winter conditions.	White-tailed Deer	All Forested Ecosites with these ELC Community Series: FOC FOM FOD SWC SWM SWD Conifer plantations much smaller than 50ha may also be used.	- Woodlots will typically be >100 ha in size. Woodlots <100ha may be considered as significant based on MNRF studies or assessment. - Large woodlots > 100ha and up to 1500 ha are known to be used annually by densities of deer that range from 0.1-1.5 deer/ha. - Woodlots with high densities of deer due to artificial feeding are not significant. <u>Information Sources</u> - MNRF District Offices	Studies confirm: - Deer management is an MNRF responsibility. - Deer winter congregation areas considered significant will be mapped by MNRF. - Use of the woodlot by white-tailed deer will be determined by MNRF. All woodlots exceeding the area criteria are significant, unless determined not to be significant by MNR. - Studies should be completed during winter (Jan/Feb) when >20cm of snow is on the ground using aerial survey techniques, ground or road surveys, or a pellet count deer density survey.	Deer overwintering habitat has not been mapped within or adjacent to the subject property by the MNR. Not SWH
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Significant Wildlife Habitat Assessment Tables

Table 2. Characteristics of Rare Vegetation Communities for Ecoregion 6E

Rare Vegetation Community	Candidate SWH			Confirmed SWH	Study Area
	ELC Ecosite Codes	Habitat Description	Detailed Information and Sources	Criteria for Consideration	Assessment Details
Cliff and Talus Slopes					
Rationale: Cliffs and Talus Slopes are rare habitats in Ontario.	Any ELC Ecosite within Community Series: TAO CLO TAS CLS TAT CLT	A Cliff is vertical to near vertical bedrock >3m in height. A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris.	Most cliff and talus slopes occur along the Niagara Escarpment. <u>Information Sources</u> · The Niagara Escarpment Commission has detailed information on location of these habitats. · OMNRF District · NHIC has location information on their website · Conservation Authorities	· Confirm any ELC Vegetation Type for Cliffs or Talus Slopes	Vegetation community is not present within the subject property and adjacent lands. Not SWH
Sand Barrens					
Rationale: Sand barrens are rare in Ontario and may support rare species.	ELC Ecosites: SBO1 SBS1 SBT1 Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicket-like (SBS1), or more closed and treed (SBT1). Tree cover always <60%.	Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. They have little or no soil and the underlying rock protrudes through the surface. Usually located within other types of natural habitat such as forest or savannah. Vegetation can vary from patchy and barren to tree covered but less than 60%.	Any sand barren area, >0.5ha in size. <u>Information Sources</u> · OMNRF Districts. · NHIC has location information on their website · Conservation Authorities	· Confirm any ELC Vegetation Type for Sand Barrens · Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics).	Vegetation community is not present within the subject property and adjacent lands. Not SWH
Alvar					

<u>Rationale:</u> Alvars are rare habitats in Ecoregion 6E. Most alvars in Ontario are in Ecoregion 6E and 7E. Alvars in 6E are small and localized north of the Palaeozoic-Precambrian contact.	ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1 CUW2 Five Alvar Indicator Species: 1) <i>Carex crawei</i> 2) <i>Panicum philadelphicum</i> 3) <i>Eleocharis compressa</i> 4) <i>Scutellaria parvula</i> 5) <i>Trichostema branchiatum</i> These indicator species are very specific to Alvars within Ecoregion 6E	An alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil. The hydrology of alvars is complex, with alternating periods of inundation and drought. Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plant. Vegetation cover varies from patchy to barren with a less than 60% cover.	An Alvar site > 0.5 ha in size. <u>Information Sources</u> · Alvars of Ontario (2000), Federation of Ontario Naturalists. · Ontario Nature – Conserving Great Lakes Alvars. · NHIC · Conservation Authorities	Field studies identify four of the five Alvar indicator species at a Candidate Alvar site is Significant. · Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotics sp.). The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses.	Vegetation community is not present within the subject property or the adjacent lands. Not SWH
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Table 2. Characteristics of Rare Vegetation Communities for Ecoregion 6E (continued)

Rare Vegetation Community	Candidate SWH			Confirmed SWH	Study Area
	ELC Ecosite Codes	Habitat Description	Detailed Information and Sources	Criteria for Consideration	Assessment Details
Old Growth Forest					
<u>Rationale:</u> Due to historic logging practices, extensive old growth forest is rare in the Ecoregion. Interior habitat provided by old growth forests is required by wildlife species.	Forest Community Series: FOD FOC FOM SWD SWC SWM	Old Growth forests are characterized by heavy mortality or turnover of over-storey trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris.	Woodland Stands areas 30ha or greater in size or with at least 10 ha interior habitat assuming 100m buffer at edge of forest. Information Sources . OMNRF Forest Resource Inventory mapping OMNRF Forester, Ecologist or Biologist . Conservation Authorities . Sustainable Forestry License (SFL) companies will possibly know locations through field operations. . Municipal forestry departments	Field Studies will determine: . If dominant trees species of the ecosite are >140 years old, then stand is Significant Wildlife Habitat. . The stand will have experienced no recognizable forestry activities. The area of Forest Ecosites combined to make up the stand is the SWH. . Determine ELC Vegetation Type for forest stand	Vegetation community is not present within the subject property and the adjacent lands. Not SWH
Savannah					
<u>Rationale:</u> Savannahs are rare habitats in Ontario.	TPS1 TPS2 TPW1 TPW2 CUS2	A Savannah is a tallgrass prairie habitat that has tree cover between 25 – 60%.	. No minimum size to site Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. <u>Information Sources</u> . NHIC . OMNRF Ecologists . Conservation Authorities	Field studies confirm one or more of the Savannah indicator species. . Area of the ELC Ecosite is the SWH. . Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics sp.).	Vegetation community is not present within the subject property and the adjacent lands. Not SWH
Tallgrass Prairie					

<u>Rationale:</u> Tallgrass Prairies are rare habitats in Ontario.	TPO1 TPO2	A Tallgrass Prairie has ground cover dominated by prairie grasses. An open Tallgrass Prairie habitat has < 25% tree cover.	. No minimum size to site Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. <u>Information Sources</u> . OMNR Districts . NHIC . Conservation Authorities	Field studies confirm one or more of the Prairie indicators Species. . Area of the ELC Ecosite is the SWH . Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics).	Vegetation community is not present within the subject property and the adjacent lands. Not SWH
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Table 2. Characteristics of Rare Vegetation Communities for Ecoregion 6E (continued)

Rare Vegetation Community	Candidate SWH			Confirmed SWH	Study Area
	ELC Ecosite Codes	Habitat Description	Detailed Information and Sources	Criteria for Consideration	Assessment Details
Other Rare Vegetation Communities					
<u>Rationale:</u> Plant communities that often contain rare species which depend on the habitat for survival.	Provincially Rare S1, S2 and S3 vegetation communities. Any ELC Ecosite Code that has a possible ELC Vegetation Type that is Provincially Rare is Candidate SWH.	Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps.	The OMNR/NHIC will have current listing for vegetation communities. <u>Information Sources</u> . NHIC . OMNRF . Conservation Authorities	Field studies should confirm ELC Vegetation Type. . Area of the ELC Vegetation Type polygon is the SWH.	No other rare vegetation communities are present within the subject property or adjacent lands. Not SWH

Significant Wildlife Habitat Assessment Tables

Table 3. Characteristics of Specialized Wildlife Habitat for Ecoregion 6E

Table of Characteristics of Specialized Wildlife Habitat for Ecoregion 32					
	Wildlife Species	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Criteria for Consideration	Assessment Details
Wildlife Habitat: Waterfowl Nesting Area					
<u>Rationale:</u> Important to local waterfowl populations, sites with greatest number of species and highest number of individuals are significant.	American Black Duck Northern Pintail Northern Shoveler Gadwall Blue-winged Teal Green-winged Teal Wood Duck Hooded Merganser Mallard	All upland habitats located adjacent to these wetland ELC Ecosites are Candidate SWH: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SWT1 SWT2 SWD1 SWD2 SWD3 SWD4 Note: includes lands adjacent to Provincially Significant Wetlands	A waterfowl nesting area extends 120m from a wetland (> 0.5 ha) or a wetland (>0.5ha) and any small wetlands (0.5ha) within 120m or a cluster of 3 or more small (<0.5 ha) wetlands within 120m of each individual wetland where waterfowl nesting is known to occur. Upland areas should be at least 120m wide so that predators such as raccoons, skunks, and foxes have difficulty finding nests. · Wood Ducks and Hooded Mergansers utilize large diameter trees (>40cm dbh) in woodlands for cavity nest sites. <u>Information Sources</u> Ducks Unlimited staff may know the locations of particularly productive nesting sites. · OMNRF Wetland Evaluations for indication of significant waterfowl nesting habitat. · Reports and other information available from CAs	Studies confirmed: · Presence of 3 or more nesting pairs for listed species excluding Mallards, or · Presence of 10 or more nesting pairs for listed species including Mallards. · Any active nesting site of an American Black Duck is considered significant. · Nesting studies should be completed during the spring breeding season (April - June). Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. · A field study confirming waterfowl nesting habitat will determine the boundary of the waterfowl nesting habitat for the SWH, this may be greater or less than 120m from the wetland and will provide enough habitat for waterfowl to successfully nest.	Suitable habitat is not present within the subject property or adjacent lands. Not SWH
Wildlife Habitat: Bald Eagle and Osprey Nesting, Foraging and Perching Habitat					

<u>Rationale:</u> Nest sites are uncommon in Eco-region 6E are used annually by these species.	Osprey <u>Special Concern:</u> Bald Eagle	ELC Forest Community Series: FOD, FOM, FOC, SWD, SWM and SWC directly adjacent to riparian areas – rivers, lakes, ponds and wetlands	· Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water. · Osprey nests are usually at the top a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree's canopy. · Nests located on man-made objects are not to be included as SWH (e.g. telephone poles and constructed nesting platforms). <u>Information Sources</u> · NHIC · MNR will list known nesting locations. · Nature Counts, Ontario Nest Records Scheme data. · OMNR Districts · Sustainable Forestry License (SFL) companies will identify additional nesting locations through field operations. · Ontario Breeding Bird Atlas or Rare Breeding Birds in Ontario for species documented · Reports and other information available from CAs.	Studies confirm the use of these nests by: One or more active Osprey or Bald Eagle nests in an area. · Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the SWH. · For an Osprey, the active nest and a 300m radius around the nest or the contiguous woodland stand is the SWH, maintaining undisturbed shorelines with large trees within this area is Important. · For a Bald Eagle the active nest and a 400-800m radius around the nest is the SWH. Area of the habitat from 400-800m is dependent on site lines from the nest to the development and inclusion of perching and foraging habitat. · To be significant a site must be used annually. When found inactive, the site must be known to be inactive for >3 years or suspected of not being used for >5 years before being considered not Significant. · Observational studies to determine nest site use, perching sites and foraging areas need to be done from mid March to mid August.	Suitable habitat not present onsite or on adjacent lands. There are no watercourses within 120m of the site. Not SWH
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Table 3. Characteristics of Specialized Wildlife Habitat for Ecoregion 6E (continued)

	Wildlife Species	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Criteria for Consideration	Assessment Details
Wildlife Habitat: Woodland Raptor Nesting Habitat					
<u>Rationale:</u> Nests sites for these species are rarely identified. These area-sensitive habitats and are often used annually by these species.	Northern Goshawk Cooper's Hawk Sharp-shinned Hawk Red-shouldered Hawk Barred Owl Broad-winged Hawk	May be found in all forested ELC Ecosites. May also be found in SWC, SWM, SWD and CUP3.	All natural or conifer plantation woodland/forest stands >30ha with >10ha of interior habitat Interior habitat determined with a 200m buffer. Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests within tops or crotches of trees. Species such as Cooper's hawk nest along forest edges sometimes on peninsulas or small off-shore islands. In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest. <u>Information Sources</u> · OMNRF · Ontario Breeding Bird Atlas or Rare Breeding Birds in Ontario. · Bird Studies Canada · Reports and other information available from CAs	Studies confirm: · Presence of 1 or more active nests from species list is considered significant. · Red-shouldered Hawk and Northern Goshawk – a 400m radius around the nest or 28ha area of habitat is the SWH. · Barred Owl – a 200m radius around the nest is the SWH. · Broad-winged Hawk and Coopers Hawk – a 100m radius around the nest is the SWH. Sharp-shinned Hawk – a 50m radius around the nest is the SWH. · Conduct field investigations from mid-March to end of May. The use of call broadcasts can help in locating territorial (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search area.	Suitable habitat is not present within the subject property or adjacent lands. Not SWH
Wildlife Habitat: Turtle Nesting Area					

<u>Rationale:</u> These habitats are rare and when identified will often be the only breeding site for local populations of turtles.	Midland Painted Turtle Special Concern: Northern Map Turtle Snapping Turtle	Exposed mineral soil (sand or gravel) areas adjacent (<100m) or within the following ELC Ecosites: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 BOO1 FEO1	· Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals. · For an area to function as a turtle-nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH. · Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used. <u>Information Sources</u> · Ontario Soil Survey reports and maps to help find suitable substrate for nesting turtles (well-drained sands and fine gravels). · Ontario Herpetofaunal Summary Atlas records or other similar atlases for uncommon turtles; location information may help to find potential nesting habitat for them. · NHIC	Studies confirm: · Presence of 5 or more nesting Midland Painted Turtles · One or more Northern Map Turtle or Snapping Turtle nesting is a SWH. The area or collection of sites within an area of exposed mineral soils where the turtle's nest, plus a radius of 30-100m around the nesting area dependent on slope, riparian vegetation and adjacent land use is the SWH. Travel routes from wetland to nesting area are to be considered within the SWH. Field investigations should be conducted in prime nesting season typically late spring to early summer. Observational studies observing the turtles nesting is a recommended method.	Suitable habitat is not present within the subject property and adjacent lands. Not SWH
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Table 3. Characteristics of Specialized Wildlife Habitat for Ecoregion 6E (continued)

	Wildlife Species	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Criteria for Consideration	Assessment Details
Wildlife Habitat: Seeps and Springs					
<u>Rationale:</u> Seeps/Springs are typical of headwater areas and are often at the source of coldwater streams.	Wild Turkey Ruffed Grouse Spruce Grouse White-tailed Deer Salamander spp.	Seeps/Springs are areas where ground water comes to the surface. Seeps are found within headwater areas within forested habitats. Any forested Ecosite within the headwater areas of a stream could have seeps/springs.	Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream or river system. · Seeps and springs are important feeding and drinking areas especially in the winter will typically support a variety of plant and animal species. <u>Information Sources</u> · Topographical Map Hydrological surveys conducted by CAs and MOE Municipalities and Conservation Authorities may have drainage maps and headwater areas mapped.	Field Studies confirm: · Presence of a site with 2 or more seeps/springs should be considered SWH. · The area of a ELC forest ecosite containing the seeps/springs is the SWH. The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation the habitat.	The site and adjacent lands do not provide seepage areas. Not SWH.
Wildlife Habitat: Amphibian Breeding Habitat (Woodland)					
<u>Rationale:</u> These habitats are important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations.	Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog	All Ecosites associated with these ELC Community Series: FOC FOM FOD SWC SWM SWD Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk	Presence of a wetland, pond or woodland pool (including vernal pools) >500m ² (about 25m diameter) within or adjacent (within 120m) to a woodland (no minimum size). Some small wetlands may not be mapped and may be important breeding pools for amphibians. · Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat. <u>Information Sources</u> · Ontario Herpetofaunal Summary Atlas (or other similar atlases) for records	Studies confirm: · Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog species with Call Level Codes of 3. · A combination of observational study and call count surveys will be required during the spring March-June when amphibians are concentrated around suitable breeding habitat within or near the woodland/wetlands.	No suitable amphibian breeding habitat exists onsite or adjacent lands. Not SWH

		to migrating amphibians.	· OMNRF District · OMNRF wetland evaluations · CWS Amphibian Road Call Survey	· The habitat is the woodland area plus a 230m radius of woodland area. · If a Wetland area is adjacent to a woodland, a travel corridor connecting the wetland to the woodland is the be included in the habitat.	
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Table 3. Characteristics of Specialized Wildlife Habitat for Ecoregion 6E.

	Wildlife Species	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Criteria for Consideration	Assessment Details
Wildlife Habitat: Amphibian Breeding Habitat (Wetland)					
<u>Rationale:</u> These habitats are important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations .	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Tree frog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	ELC Community Classes SW, MA, FE, BO, OA and SA. Typically, these wetland ecosites will be isolated (>120m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (e.g. Bullfrog) may be adjacent to woodlands .	- Wetlands >500m2 (about 25m diameter) supporting high species diversity are significant; some small or ephemeral habitats may not be identified on MNRF mapping and could be important amphibian breeding habitats. - Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators. - Bullfrogs require permanent water bodies with abundant emergent vegetation. <u>Information Sources</u> - Ontario Herpetofaunal Summary Atlas (or other similar atlases) - CWS Amphibian Road Surveys. - OMNRF Districts and wetland evaluations Reports and other information available from CAs.	Studies confirm: - Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog/toad species and with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog/toad species with Call Level Codes of 3. or; Wetland with confirmed breeding Bullfrogs are significant. - The ELC ecosite wetland area and the shoreline are the SWH. - A combination of observational study and call count survey will be required during spring March to June) when amphibians are concentrated around suitable breeding habitat within or near the wetlands. - If a SWH is determined for Amphibian Breeding Habitat (Wetlands) then Movement Corridors are to be considered.	Suitable habitat does not exist onsite or adjacent lands. Not SWH

Woodland Area-Sensitive Bird Breeding Habitat					
<u>Rationale:</u> Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats for area sensitive interior forest song birds.	Yellow-Bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler Ovenbird Scarlet Tanager Winter Wren Special Concern: Cerulean Warbler Canada Warbler	All Ecosites associated with these ELC Community Series: FOC FOM FOD SWC SWM SWD	· Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs old) forest stands or woodlots >30 ha. · Interior forest habitats are at least 200m from forest edge habitat. Information Sources · CWS · Reports and other information available from CAs.	· Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. · Note: any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH. · Conduct field investigations in spring and early summer when birds are singing and defending their territories. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects".	Suitable habitat is not present within the subject property and adjacent lands. Not SWH

Significant Wildlife Habitat Assessment Tables

Table 4. Characteristics of Habitat for Species of Conservation Concern for Ecoregion 6E

Table 4: Characteristics of Habitat for Species of Conservation Concern for Ecoregion 2E					
	Wildlife Species	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Criteria for Consideration	Assessment Details
Wildlife Habitat: Marsh Bird Breeding Habitat					
<u>Rationale:</u> Wetlands for these bird species are typically productive and rare in Southern Ontario landscapes.	American Bittern Virginia Rail Sora Common Gallinule American Coot Pied-billed Grebe Marsh Wren Sedge Wren Common Loon Sandhill Crane Green Heron Trumpeter Swan <u>Special Concern:</u> Black Tern Yellow Rail	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SAS1 SAM1 SAF1 FEO1 BOO1 For Green Heron: All SW, MA and CUM1 sites.	• Nesting occurs in wetlands • All wetland habitat is to be considered if there is shallow water with emergent aquatic vegetation present. • For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently, it may be found in upland shrubs or forest a considerable distance from water. <u>Information Sources</u> • OMNRF (wetland evaluations). • NHIC • Reports and other information available from CAs. • Ontario Breeding Bird Atlas.	Studies confirm: • Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or 1 pair of Sandhill Cranes; or breeding by any combination of 5 or more of the listed species. • Note: any wetland with breeding of 1 or more Black Terns, Trumpeter Swan, Green Heron or Yellow Rail is SWH. Area of the ELC ecosite is the SWH • Breeding surveys should be done in May/June when these species are actively nesting in wetland habitats. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”.	Suitable habitat is not present within the subject property and adjacent lands. Not SWH
Wildlife Habitat: Open Country Bird Breeding Habitat					
<u>Rationale:</u> This wildlife habitat is declining throughout Ontario and North America. Species such as the Upland Sandpiper have declined the past 40 years based on CWS (2004) trend records.	Upland Sandpiper Grasshopper Sparrow Vesper Sparrow Northern Harrier Savannah Sparrow <u>Special Concern:</u> Short-eared Owl	CUM1 CUM2	Large grassland areas (includes natural and cultural fields and meadows) >30 ha. Grasslands not cultivated agricultural lands, and not being actively used for farming (i.e., no row cropping or intensive hay or livestock pasturing in the last 5 years). Grassland sites considered significant should have a history of longevity, either abandoned fields, mature hayfields and pasturelands that are at least 5 years or older.	Field Studies confirm: • Presence of nesting or breeding of 2 or more of the listed species. • A field with 1 or more breeding Short-eared Owl is to be considered SWH. • The area of SWH is the contiguous ELC ecosite field areas. Conduct field investigations of the most likely areas in spring and early summer when birds	Suitable habitat is not present onsite or adjacent lands. Not SWH

		The Indicator bird species are area sensitive requiring larger grassland areas than the common grassland species. <u>Information Sources</u> · Agricultural land classification maps, OMAFRA. · Ontario Breeding Bird Atlas. · Reports and other information available from CAs.	are singing and defending their territories. · Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects".	
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Table 4. Characteristics of Habitat for Species of Conservation Concern for Ecoregion 6E.

Wildlife Species		Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Criteria for Consideration	Assessment Details
Wildlife Habitat: Shrub/Early Successional Bird Breeding Habitat					
<u>Rationale:</u> This wildlife habitat is declining throughout Ontario and North America. The Brown Thrasher has declined over the past 40 years based on CWS (2004) trend records.	<u>Indicator spp.:</u> Brown Thrasher Clay-coloured Sparrow <u>Common spp.:</u> Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher <u>Special Concern:</u> Yellow-breasted Chat Golden-winged Warbler	CUT1 CUT2 CUS1 CUS2 CUW1 CUW2 Patches of shrub ecosites can be complexed into a larger habitat for some bird species.	Large field areas succeeding to shrub and thicket habitats >10ha in size. • Shrub land or early successional fields, not cultivated agricultural lands, not being actively used for farming (i.e., no row-cropping, haying or live-stock pasturing in the last 5 years). Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species. Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands. <u>Information Sources</u> • Agricultural land classification maps, OMAFRA • Ontario Breeding Bird Atlas • Reports and other information available from CAs	Field Studies confirm: • Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species. • A field with breeding Yellow-breasted Chat or Golden-winged Warbler is to be considered as Significant Wildlife Habitat. • The area of the SWH is the contiguous ELC ecosite field/thicket area. Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"	Suitable habitat is not present on the subject property and adjacent lands. Not SWH
Wildlife Habitat: Terrestrial Crayfish					
<u>Rationale:</u> Terrestrial Crayfish are only found within SW Ontario in Canada and their habitats are very rare.	Chimney or Digger Crayfish: (<i>Fallicambarus fodiens</i>) Devil Crawfish or Meadow Crayfish: (<i>Cambarus Diogenes</i>)	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SWD SWT SWM	Wet meadow and edges of shallow marshes (no minimum size) identified should be surveyed for terrestrial crayfish. • Constructs burrows in marshes, mudflats, meadows, the ground can't be too moist. Can often be found far from water. • Both species are a semi-terrestrial burrower which spends most of its life within burrows consisting of a network of tunnels. Usually the soil is not too moist so that the tunnel is well formed. Information Sources	Studies Confirm: • Presence of 1 or more individuals of species listed or their burrows in suitable marsh meadow or terrestrial site. • Area of ELC Ecosite. Surveys should be done April to August during in temporary or permanent water Note the presence of burrows or chemistry are often the only indicator of presence, observance or collection of individuals is very difficult.	Suitable habitat is not present on the subject property and adjacent lands. Not SWH

			• Information sources from reports such as: "Conservation Status of Freshwater Crayfishes".		
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Table 4. Characteristics of Habitat for Species of Conservation Concern for Ecoregion 6E (continued)

Table 4: Characteristics of Habitat for Species of Conservation Concern for Ecoregion 42 (continued)					
	Wildlife Species	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Criteria for Consideration	Assessment Details
Wildlife Habitat: Special Concern and Rare Wildlife Species					
<u>Rationale:</u> These species are rare or have experienced population declines in Ontario.	All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species. Lists of these species are tracked by the NHIC.	All plant and animal element occurrences (EO) within a 1 or 10km grid. Older element occurrences were recorded prior to GPS being available, therefore location information may lack accuracy.	When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or provincially Rare species; linking candidate habitat on the site needs to be completed to ELC Ecosite. <u>Information Sources</u> · NHIC (Special Concern and Provincially Rare, S1-S3, SH) species lists with element occurrences data. · NHIC. · Ontario Breeding Bird Atlas.	Studies Confirm: · Assessment/inventory of the site for the identified special concern or rare species needs to be completed during the time of year when the species is present or easily identifiable. · The area of the habitat to the finest ELC scale that protects the habitat form and function is the SWH, this must be delineated through detailed field studies. The habitat needs to be mapped and cover an important life stage component for a species e.g., specific nesting habitat or foraging habitat.	No species of special concern or provincially rare species (S1-S3) found onsite. Not SWH.

Significant Wildlife Habitat Assessment Tables

Table 5. Characteristics of Animal Movement Corridors for Ecoregion 6E

	Wildlife Species	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Criteria for Consideration	Assessment Details
Wildlife Habitat: Amphibian Movement Corridors					
Rationale: Movement corridors for amphibians moving from their terrestrial habitat to breeding habitat can be important for local populations.	Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	Corridors may be found in all ecosites associated with water. • Corridors will be determined based on identifying the significant breeding habitat for these species.	Movement corridors between breeding habitat and summer habitat. Movement corridors must be determined when Amphibian breeding habitat is confirmed as SWH . <u>Information Sources</u> • MNRF District Office • NHIC • Reports and other information available from CAs	Field Studies to be conducted at the time of year when species are expected to be migrating or entering breeding sites. • Corridors should consist of native vegetation, with several layers of vegetation. Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant. Corridors should have at least 15m of vegetation on both sides of waterway or be up to 200m wide of woodland habitat and with gaps <20m. • Shorter corridors are more significant than longer corridors, however, amphibians must be able to get to and from their summer and breeding habitat.	No suitable habitat onsite or adjacent lands Not SWH.

Wildlife Habitat: Deer Movement Corridors					
<u>Rationale:</u> Corridors important for all species to be able to access seasonally important life-cycle habitats or to access new habitat for dispersing individuals by minimizing their vulnerability while travelling.	White-tailed Deer	Corridors may be found in all forested ecosites.	Movement corridor must be determined when Deer Wintering Habitat is confirmed as SWH. A deer wintering habitat identified by the OMNRF will have corridors that the deer use during fall migration and spring dispersion. • Corridors typically follow riparian areas, woodlots, areas of physical geography (ravines, or ridges). <u>Information Sources</u> • MNRF District Office • NHIC • Reports and other information available from CAs	Studies to be conducted at the time of year when deer are migrating or moving to and from winter concentration areas. • Corridors that lead to a deer wintering yard should be unbroken by roads and residential areas. • Corridors should be at least 200m wide with gaps <20m.	Not SWH

Appendix D: Species at Risk Screening

Taxon	Common Name	Scientific Name	Endangered Species Act¹	Species at Risk Act (Sch 1)²	COSEWIC³	Provincial (SRank)⁴	Habitat Requirements⁵	Potential to Occur on Site or in the Study Area	Rationale for Potential to Occur on Site or in the Study Area
Amphibian	Jefferson salamander	Ambystoma jeffersonianum	END	END	END	S2	In Ontario, Jefferson salamander is found only in southern Ontario, along southern portions of the Niagara Escarpment and western portions of the Oak Ridges Moraine. Jefferson salamander prefers moist, well-drained deciduous and mixed forests with a closed canopy. It overwinters underground in mammal burrows and rock fissures, and moves to vernal pools and ephemeral wetlands in the early spring to breed. Breeding ponds are typically located in or near to forested habitats, and contain submerged debris (i.e., sticks, vegetation) for egg attachment sites. Ephemeral breeding pools need to have water until at least mid-summer (mid to late July) (Jefferson Salamander Recovery Team 2010).	None	There is no potential habitat onsite or adjacent lands.
Amphibian	Jefferson X Blue-spotted salamander, Jefferson genome dominates	Ambystoma hybrid pop. 1	—	—	—	S2	In Ontario, Jefferson x blue-spotted salamander prefers moist, well-drained deciduous and mixed forests with a closed canopy. It overwinters underground in mammal burrows and rock fissures, and moves to vernal pools and ephemeral wetlands in the early spring to breed. Breeding ponds are typically located in or near to forested habitats, and contain submerged debris (i.e., sticks, vegetation) for egg attachment sites. Ephemeral breeding pools need to have water until at least mid-summer (mid to late July) (Jefferson Salamander Recovery Team 2010).	None	There is no potential habitat onsite or adjacent lands.

Amphibian	Western chorus frog - Great Lakes St. Lawrence / Canadian Shield population	<i>Pseudacris triseriata</i>	—	THR	THR	S3	In Ontario, habitat of this amphibian species typically consists of marshes or wooded wetlands, particularly those with dense shrub layers and grasses, as this species is a poor climber. They will breed in almost any fishless pond including roadside ditches, gravel pits and flooded swales in meadows. This species hibernates in terrestrial habitats under rocks, dead trees or leaves, in loose soil or in animal burrows. During hibernation, this species is tolerant of flooding (Environment Canada 2015).	None	There is no potential habitat onsite or adjacent lands.
Arthropod	Black dash	<i>Euphyes conspicua</i>	—	—	—	S3	This small skipper primarily inhabits large graminoid meadow marshes, but can also be found in open areas along small streams. The main larval host is tussock sedge (<i>Carex stricta</i>) (Layberry et al. 1998).	None	There is no potential habitat onsite or adjacent lands.
Arthropod	Monarch	<i>Danaus plexippus</i>	SC	SC	END	S2N, S4B	In Ontario, monarch is found throughout the northern and southern regions of the province. This butterfly is found wherever there are milkweed (<i>Asclepias</i> spp.) plants for its caterpillars and wildflowers that supply a nectar source for adults. It is often found on abandoned farmland, meadows, open wetlands, prairies and roadsides, but also in city gardens and parks. Important staging areas during migration occur along the north shores of the Great Lakes (COSEWIC 2010).	None	No Monarchs were observed onsite during the survey.

Arthropod	Rusty-patched bumble bee	<i>Bombus affinis</i>	END	END	END	S1	In Ontario, rusty-patched bumble bee is found in areas from the southern Great Lakes – St. Lawrence forest region southwards into the Carolinian forest. It is a habitat generalist, but it is typically found in open habitats, such as mixed farmland, savannah, marshes, sand dunes, urban and lightly wooded areas. It is cold-tolerant and can be found at high elevations. Most recent sightings in Ontario have been in oak savannah habitat with well-drained, sandy soils and moderately open canopy. It requires an abundance of flowering plants for forage. This species most often builds nests underground in old rodent burrows, but also in hollow tree stumps and fallen dead wood (Colla and Taylor-Pindar 2011). The only recent sightings in Ontario are from the Pinery Provincial Park.	None	This species is only known to occur within Pinery Provincial Park in southwestern Ontario.
Arthropod	West Virginia white	<i>Pieris virginiensis</i>	SC	—	—	S3	In Ontario, west Virginia white is found primarily in the central and southern regions of the province. This butterfly lives in moist, mature, deciduous and mixed woodlands, and the caterpillars feed only on the leaves of toothwort (<i>Cardamine</i> spp.), which are small, spring-blooming plants of the forest floor. These woodland habitats are typically maple-beech-birch dominated. This species is associated with woodlands growing on calcareous bedrock or thin soils over bedrock (Burke 2013).	None	There were no toothwort host plants observed on the site or in the study area. In addition, this species has only been historically recorded in the region (Jones et al. 2019).
Arthropod	Yellow-banded bumble bee	<i>Bombus terricola</i>	SC	SC	SC	S2	This species is a forage and habitat generalist. Mixed woodlands are commonly used for nesting and overwintering, but it also occupies various open habitats including native grasslands, farmlands and urban areas. It is an early emerging species, making it likely an important pollinator of early blooming wild flowering plants (e.g., wild blueberry) and agricultural	None	Field edges and roadsides on the site and in the study area may provide suitable foraging habitat. The forests offsite (beyond 120 m) of the study area may also provide habitat for nesting and overwintering.

							crops (e.g., apple). Nest sites are mostly abandoned rodent burrows (COSEWIC 2015).		
Bird	Bald eagle	Haliaeetus leucocephalus	SC	—	NAR	S2N, S4B	In Ontario, bald eagle nests are typically found near the shorelines of lakes or large rivers, often on forested islands. The large, conspicuous nests are typically found in large super-canopy trees along water bodies (Buehler 2000).	None	There are no lakes or large rivers on the site to provide suitable habitat for this species. In addition, no individuals were observed during field surveys.
Bird	Bank swallow	Riparia riparia	THR	THR	THR	S4B	In Ontario, bank swallow breeds in a variety of natural and anthropogenic habitats, including lake bluffs, stream and river banks, sand and gravel pits, and roadcuts. Nests are generally built in a vertical or near-vertical bank. Breeding sites are typically located near open foraging sites such as rivers, lakes, grasslands, agricultural fields, wetlands and riparian woods. Forested areas are generally avoided (Garrison 1999).	None	There is no potential habitat onsite.
Bird	Barn swallow	Hirundo rustica	SC	THR	SC	S4B	In Ontario, barn swallow breeds in areas that contain a suitable nesting structure, open areas for foraging, and a body of water. This species nests in human made structures including barns, buildings, sheds, bridges, and culverts. Preferred foraging habitat includes grassy fields, pastures, agricultural cropland, lake and river shorelines, cleared right-of-ways, and wetlands (COSEWIC 2011). Mud nests are fastened to vertical walls or built on a ledge underneath an overhang. Suitable nests from previous years are reused (Brown and Brown 1999).	None Onsite. Potential on offsite lands.	No onsite habitat. Offsite lands has wooden barns and these structures may be provide suitable habitat.

Bird	Black tern	Chlidonias niger	SC	—	NAR	S3B	In Ontario, black tern breeds in freshwater marshlands where it forms small colonies. It prefers marshes or marsh complexes greater than 20 ha in area and which are not surrounded by wooded area. Black terns are sensitive to the presence of agricultural activities. The black tern nests in wetlands with an even combination of open water and emergent vegetation, and still waters of 0.5-1.2 m deep. Preferred nest sites have short dense vegetation or tall sparse vegetation often consisting of cattails, bulrushes and occasionally burreed or other marshland plants. Black terns also require posts or snags for perching (Weseloh 2007).	None	There are no suitable marshes on the site or in the study area.
Bird	Bobolink	Dolichonyx oryzivorus	THR	THR	THR	S4B	In Ontario, bobolink breeds in grasslands or graminoid dominated hayfields with tall vegetation (Gabhauer 2007). Bobolink prefers grassland habitat with a forb component and a moderate litter layer. They have low tolerance for presence of woody vegetation and are sensitive to frequent mowing within the breeding season. They are most abundant in established, but regularly maintained, hayfields, but also breed in lightly grazed pastures, old or fallow fields, cultural meadows and newly planted hayfields. Their nest is woven from grasses and forbs. It is built on the ground, in dense vegetation, usually under the cover of one or more forbs (Renfrew et al. 2015).	None onsite. Potential on offsite lands.	No bobolink were observed during the 2025 survey. There is potential suitable nesting habitat on adjacent lands to the site.

Bird	Canada warbler	Cardellina canadensis	SC	THR	SC	S4B	In Ontario, breeding habitat for Canada warbler consists of moist mixed forests with a well-developed shrubby understory. This includes low-lying areas such as cedar and alder swamps, and riparian thickets (McLaren 2007). It is also found in densely vegetated regenerating forest openings. Suitable habitat often contains a developed moss layer and an uneven forest floor. Nests are well concealed on or near the ground in dense shrub or fern cover, often in stumps, fallen logs, overhanging stream banks or mossy hummocks (Reitsma et al. 2010).	None	No suitable habitat onsite. No individuals were observed during field surveys.
Bird	Eastern meadowlark	Sturnella magna	THR	THR	THR	S4B	In Ontario, eastern meadowlark breeds in pastures, hayfields, meadows and old fields. Eastern meadowlark prefers moderately tall grasslands with abundant litter cover, high grass proportion, and a forb component (Hull 2003). They prefer well drained sites or slopes, and sites with different cover layers (Roseberry and Klimstra 1970).	None onsite. Potential on offsite lands.	No Eastern meadowlark were observed during the 2025 survey. There is potential suitable nesting habitat on adjacent lands to the site.
Bird	Eastern wood-pewee	Contopus virens	SC* (note: the ESA was replaced by Species Conservation Act: Eastern Wood Pewee is not listed in the SCA O. Reg. 60/26).	SC	SC	S4B	In Ontario, eastern wood-pewee inhabits a wide variety of wooded upland and lowland habitats, including deciduous, coniferous, or mixed forests. It occurs most frequently in forests with some degree of openness. Intermediate-aged forests with a relatively sparse midstory are preferred. In younger forests with a relatively dense midstory, it tends to inhabit the edges. Also occurs in anthropogenic habitats providing an open forested aspect such as parks and suburban neighborhoods. Nest is constructed atop a horizontal branch, 1-2 m above the ground, in a wide variety of deciduous and coniferous trees (COSEWIC 2012).	Yes.	There is potential habitat onsite. A single bird was inventoried at the edge of the plantation during breeding bird window.

Bird	Golden-winged warbler	Vermivora chrysoptera	SC	THR	THR	S4B	In Ontario, golden-winged warbler breeds in regenerating scrub habitat with dense ground cover and a patchwork of shrubs, usually surrounded by forest. Their preferred habitat is characteristic of a successional landscape associated with natural or anthropogenic disturbance such as rights-of-way, and field edges or openings resulting from logging or burning. The nest of the golden-winged warbler is built on the ground at the base of a shrub or leafy plant, often at the shaded edge of the forest or at the edge of a forest opening (Confer et al. 2011).	None	Site is an agricultural field. No suitable habitat onsite. None inventoried onsite.
Bird	Grasshopper sparrow pratensis subspecies	Ammodramus savannarum (pratensis subspecies)	SC	SC	SC	S4B	In Ontario, grasshopper sparrow is found in medium to large grasslands with low herbaceous cover and few shrubs. It also uses a wide variety of agricultural fields, including cereal crops and pastures. Close-grazed pastures and limestone plains (e.g., Carden and Napanee Plains) support highest density of this bird in the province (COSEWIC 2013).	None	Site is a small agricultural field. No suitable habitat onsite.
Bird	Henslow's sparrow	Ammodramus henslowii	END	END	END	SHB	In Ontario, Henslow's sparrow breeds in large grasslands with low disturbance, such as lightly grazed and ungrazed pastures, fallow hayfields, grassy swales in open farmland, and wet meadows. Preferred habitat contains tall, dense grass cover, usually over 30 cm high, with a high percentage of ground cover, and a thick mat of dead plant material. Henslow's sparrow generally avoids areas with emergent woody shrubs or trees, and fence lines. Areas of standing water or ephemerally wet patches appear to be important. This species breeds more frequently in patches of habitat greater than 30 ha and preferably greater than 100 ha (COSEWIC 2011).	None	Site is a small agricultural field. No suitable habitat onsite.

Bird	Red-headed woodpecker	Melanerpes erythrocephalus	END	END	END	S4B	In Ontario, red-headed woodpecker breeds in open, deciduous woodlands or woodland edges and are often found in parks, cemeteries, golf courses, orchards and savannahs (Woodliffe 2007). They may also breed in forest clearings or open agricultural areas provided that large trees are available for nesting. They prefer forests with little or no understory vegetation. They are often associated with beech or oak forests, beaver ponds and swamp forests where snags are numerous. Nests are excavated in the trunks of large dead trees (Smith et al. 2000).	Potential exists but none inventoried.	Site is an agricultural field. Potential habitat onsite in the plantation. None inventoried.
Bird	Wood thrush	Hylocichla mustelina	SC	THR	THR	S4B	In Ontario, wood thrush breeds in moist, deciduous hardwood or mixed stands that are often previously disturbed, with a dense deciduous undergrowth and with tall trees for singing perches. This species selects nesting sites with the following characteristics: lower elevations with trees less than 16 m in height, a closed canopy cover (>70 %), a high variety of deciduous tree species, moderate subcanopy and shrub density, shade, fairly open forest floor, moist soil, and decaying leaf litter (COSEWIC 2012).	None	Site is an agricultural field. No suitable habitat onsite.
Mammal	Eastern small-footed myotis	Myotis leibii	END	—	—	S2S3	This species is not known to roost within trees, but there is very little known about its roosting habits. The species generally roosts on the ground under rocks, in rock crevices, talus slopes and rock piles. It occasionally inhabits buildings. Areas near the entrances of caves or abandoned mines may be used for hibernaculum, where the conditions are drafty with low humidity, and may be subfreezing (Humphrey 2017).	None	Site is an agricultural field. No suitable habitat onsite. Potential habitat on offsite lands.

Mammal	Gray fox	<i>Urocyon cinereoargenteus</i>	THR	THR	THR	S1	While the Ontario range of this species extends across much of southern and southeastern Ontario, the only known population in the province is on Pelee Island, with very rare sightings elsewhere in the province at points close to the border with the United States. This species inhabits deciduous forests and marshes and will den in a variety of features including rock outcroppings, hollow trees, burrows or brush piles, usually where dense brush provides cover and in close proximity to water. This species is considered a habitat generalist (COSEWIC 2015).	None	This species is currently only known to occur on Pelee Island.
Mammal	Little brown myotis	<i>Myotis lucifugus</i>	END	END	END	S3	In Ontario, this species' range is extensive and covers much of the province. It will roost in both natural and man-made structures. Roosting colonies require a number of large dead trees, in specific stages of decay and that project above the canopy in relatively open areas. May form nursery colonies in the attics of buildings within 1 km of water. Caves or abandoned mines may be used as hibernacula, but high humidity and stable above freezing temperatures are required (ECCC 2018).	None	Site mainly consists of an agricultural field. Onsite snags to be investigated to determine if suitable habitat.
Mammal	Northern myotis	<i>Myotis septentrionalis</i>	END	END	END	S3	In Ontario, this species' range is extensive and covers much of the province. It will usually roost in hollows, crevices, and under loose bark of mature trees. Roosts may be established in the main trunk or a large branch of either living or dead trees. Caves or abandoned mines may be used as hibernacula, but high humidity and stable above freezing temperatures are required (ECCC 2018).	None	Site mainly consists of an agricultural field. Onsite snags to be investigated to determine if suitable habitat.

Mammal	Tri-colored bat	Perimyotis subflavus	END	END	END	S3?	In Ontario, tri-colored bat may roost in foliage, in clumps of old leaves, hanging moss or squirrel nests. They are occasionally found in buildings although there are no records of this in Canada. They typically feed over aquatic areas with an affinity to large-bodied water and will likely roost in close proximity to these. Hibernation sites are found deep within caves or mines in areas of relatively warm temperatures. These bats have strong roost fidelity to their winter hibernation sites and may choose the exact same spot in a cave or mine from year to year (ECCC 2018).	None	Site mainly consists of an agricultural field. Onsite snags to be investigated to determine if suitable habitat.
Mammal	Woodland vole	Microtus pinetorum	SC	SC	SC	S3?	In Ontario, woodland vole is associated with mature deciduous forests with soft, often sandy soils and a deep litter and humic layer, suitable for burrowing. Common associates include oaks, hickory, black walnut, American beech and tulip tree. This species is often found at woodland edges near roads, railway tracks and field edges. Woodland vole is restricted to the Carolinian forest zone (COSEWIC 2010).	None	There is no potential habitat onsite.
Reptile	Blanding's turtle - Great Lakes / St. Lawrence / Lawrence population	Emydoidea blandingii	THR	END	END	S3	In Ontario, Blanding's turtle will use a range of aquatic habitats, but favor those with shallow, standing or slow-moving water, rich nutrient levels, organic substrates and abundant aquatic vegetation. They will use rivers, but prefer slow-moving currents and are likely only transients in this type of habitat. This species is known to travel great distances over land in the spring in order to reach nesting sites, which can include dry conifer or mixed forests, partially vegetated fields, and roadsides. Suitable nesting substrates include organic soils, sands, gravel and cobble. They hibernate underwater and	None	There is no potential habitat onsite.

							infrequently under debris close to water bodies (COSEWIC 2016).		
Reptile	Eastern ribbonsnake - Great Lakes population	Thamnophis sauritus	SC	SC	SC	S4	In Ontario, eastern ribbonsnake is semi-aquatic, and is rarely found far from shallow ponds, marshes, bogs, streams or swamps bordered by dense vegetation. They prefer sunny locations and bask in low shrub branches. Hibernation occurs in mammal burrows, rock fissures or even ant mounds (COSEWIC 2012).	None	There is no potential habitat onsite.
Reptile	Midland painted turtle	Chrysemys picta marginata	—	SC	SC	S4	In Ontario, painted turtles use waterbodies, such as ponds, marshes, lakes and slow-moving creeks, with a soft bottom and abundant basking sites and aquatic vegetation. This species hibernates on the bottom of waterbodies (Ontario Nature 2018).	Possible	There is potential suitable habitat onsite.
Reptile	Milksnake	Lampropeltis triangulum	NAR	SC	SC	S4	In Ontario, milksnake uses a wide range of habitats including prairies, pastures, hayfields, wetlands and various forest types, and is well-known in rural areas where it frequents older buildings. Proximity to water and cover enhances habitat suitability. Hibernation takes place in mammal burrows, hollow logs, gravel or soil banks, and old foundations (COSEWIC 2014).	None	There is no potential habitat onsite.

Reptile	Northern map turtle	Graptemys geographica	SC	SC	SC	S3	In Ontario, the northern map turtle prefers large waterbodies with slow-moving currents, soft substrates, and abundant aquatic vegetation. Ideal stretches of shoreline contain suitable basking sites, such as rocks and logs. Along Lakes Erie and Ontario, this species occurs in marsh habitat and undeveloped shorelines. It is also found in small to large rivers with slow to moderate flow. Hibernation takes place in soft substrates under deep water (COSEWIC 2012).	None	There is no potential habitat onsite.
Reptile	Snapping turtle	Chelydra serpentina	SC	SC	SC	S4	In Ontario, snapping turtle uses a wide range of waterbodies, but shows preference for areas with shallow, slow-moving water, soft substrates and dense aquatic vegetation. Hibernation takes place in soft substrates under water. Nesting sites consist of sand or gravel banks along waterways or roadways (COSEWIC 2008).	Yes	Site is an agricultural field. There is no potential habitat onsite.
Vascular Plant	American chestnut	Castanea dentata	END	END	END	S1S2	In Ontario, American chestnut occurs in mixed or deciduous forests in the Carolinian zone (Farrar 1995). It is often found in communities with dense canopy cover and often associated with oak and maple. This tree grows primarily on acidic, sand or gravel soils (Boland et al. 2012).	None	No American Chestnut trees onsite.
Vascular Plant	American ginseng	Panax quinquefolius	END	END	END	S2	In Ontario, American ginseng is found in moist, undisturbed and relatively mature deciduous woods often dominated by sugar maple. It is commonly found on well-drained, south-facing slopes. American ginseng grows under closed canopies in well-drained soils of glaciary origin that have a neutral pH (ECCC 2018).	None	There is no potential habitat onsite.

Vascular Plant	American hart's-tongue fern	Asplenium scolopendrium	SC	SC	SC	S3	In Ontario, hart's-tongue fern grows on thin calcareous soils on or near dolomitic limestone of the Niagara Escarpment, and occasionally on open talus/scree slopes. Most populations are found on steep, moderately moist slopes that face north to northeast and are under a hardwood canopy cover (Environment Canada 2013).	None	There is no potential habitat onsite.
Vascular Plant	Black ash	Fraxinus nigra	END (temporary suspension of protection until Jan 2024)	—	THR	S3	Found throughout Ontario in moist ecosystems; commonly found in northern swampy woodlands (MNRF 2018). This species is commonly associated on mucky or peaty soils and is considered a facultative wetland species (Reznicek et al. 2011).	None	There is no potential habitat onsite.
Vascular Plant	Butternut	Juglans cinerea	END	END	END	S2?	In Ontario, butternut is found along stream banks, on wooded valley slopes, and in deciduous and mixed forests. It is commonly associated with beech, maple, oak and hickory (Voss and Reznicek 2012). Butternut prefers moist, fertile, well-drained soils, but can also be found in rocky limestone soils. This species is shade intolerant (Farrar 1995).	Yes	A Butternut tree was identified onsite. A Butternut Assessment was completed.
Vascular Plant	False hop sedge	Carex lupuliformis	END	END	END	S1	In Ontario, false hop sedge occurs in marshes, riverine swamps, borders of vernal pools, and wet depressions of forests. It occasionally occurs in shallow water or very wet floodplain forests. Usually grows under a moderately open canopy but can tolerate high levels of sunshine. Substrates are calcareous or neutral and include moist wet mucks, silt loams, or alluvial deposits with a sandy texture (Environment Canada 2014).	None	There is no potential habitat onsite.
Vascular Plant	Ram's-head lady's-slipper	Cypripedium arietinum	—	—	—	S3	Ram's-head lady's-slipper can be found in moist coniferous swamps, dry sandy woods and limestone barrens (Oldham and Brinker 2009).	None	There is no potential habitat onsite.

Appendix E: NHIC Data

OGF ID	Element Type	Common Name	Scientific Name	SRank	SARO Status	COSEWIC Status	Last Observation Date	ATLAS NAD83 IDENT COMMENTS
967404	SPECIES	Eastern Wood-pewee	Contopus virens	S4B	SC	SC	2017-06-16	17NJ6720
967404	SPECIES	Barn Swallow	Hirundo rustica	S4B	SC	SC	2018-06-25	17NJ6720
967404	SPECIES	Wood Thrush	Hylocichla mustelina	S4B	SC	THR	2004-06-15	17NJ6720
967404	SPECIES	Grasshopper Sparrow	Ammodramus savannarum	S4B	SC	SC	2017-06-14	17NJ6720
967404	SPECIES	Bobolink	Dolichonyx oryzivorus	S4B	THR	SC	2020-05-30	17NJ6720
967404	SPECIES	Eastern Meadowlark	Sturnella magna	S4B,S3N	THR	THR	2020-05-30	17NJ6720
967404	SPECIES	Midland Painted Turtle	Chrysemys picta marginata	S4		SC	1981-09-21	17NJ6720
967404	SPECIES	American Burying Beetle	Nicrophorus americanus	SH	EXP	EXP	1930-09-01	17NJ6720
967404	SPECIES	Eastern Ribbonsnake	Thamnophis saurita	S4	SC	SC	1990-04-25	17NJ6720
967404	SPECIES	Transverse Lady Beetle	Coccinella transversoguttata	S1	END	SC	1987-09-04	17NJ6720
967404	SPECIES	Rusty-patched Bumble Bee	Bombus affinis	S1	END	END	1993-05-06	17NJ6720
967404	SPECIES	Yellow-banded Bumble Bee	Bombus terricola	S3S5	SC	SC	2018-07-30	17NJ6720
967404	SPECIES	American Bumble Bee	Bombus pensylvanicus	S3	SC	SC	2019-06-08	17NJ6720
967404	SPECIES	Gypsy Cuckoo Bumble Bee	Bombus bohemicus	S1S2	END	END	1986-08-13	17NJ6720

OGF ID	Element Type	Common Name	Scientific Name	SRank	SARO Status	COSEWIC Status	Last Observation Date	ATLAS NAD83 IDENT COMMENTS
967405	SPECIES	Black Ash	Fraxinus nigra	S4	END	THR	2022-06-15	17NJ6721
967405	SPECIES	Eastern Wood-pewee	Contopus virens	S4B	SC	SC	2014-07-18	17NJ6721
967405	SPECIES	Barn Swallow	Hirundo rustica	S4B	SC	SC	2018-06-25	17NJ6721
967405	SPECIES	Wood Thrush	Hylocichla mustelina	S4B	SC	THR	2013-06-01	17NJ6721
967405	SPECIES	Grasshopper Sparrow	Ammodramus savannarum	S4B	SC	SC	2022-05-25	17NJ6721
967405	SPECIES	Bobolink	Dolichonyx oryzivorus	S4B	THR	SC	2022-06-15	17NJ6721
967405	SPECIES	Eastern Meadowlark	Sturnella magna	S4B,S3N	THR	THR	2020-06-17	17NJ6721
967405	SPECIES	Snapping Turtle	Chelydra serpentina	S4	SC	SC	2011-06-09	17NJ6721
967405	SPECIES	American Burying Beetle	Nicrophorus americanus	SH	EXP	EXP	1930-09-01	17NJ6721

OGF ID	Element Type	Common Name	Scientific Name	SRank	SARO Status	COSEWIC Status	Last Observation Date	ATLAS NAD83 IDENT COMMENTS
967414	SPECIES	Black Ash	Fraxinus nigra	S4	END	THR	2021-08-31	17NJ6820
967414	SPECIES	Eastern Wood-pewee	Contopus virens	S4B	SC	SC	2022-06-30	17NJ6820
967414	SPECIES	Barn Swallow	Hirundo rustica	S4B	SC	SC	2018-06-25	17NJ6820
967414	SPECIES	Wood Thrush	Hylocichla mustelina	S4B	SC	THR	2022-06-30	17NJ6820
967414	SPECIES	Henslow's Sparrow	Centronyx henslowii	S1B	END	END	1988-06-12	17NJ6820
967414	SPECIES	Midland Painted Turtle	Chrysemys picta marginata	S4		SC	2021-05-26	17NJ6820
967414	SPECIES	American Burying Beetle	Nicrophorus americanus	SH	EXP	EXP	1930-09-01	17NJ6820

Appendix F: Good Forestry Permit Application
GOOD FORESTRY PERMIT APPLICATION
THE CORPORATION OF THE COUNTY OF WELLINGTON
PURSUANT TO FOREST CONSERVATION BY-LAW NO. 5115-09

THIS PERMIT APPLICATION TO BE COMPLETED, SIGNED BY ALL APPROPRIATE INDIVIDUALS AND DELIVERED TO THE OFFICE OF THE FOREST CONSERVATION BY-LAW OFFICER, COUNTY OF WELLINGTON BEFORE THE PERMIT APPLICATION WILL BE CONSIDERED. PROVIDE AT LEAST 14 DAYS BEFORE A PERMIT MAY BE ISSUED.

Fill in or Circle the appropriate information. The County may also require additional documentation.

Property Owner:

Telephone:
Mailing Address:

Civic Address:

Fax:

Email:

Postal Code:

Date of Purchase of Property:

Information on Property where trees are to be harvested:

Civic Address (number & road name) of property:

Legal Description of property: Lot _____ Concession _____ Township _____
Area of Property (acres): _____ Forest Area on Property: _____ Forest area to be cut: _____

Is this woodland enrolled in the Managed Forest Tax Incentive Program? Yes No
Is this woodland enrolled in the Conservation Land Tax Incentive Program? Yes No

FORESTER INFORMATION:

Company: ARBORLAND FORESTRY CONSULTING

Name & OPFA # BRUCE ZAVITZ #2084

Address: PO BOX 460 ST. GEORGE ON
NOEINO

Tel: 519.732.2814 Fax: -

The Forester was employed by: Landowner

The Tree Marker was employed by: Landowner

Has the marking been audited by the Forester? Yes No

Will the Forester or Tree Marker be monitoring the harvest for contract compliance? Yes No

TREE MARKER INFORMATION:

Name & Company: _____

Qualifications: _____

Address: _____

Tel: _____ Fax: _____

Contractor Other

Contractor Other

Yes No



CONTRACTOR INFORMATION:

Name & Company: _____

Address: _____

Tel: _____ Fax: _____

A SILVICULTURAL PRESCRIPTION IS REQUIRED FOR EACH STAND

STAND 1: Forest Type Upland Lowland **Species:** Hardwood Mixed Cedar Plantation
(Circle one) (Circle one)

Purpose of cutting: Harvest mostly large/mature trees
(Circle one)

Improvement - thin mostly smaller trees for firewood and logs

Combination - thin a mixture of larger and smaller trees,

Initial Basal Area (BA): _____ Units (Circle one) ft²/acre m²/hectare

BA to be removed: _____ How Basal Area was determined prism ___ plots ___ other _____

BA to be left after cutting: _____ Number of plots: _____ (Specify)

-dead/dying trees only

STAND 2: Forest Type Upland Lowland **Species:** Hardwood Mixed Cedar Plantation
(Circle one) (Circle one)

Purpose of cutting: Harvest mostly large/mature trees
(Circle one)

Improvement - thin mostly smaller trees for firewood and logs

Combination - thin a mixture of larger and smaller trees,

Initial Basal Area (BA): _____ Units (Circle one) ft²/acre m²/hectare

BA to be removed: _____ How Basal Area was determined prism ___ plots ___ other _____

BA to be left after cutting: _____ Number of plots: _____ (Specify)

STAND 3: Forest Type Upland Lowland **Species:** Hardwood Mixed Cedar Plantation
(Circle one) (Circle one)

Purpose of cutting: Harvest mostly large/mature trees
(Circle one)

Improvement - thin mostly smaller trees for firewood and logs

Combination - thin a mixture of larger and smaller trees,

Initial Basal Area (BA): _____ Units (Circle one) ft²/acre m²/hectare

BA to be removed: _____ How Basal Area was determined prism ___ plots ___ other _____

BA to be left after cutting: _____ Number of plots: _____ (Specify)

(Attach additional sheets for STANDS if required)

1. I agree that operations will be in accordance with the provisions of Forest Conservation By-law No. 5115-09 of the County of Wellington and that I am familiar with the contents and requirements of this By-law.
2. Further, I agree to contact the Forest Conservation Officer assigned, one day prior to the start of cutting and one day prior to the resumption of work after a fourteen day delay.

Signature of Owner: _____ Date: _____

Signature of Contractor: _____ Date: _____

Signature of Forester: *[Signature]* Date: *DEC 16 / 23*

Signature of Tree Marker: *[Signature]* Date: *DEC 16 / 23*

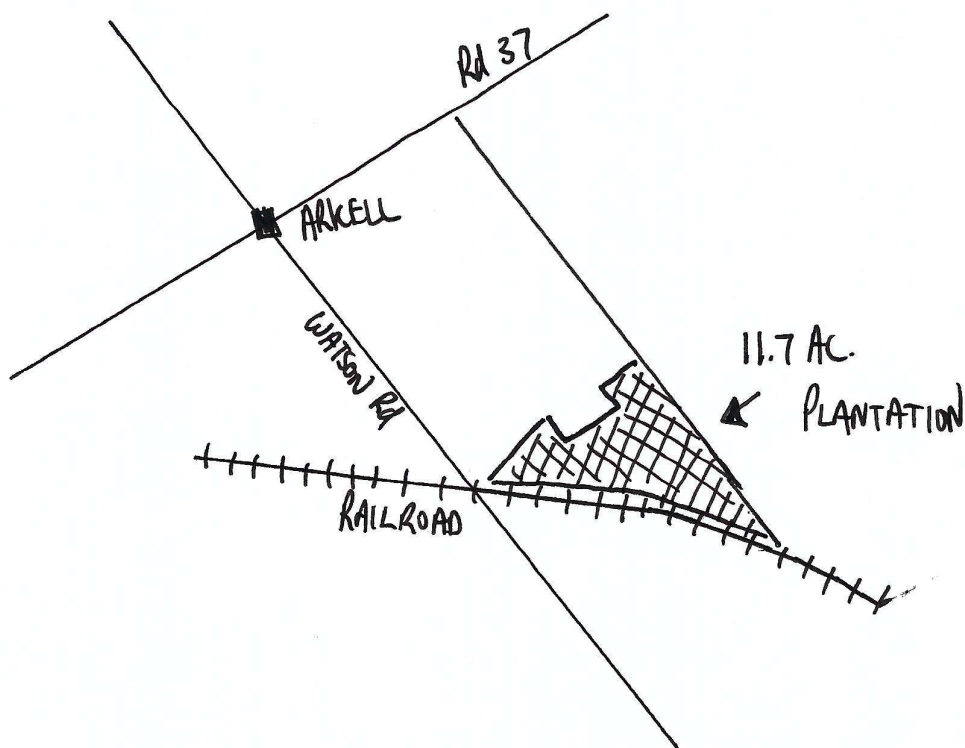
WELLINGTON COUNTY MAILING ADDRESS:

Carli Rietkerk, c/o Planning and Development Department, County of Wellington, 74 Woolwich Street, Guelph, ON N1H 3T9.

Email carlir@wellington.ca

Please provide sketch of property showing stands to be harvested below:

Show property boundary, area where trees are marked, other forest stands, buildings, roads, logging access, north arrow, access for By-law officer, roads, drains, watercourses & other features.



Tree Marking - Color of Paint Used: NO PAINT - DEAD/DYING TREES ONLY (Paint not required)

List of Marked Trees by Species

Number

Total number of trees number to be cut: 2500 (rough estimate) - mainly dead/dying
 (Attach additional sheet(s) if necessary) - mostly small diameters
 (10-26 cm)

TREE MARKING PRESCRIPTION

Ass. Roll # 2301000008034800000

DATE: Dec/16/23

Wellington County - Lot 8,9 Conc 10 Puslinch

FOREST TYPE: Mixed Plantation

SOILS: Silt

OBJECTIVES:

Long Term: To manage Black Walnut using the selection silvicultural system (*Good Forestry Practice*) to produce quality stems for sawlog and veneer production. To continue to enhance the mixture of tree species in existence and to provide for maximum wildlife opportunities when performing any forest management activities. (*Last harvest - n/a*).

Short Term: Harvest will concentrate on reduction of dead & dying White pine, Spruce and Black Locust killed by Walnut Juglone toxicity in their root zone. Proper spacing of residual trees will maximize growth of acceptable growing stock (AGS). All conifer species will eventually be killed in Walnut root zones. Some healthy pine will be retained now for species diversity.

STAND INFORMATION:

Species: Wb60 (Pw,Sw,Aw,Lb,Po,other *mostly dead*)40

Stand Area (ha): 4.7 **Topography:** Flat **Age:** 45-50 **Ht (m):** 12-20

Stocking (%): 80 **Regeneration:** Low – Wb,Ash, other

Stand Quality: Walnut cankers, (Pine, Spruce, Locust are dead / dying).



BASAL AREA DISTRIBUTION (m²/ha):

Note – Basal area is typically lower in walnut areas due to Juglone.

Tree Size Classes (cm)>>>	10-24 AGS / UGS	26-36 AGS / UGS	38-48 AGS / UGS	50-60 AGS / UGS	62+ AGS / UGS	TOTAL AGS / UGS
Now	9.8 / 10.0	9.2 / 4.4	1.4 / 0.4	0.2 / 0.2	- / -	20.6 / 15.0
Residual	9.8 / -	9.2 / -	1.4 / -	0.2 / -	- / -	20.6 / -
Ideal	5	5	4	4	2	20

of Plots Installed = 10 Unacceptable growing stock includes trees that are dead standing stems (very deteriorated).

STAND PRESCRIPTION:

Treatment Instructions: *Harvest* will concentrate on reduction of dead and dying trees of primarily White Pine, Spruce and Locust being killed by Black Walnut Juglone. Roughly 40% of the plantation are dying or dead trees and do not need to be marked. *Contractor will select only dead and dying trees to remove.* Target residual basal area is 20.6 m²/ha.

Invasive Species Control: All non-native buckthorn and honeysuckle should be eradicated from the plantation.

No Rare, Threatened or Endangered species were noted.



Harvest Area - Lot 8,9 Conc 10 Puslinch

Notes:



Legend

- Building as Symbol
- Building to Scale
- Airport
- Helipoint | Hospital Helipoint
- Seaplane Base
- Ferry Route
- Trail
- Bruce Trail
- Greenbelt Route
- Rideau Trail
- Trans Canada Trail
- Voyageur Trail
- Waterfront Trail
- Railway | Train Station
- Railway with Bridge
- Railway with Tunnel
- Road (Major → Minor)
- Winter Road
- Road with Bridge
- Road with Tunnel
- Primary, Kings or 400 Series Highway
- Secondary Highway
- Tertiary Highway
- District, County, Regional or Municipal Road
- Toll Highway
- One Way Road
- Road with Permanent Blocked Passage
- Road with Address Ranges
- Hydro Line, Communication Line or Unknown Transmission Line
- Natural Gas Pipeline, Water Pipeline or Unknown Pipeline
- Spot Height
- Index Contour
- Contour
- Wooded Area
- Wetland
- Waterbody
- Waterbody Elevation
- Watercourse
- Falls
- Rapids
- Rapids | Falls
- Rocks
- Lock Gate
- Dam | Hydro Wall
- Dam | Hydro Wall
- Provincial | State Boundary
- International Boundary
- Upper Tier | District Municipal Boundary
- Lower Tier | Single Tier Municipal Boundary
- Lot Line
- Indian Reserve
- Provincial Park
- National Park
- Conservation Reserve
- Military Lands

0 0.2 km

Projection: Web Mercator



The Ontario Ministry of Natural Resources and Forestry shall not be liable in any way for the use of, or reliance upon, this map or any information on this map. This map should not be used for: navigation, a plan of survey, routes, nor locations. THIS IS NOT A PLAN OF SURVEY.

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Appendix G: Bat Maternity Habitat Assessment

R.J. Burnside & Associates Limited 292 Speedvale Avenue West Unit 20 Guelph ON N1H 1C4 CANADA
telephone (519) 823-4995 fax (226) 526-9660 web www.rjburnside.com



Technical Memorandum

Date: May 5, 2026 **Project No.:** 300061693.0000

Project Name: Arkell Watson Ecology Support

Client Name: Bat Leaf-Off Assessment

Submitted To: Timberworx Custom Homes Development

Submitted By: Erica Mekli, B.A., ERPG, and Sophie Roy, M.W.B., B.Sc.

Reviewed By: Kevin Butt, B.Sc. (Env)., Eco. Rest. Cert.

1.0 Introduction

R.J. Burnside & Associates Limited (Burnside) has been retained by Timberworx Custom Homes Development (the Client) to complete a Bat Maternity Roost Habitat Assessment for the proposed residential subdivision development in the south-east corner of the Arkell Road Watson Street S. intersection (part of Lots 7, 8 & 9, Concession 10), located in the Township of Puslinch. The subject lands consist of formerly cultivated fields, naturally vegetated areas, and wooded areas.

2.0 Proposed Development

The proposed development, designed by SAI (2025), consists of 44 detached residential lots, 3 cul-de-sacs and two main access points, one connecting to Arkell Road, and the other connecting to Watson Road S. The proposed development also includes a Stormwater Management (SWM) pond at the north end of the property and a drainage swale around the perimeter of the proposed lots. The proposed development will impact natural features such as wooded areas, hedgerows, and a naturalized area in the center of the agricultural field.

3.0 Bat Maternity Habitat Assessment

There are seven SAR bats in Ontario, as per the provincial Protected Species in Ontario (PSO) list, O.Reg. 60/26. Of these, three utilize snag trees for maternity roosting habitat; Little Brown Myotis (*Myotis lucifugus*), Silver-haired bat (*Lasionycteris noctivagans*) and Northern Myotis (*Myotis septentrionalis*). As per the MECP's *Species at Risk Bats Survey Note 2022*, potential

woodland SAR bat habitat should be assessed according to the protocol *Treed Habitats – Maternity Roost Surveys* (2022).

3.1 Snag Survey Methodology

Snag surveys are best performed during the fall to early spring, before leaves have started growing and when visibility of cracks or crevices in trees is greatest. Snag surveys were conducted on April 13, 2026, to identify potential snag bat maternity roosting habitat within the subject lands.

The following criteria were considered when identifying a candidate maternity roosting tree during this survey:

- Snag Height
- Presence of habitat characteristics
- Diameter at Breast Height (DBH)
- Within 10 m of another tree and / or snag
- Amount of peeling bark
- Cavity height
- Species
- Percent canopy cover
- Decay class

Buildings were absent throughout the subject lands. However, numerous anthropogenic structures (rock features) were observed. These are further discussed in Section 6.0.

4.0 Snag Survey Results

A total of ten snags were identified on the subject lands, as shown on Figure 1 and detailed in Table 1. Of those, eight snags are located within the subject lands area of impact. Six snags are located within hedgerow communities and two are located within wooded areas. These eight snags are anticipated to be removed as per the proposed development plans (SAI, 2025). The two snags recorded outside of the area of impact were located immediately adjacent to the proposed drainage swale in the south end of the subject lands and along Watson Road S. which is part of the lands excluded from development.

Table 1: Candidate Bat Maternity Habitat Snags

Snag ID	Species	DBH (CM)	Candidate Ranking	Proposed Impact
1	Sugar Maple (<i>Acer saccharum</i>)	37	Medium	No Impact
2	Not Identifiable	39	Medium	Removal
3	Black Locust	Multi Stemmed	Medium	No Impact

Snag ID	Species	DBH (CM)	Candidate Ranking	Proposed Impact
	<i>(Robinia pseudoacacia)</i>	37, 34, 28		
4	Not Identifiable	80	Medium	Removal
5	Not Identifiable	Multi Stemmed 26, 26, 38	Low	Removal
6	Not Identifiable	50	Medium	Removal
7	Not Identifiable	66	Medium	Removal
8	Not Identifiable	29	Low	Removal
9	Not Identifiable	Multi Stemmed 33, 39	Medium	Removal
10	Not Identifiable	38	Medium	Removal

Candidate ranking is based on a weighted calculation taking into account the criteria listed in Section 3.1.

5.0 Impact Assessment

Based on observations and data collected, the candidate snags identified on the subject lands have the potential to be maternity roost habitat for three species of protected bats: Little Brown Myotis, Silver-haired Bat, and Northern Myotis.

MECP's Species at Risk Bats Survey Note (2022) states that if the proposed activity will only remove a proportionately small number of candidate roosts and thus avoid impairing the function of habitat for supporting bats, and occurs outside the bat active window, then there is no need to conduct additional SAR bat surveys. Please note, that if it is decided to not conduct further acoustic surveys it will be assumed that SAR bats are present on site, due to the presence of snags, and further mitigation, including vegetation removal timing windows, will be applicable.

Reviewing the general area, it is noted that there are large swaths of wooded communities within a 1 km distance of the subject lands, including a large wooded riparian area surrounding the Eramosa River. These areas would provide ample maternity roosting habitat, as well as foraging habitat, for SAR bats.

Since the number of identified candidate snags constitutes a small number of trees on the landscape, it is Burnside's opinion that they can be removed without negatively impacting SAR maternity roost habitat. However, to avoid contravention of the SCA, tree removal must be completed between December 1 and March 14 (of any given year) to mitigate negative impacts. If tree removal is proposed to occur within the active bat window (March 15 to November 30), further consideration will need to be given to registering the project with the Species Conservation Registry as tree removals will then be causing direct impact to the assumed present SAR bat species and their habitat.

6.0 Next Steps

Through detailed investigation of the subject lands, it has been determined that the tree removal needed for the proposed development will not have a notable negative impact on SAR species utilizing snags and trees for maternity roosting habitat.

7.0 References

Ministry of Environment, Conservation and Parks. 2022. *Species at Risk Bats Survey Note 2022*.

Ministry of Environment, Conservation and Parks. 2022. *Treed Habitats – Maternity Roost Surveys (2022)*.

SAI. 2025. Conceptual Plan 44 Lots Part of Lots 7, 8 & 9, Concession 10. Version July 29, 2025.

R.J. Burnside & Associates Limited


Erica Mekli, B.A., ERPG
Ecologist

EM:js

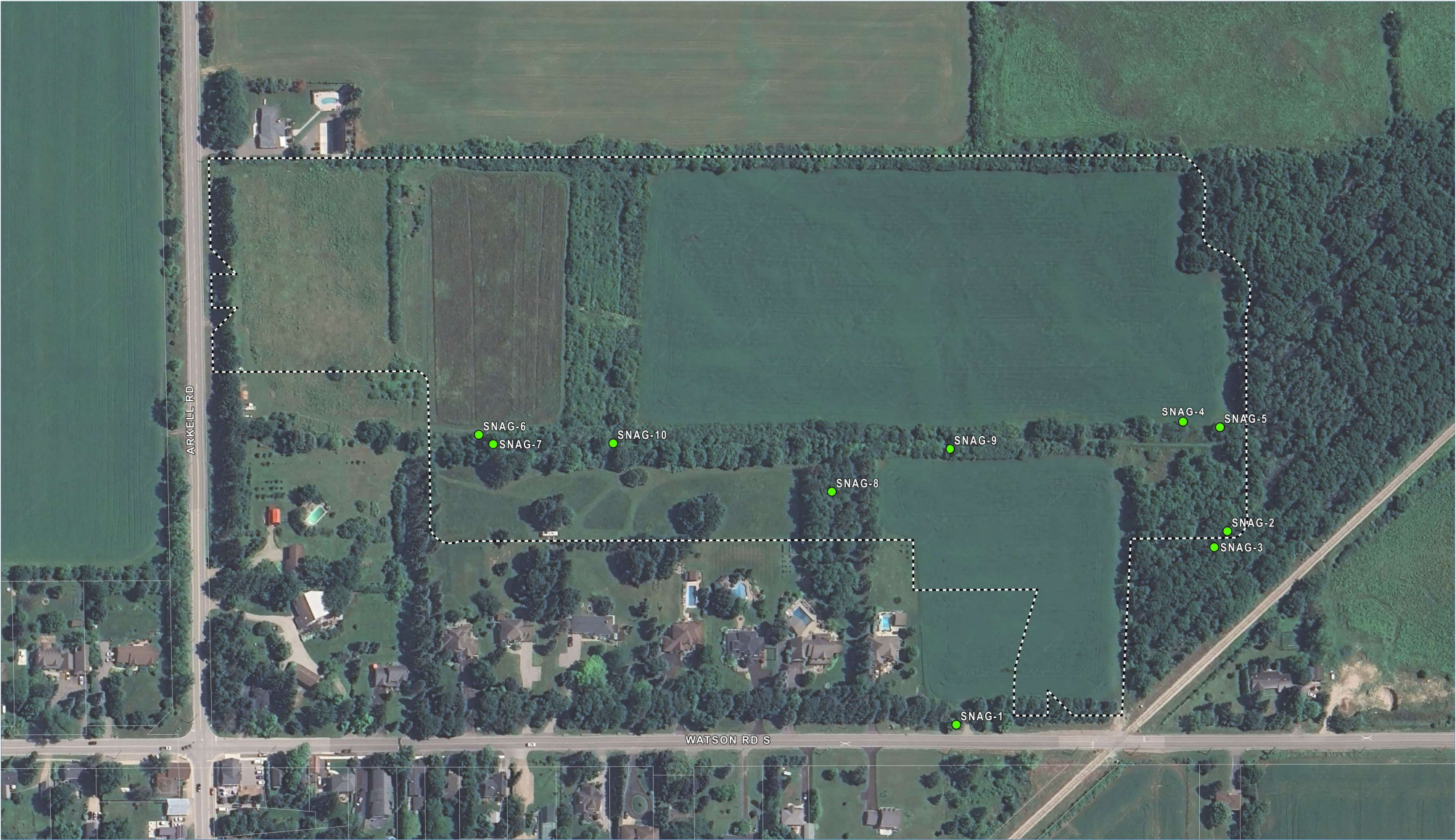

Sophie Roy, M.W.B, B.S
Ecologist

Enclosure(s) Figure 1: Bat Maternity Habitat
Photo Pages

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In the preparation of the various instruments of service contained herein, R.J. Burnside & Associates Limited was required to use and rely upon various sources of information (including but not limited to: reports, data, drawings, observations) produced by parties other than R.J. Burnside & Associates Limited. For its part R.J. Burnside & Associates Limited has proceeded based on the belief that the third party/parties in question produced this documentation using accepted industry standards and best practices and that all information was therefore accurate, correct and free of errors at the time of consultation. As such, the comments, recommendations and materials presented in this instrument of service reflect our best judgment in light of the information available at the time of preparation. R.J. Burnside & Associates Limited, its employees, affiliates and subcontractors accept no liability for inaccuracies or errors in the instruments of service provided to the client, arising from deficiencies in the aforementioned third party materials and documents.

R.J. Burnside & Associates Limited makes no warranties, either express or implied, of merchantability and fitness of the documents and other instruments of service for any purpose other than that specified by the contract.



--- Development Limit
● Candidate Bat Maternity Habitat



Client: North American 1000 0000
Date: 08/01/2024
Project: Tulelake Wetlands
Project Number: 1000000000
Scale Factor: 1:1000

Client: Tulelake Wetlands
Project: Tulelake Wetlands
Project Number: 1000000000
Scale Factor: 1:1000



Photo 1: Candidate Snag #1



Photo 1: Candidate Snag #2



Photo 3: Candidate Snag #3



Photo 4: Candidate Snag #4



Photo 5: Candidate Snag #5



Photo 6: Candidate Snag #6



Photo 7: Candidate Snag #7



Photo 8: Candidate Snag #8



Photo 9: Candidate Snag #9



Photo 10: Candidate Snag #10

To:

Shawn Marsh

Timberworx Custom Homes Inc.

376 Maltby Rd. E, Guelph, ON, N1L 1G4

Re: Development Project in Arkell - Butternut Assessment

This report describes the assessment and findings of a Butternut tree at the intersection of Arkell and Watson Rd, Pt Lots 7, 8 & 9, Concession 10, Puslinch Township. The tree is located in a hedgerow and will be within the disturbance area of the proposed development. The property location map is shown in Figure 1, and a map displaying the proposed development and butternut location is shown in Attachment 1. The Butternut Health Expert's Report (KAS002) and Butternut Data Collection Forms are attached in Attachments 2 and 3.

The assessed tree was determined to be a Category 2 tree. A Category 2 tree is "is not affected by Butternut Canker or the Butternut tree is affected by Butternut Canker but the degree to which it is affected is not as advanced as a Category 1 Butternut tree and retaining the tree could support the protection or recovery of Butternut trees in the area in which the tree is located". The tree was multi-stemmed (2 stems) and the main stem was marked with orange paint at the base of the tree.

This butternut will be killed for the purpose of constructing the proposed development.

As less than five Category 3 and less than fifteen Category 2 butternut trees will be killed as result of construction, no replacement planting will be required, as outlined in Ontario Regulation 830/21 Section 25(3).

Sincerely,



Luke Kastelic, R.P.F.,
Consulting Forester



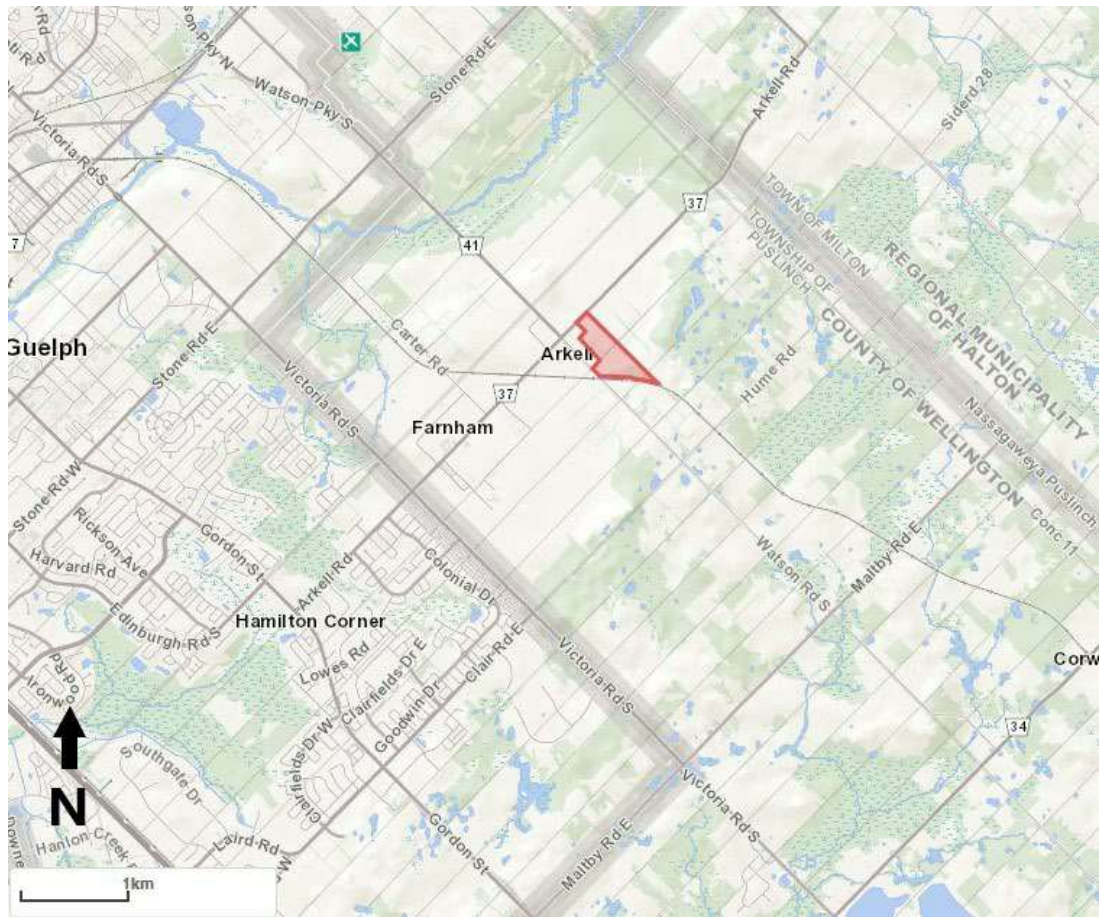


Figure 1: Property Location Map

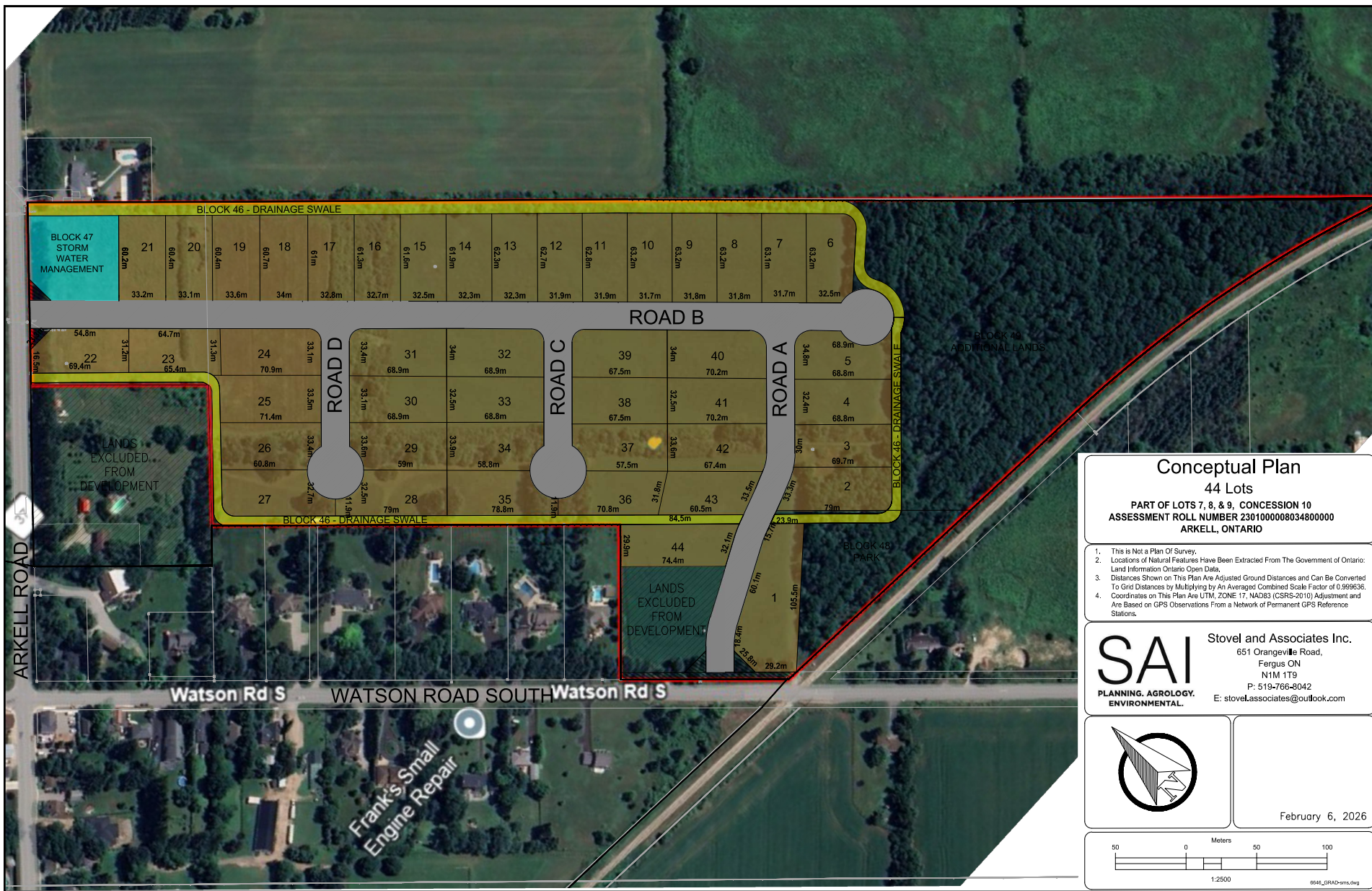
ATTACHED:

Attachment 1: Proposed Development and Butternut Location Map

Attachment 2: Butternut Health Expert's Report (KAS002)

Attachment 3: Butternut Data Collection Form.

Attachment 1: Proposed Development and Butternut Location Map



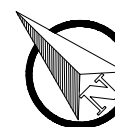
Conceptual Plan 44 Lots

PART OF LOTS 7, 8, & 9, CONCESSION 10
ASSESSMENT ROLL NUMBER 2301000008034600000
ARKELL, ONTARIO

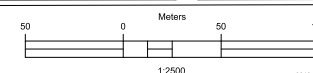
1. This is Not a Plan Of Survey.
2. Locations of Natural Features Have Been Extracted From The Government of Ontario: Land Information Ontario Open Data.
3. Distances Shown on This Plan Are Adjusted Ground Distances and Can Be Converted To Grid Distances by Multiplying by An Averaged Combined Scale Factor of 0.999636.
4. Coordinates on This Plan Are UTM, ZONE 17, NAD83 (CSRS-2010) Adjustment and Are Based on GPS Observations From a Network of Permanent GPS Reference Stations.

SAI
PLANNING, AGROLOGY,
ENVIRONMENTAL

Stovel and Associates Inc.
651 Orangeville Road,
Fergus ON
N1M 1T9
P: 519-766-8042
E: stovel.associates@outlook.com



February 6, 2026



6646_SRA0-00ms.dwg

Attachment 2: Butternut Health Expert's Report

Instructions to Butternut Health Experts (BHEs):

Please enter the 6-character BHE Report number: [KAS002](#) _____

BHE Report numbering format:

BHE Report numbers are to be assigned by the BHE using the first 3 letters of BHE's last name, followed by BHE's own 3-digit report numbering system. If the BHE's last name has fewer than 3 letters, use the full last name and numbers for the remaining characters.

Cover letter to client:

Insert your cover letter to your client here and include the below list of enclosures.

Shawn Marsh
Timberworx Custom Homes Inc.
376 Maltby Rd. E, Guelph, ON, N1L 1G4

Re: Development Project in Arkell - Butternut Assessment

This report describes the assessment and findings of a Butternut tree at the intersection of Arkell and Watson Rd, Pt Lots 7, 8 & 9, Concession 10, Puslinch Township. The tree is located in a hedgerow and will be within the disturbance area of the proposed development. The property location map is shown in Figure 1, and a map displaying the proposed development and butternut location is shown in Attachment 1. The Butternut Health Expert's Report (KAS002) and Butternut Data Collection Forms are attached in Attachments 2 and 3. The assessed tree was determined to be a Category 2 tree. A Category 2 tree is "is not affected by Butternut Canker or the Butternut tree is affected by Butternut Canker but the degree to which it is affected is not as advanced as a Category 1 Butternut tree and retaining the tree could support the protection or recovery of Butternut trees in the area in which the tree is located". The tree was multi-stemmed (2 stems) and the main stem was marked with orange paint at the base of the tree.

This butternut will be killed for the purpose of constructing the proposed development.

As less than five Category 3 and less than fifteen Category 2 butternut trees will be killed as result of construction, no replacement planting will be required, as outlined in Ontario Regulation 830/21 Section 25(3).

Sincerely,

Luke Kastelic, R.P.F.,
Consulting Forester

Enclosures:

1. Information from the Ministry of the Environment, Conservation and Parks about Butternut and the *Endangered Species Act, 2007*
2. Butternut Health Expert's Report, including the completed Butternut Data Collection Form

Species at Risk Branch
40 St. Clair Avenue West
14th Floor
Toronto ON M4V 1M2

Direction des espèces en péril
40, avenue St. Clair Ouest
14^e étage
Toronto ON M4V 1M2

Information for the Property Owner (or person(s) who requested the enclosed Butternut Health Expert's Report):

The enclosed Butternut Health Expert's Report (BHE Report) documents the results of the Butternut health assessment that was conducted by the Butternut Health Expert (BHE) identified in the top section of the report. If there are other Butternut trees (of any size or age) at the site that may be impacted by a proposed activity that are not identified in the enclosed BHE Report, they too must be assessed by a BHE before commencing any actions that may impact those Butternut trees or their habitat.

Butternut (*Juglans cinerea*) is listed as an endangered species in Schedule 2 of Ontario Regulation (O. Reg.) 230/08 "the Species at Risk in Ontario List". As an endangered species, the *Endangered Species Act, 2007* (ESA) prohibits adversely impacting Butternut and its habitat. A permit or agreement under the ESA is required before engaging in an activity that is otherwise prohibited under the ESA. The activity may be eligible for the Butternut conditional exemption in Part V of O. Reg. 830/21, provided the requirements of the regulation are met.

If the proposed activity is eligible for the conditional exemption in Part V of O. Reg. 830/21, the next step is to submit the BHE Report and the Butternut Data Collection Form enclosed in this package to the Ministry of the Environment, Conservation and Parks (MECP).

If the enclosed BHE Report does not identify which Butternut tree(s) are proposed to be killed, harmed or taken and the reasons for doing so (e.g., if "unknown" is indicated in Table 1) or if the information in the last two columns of Table 1 has changed since the date this BHE Report was produced, **do not edit the BHE Report to update this information**. Instead, the report must be submitted together with a cover letter that identifies which Butternut tree(s) are proposed to be killed, harmed or taken (by referencing the tree identification numbers) when you submit the BHE Report to MECP.

The BHE Report must be submitted to MECP at least 30 days before registering an activity in respect of the Butternut conditional exemption. MECP may need to examine the Butternut trees subject to the report during this 30-day period. **Adversely impacting Butternut trees during this 30-day period or before registration is completed is prohibited by the ESA**. Further, the conditional exemption for Butternut does not apply unless the requirements of Part V of O. Reg. 830/21 are being followed.

If the proposed activity is eligible for the Butternut conditional exemption, you may register the proposed activity using the “**Notice of Butternut Impact**” form after the 30-day period has elapsed.

If the proposed activity is not eligible for a regulatory exemption, please contact MECP to determine whether the proposed activity would require a permit or agreement under the ESA in order to proceed.

Please retain this information and a copy of the BHE Report for your records, along with any other documentation you may receive from MECP should an examination of the trees occur.

This information should not be relied upon to determine legal obligations. To determine your legal obligations, consult the *Endangered Species Act, 2007* and the relevant regulations made thereunder. These may be found at www.ontario.ca/laws. If legal advice is required, consult a legal professional. In the event of an error on this template or a conflict between this template and any applicable law, the law prevails.

If you have any questions, please contact MECP at SAROntario@ontario.ca.

Butternut Health Expert's Report (BHE Report)

BHE Report Number: [KAS002](#)

Butternut Health Expert Contact Information

Name of Butternut Health Expert

Last Name

[Kastelic](#)

First Name

[Luke](#)

Mailing Address

Unit Number

Street Number

[5369](#)

Street Name

[Wellington County Rd. 27 RR1](#)

PO Box

City/Town

[Rockwood](#)

Province

[ON](#)

Postal Code

[N0B 2K0](#)

Telephone Number

[705-341-2300](#)

Email Address

lukekastelic@gmail.com

Summary of qualifications as a Butternut Health Expert

a) expertise in relation to butternut

[Took Butternut Health Expert Workshop with FGCA, Registered professional forester, BscF in Forestry from UNB, Forest Technician Diploma from Fleming College](#)

b) expertise, education, training and experience necessary to assess the health of butternut trees

[Above, plus working alongside experienced butternut health assessors since 2022.](#)

Property Owner Contact Information

Name of Property Owner (or representative)

Last Name

[Marsh](#)

First Name

[Shawn](#)

Mailing Address

Unit Number

Street Number

[376](#)

Street Name

[Maltby Rd E](#)

PO Box

Lot Number

Concession

Township

Rural Route

City/Town

[Guelph](#)

Province

[Ontario](#)

Postal Code

[N1L 1G4](#)

Telephone Number

[226-780-0264](#)

Email Address

shawn@timberworx.ca

Site Location

Unit Number

Street Number

[N/A](#)

Street Name

[Watson Rd.](#)

PO Box

Lot Number

[Pt Lots 7, 8, 9](#)

Concession

[10](#)

Township

[Puslinch](#)

Rural Route

City/Town

[Arkell](#)

Province

[ON](#)

Postal Code

Additional Site Location Information

Date(s) of Butternut health assessment

Start Date (yyyy/mm/dd) 2026/05/11

End Date (yyyy/mm/dd) 2026/05/11

Date BHE Report prepared (yyyy/mm/dd) 2026/05/13

Map datum used: ☒ NAD83 ☐ WGS84

Total number of trees assessed in this BHE Report 1

The assessed trees were numbered on site using Orange Paint

The numbers at the site correspond to the tree identification numbers referenced in this report.

This BHE Report includes the following tables:

- Table 1: Butternut trees assessed by the BHE
- Table 2: Trees determined by the BHE to be Butternut hybrids
- Table 3: Summary of Butternut health assessment results

Table 1: Butternut trees assessed by the BHE

Tree ID #	UTM coordinates	Accuracy (+/-)	Category ¹ (1, 2 or 3)	Tree stem diameter ² (cm)	Is tree stem shorter than 1.37 m? (Yes/No)	Cultivated? (Yes/No)	Proposed to be: (killed, harmed, taken, or unknown ³)	If tree is proposed to be killed, harmed or taken, indicate reason tree is to be killed, harmed or taken, if known
1	4820624 mN, 567681 mE	5 m	2	28	No	No	killed	For the puposes of development
		m						
		m						

¹ Details regarding the extent to which the tree is affected by Butternut Canker is presented in the Butternut Data Collection Form that accompanies this BHE Report.

² Diameter of the tree stem rounded to nearest cm, measured in accordance with the Butternut Assessment Guidelines: Assessment of Butternut Tree Health for the Purposes of the *Endangered Species Act, 2007*

³ In this column, “unknown” indicates that at the time of assessment and reporting, there are no proposals to kill, harm or take this tree that are known to the BHE.

Table 2: Trees determined by the BHE to be Butternut hybrids

Tree ID #	UTM coordinates	Method used (genetic testing or field identification)	Additional Comments on Method Used

Table 3: Summary of Butternut health assessment results

Result	Total number of trees in this category	Information for persons planning activities that may impact Butternut
Category 1	0	- Category 1 Butternut tree — the Butternut tree is affected by Butternut Canker to such an advanced degree that retaining the tree would not support the protection or recovery of Butternut trees in the area in which the tree is located. - If the proposed activity will kill, harm or take one or more Butternut trees of any category (including Category 1), the BHE Report must be submitted to MECP at SARontario@ontario.ca.
Category 2	1	- Category 2 Butternut tree — the Butternut tree is not affected by Butternut Canker or the Butternut tree is affected by Butternut Canker but the degree to which it is affected is not as advanced as a Category 1 Butternut tree and retaining the tree could support the protection or recovery of Butternut trees in the area in which the tree is located. - Activities that may kill, harm or take up to a maximum of fifteen (15) Category 2 trees may be eligible for the conditional exemption in Part V of Ontario Regulation 830/21. Refer to the regulation for eligibility conditions and requirements that must be fulfilled. - If the proposed activity will kill, harm or take more than fifteen (15) Category 2 trees, contact MECP for information on how to seek an ESA authorization (e.g., a permit).
Category 3	0	- Category 3 Butternut tree — the Butternut tree may be useful in determining sources of resistance to Butternut Canker. - Activities that may kill, harm or take up to a maximum of five (5) Category 3 trees may be eligible for the conditional exemption in Part V of Ontario Regulation 830/21. Refer to the regulation for eligibility conditions and requirements that must be fulfilled. - If the proposed activity will kill, harm or take more than five (5) Category 3 trees, contact MECP for information on how to seek an ESA authorization (e.g., a permit).
Cultivated	0	An activity that will kill, harm or take a cultivated Butternut tree that was required to be planted to fulfil a condition of an ESA permit or agreement, or a conditional exemption, is not eligible for the exemption for cultivated trees that is provided by subsection 25 (5) of O. Reg. 830/21. Refer to the regulation for eligibility conditions.

Result	Total number of trees in this category	Information for persons planning activities that may impact Butternut
Hybrid	0	Hybrid Butternut trees are not protected under the ESA but impacts to these trees may be subject to local municipal by-laws and other legislation.

Additional Information on Cultivated Tree Determination

Please note:

- A BHE Report that is submitted to MECP must include the completed Butternut Data Collection Form. As appropriate, please also ensure additional relevant documentation to support the assessment (e.g., completed Data Sheets for Field Identification of Butternut Hybrids, evidence that the Butternut was cultivated) and all relevant maps and photographs are provided.
- During the 30-day period that follows the submission of this BHE Report to MECP, no Butternut trees (of any category) may be killed, harmed or taken. MECP may need to examine the Butternut trees subject to the report during this 30-day period.

Butternut Health Expert's Comments
Note to BHEs: use this space to provide general comments.

Attachment 3: Butternut Data Collection Form

Butternut (*Juglans cinerea*) is listed as an endangered species in Schedule 2 of Ontario Regulation 230/08 “the Species at Risk in Ontario List”. As an endangered species, the *Endangered Species Act, 2007* (ESA) prohibits adversely impacting Butternut and its habitat. A permit or agreement under the ESA is required before engaging in an activity that is otherwise prohibited under the ESA. The activity may be eligible for the Butternut conditional exemption in Part V of Ontario Regulation 830/21, provided the requirements of the regulation are met. For more information please refer to the following links:

[Endangered Species Act, 2007](#)

[Ontario Regulation 830/21 \(Exemptions – Species Subject to Species Conservation Charges\)](#)

[Ontario Regulation 230/08 \(Species at Risk in Ontario List\)](#)

[Ontario Regulation 242/08 \(General Regulation\)](#)

[Information about ESA permits and authorizations](#)

[Butternut Assessment Guidelines: Assessment of Butternut Tree Health for the Purposes of the Endangered Species Act, 2007](#)

A Butternut Health Expert’s Report (BHE Report) completed by a “Butternut Health Expert” (BHE) as defined in section 21 of Ontario Regulation 830/21 is typically required as part of an application to the Ministry of the Environment, Conservation and Parks (MECP) for a permit or agreement under the ESA and is required in respect of the conditions of the Butternut conditional exemption in Part V of O. Reg. 830/21. **This Butternut Data Collection Form must be completed by the BHE and included in their BHE Report.**

This form should not be relied upon to determine your legal obligations. To determine your legal obligations, consult the *Endangered Species Act, 2007* and the relevant regulations made thereunder. These may be found at www.ontario.ca/laws. If legal advice is required, consult a legal professional. In the event of an error on this form or a conflict between this form and any applicable law, the law prevails.

Notice of Collection and Use

Personal information on this form is collected under the authority of Section 53 of the ESA and section 38 of the *Freedom of Information and Protection of Privacy Act*. Forms that have been submitted to MECP may be used by MECP staff to contact the property owner (or person acting on their behalf) to request permission to access the assessed trees for the purpose of examining the trees or to contact the BHE who prepared the BHE Report. Questions about the use of your personal information should be directed to the Species at Risk Branch, Ministry of the Environment, Conservation and Parks, 300 Water Street, Peterborough Ontario, K9J 3C7 at speciesatriskregistry@ontario.ca.

Fields marked with an asterisk (*) are mandatory.

Butternut Health Expert’s Report Number*	Start Date of Butternut Health Assessment (yyyy/mm/dd)*	End Date of Butternut Health Assessment (yyyy/mm/dd)*
KAS002	2026/05/11	2026/05/11

Butternut Health Expert (BHE) Contact Information

Last Name*		First Name*
Kastelic		Luke
Telephone Number*	Alternate Telephone Number	Email Address*
705-341-2300		lukekastelic@gmail.com

Summary of Qualifications as a Butternut Health Expert*

Registered Professional Forester

Attended Butternut Health Assessment Course at FGCA in 2023

BScF Forestry from UNB

Forest Technician Diploma from Fleming College

Property Owner Contact Information

Last Name*		First Name*	
Marsh		Shawn	
Company Name			
Timberworx Custom Homes Inc			
Mailing Address*			
Unit Number	Street Number	Street Name	PO Box
	376	Maltby Road East	
Lot Number	Concession	Township	Rural Route
City/Town	Province		Postal Code
Guelph	Ontario		N1L 1G4
Telephone Number *	Alternate Telephone Number	Email Address	
226-780-0234		shawn@timberworx.ca	

Butternut Tree(s) Location Information

Address*	☐ Select if location of Butternut is the same as the property owner's mailing address		
Unit Number	Street Number	Street Name	PO Box
N/A	N/A	Watson Rd	
Lot Number	Concession	Township	Rural Route
Pt Lots 7,8 & 9	10	Puslinch	
City/Town	Province		Postal Code
Arkell	ON		

General description of area containing Butternut (select one)

☐ Natural ☒ Rural ☐ Urban - Suburban ☐ Industry / Resource Extraction Area

Soil drainage (select one)

☒ Well Drained ☐ Moderately Drained ☐ Poorly Drained ☐ Unknown

Have any of the Butternut at this site produced seeds?

☐ Yes ☐ No ☒ Unknown

General Comments

Butternut Tree Data

Tree Identification Number* 1 Date of Assessment (yyyy/mm/dd)* 2026/05/11

UTM Zone* 17N

Northing* 4820624

Easting* 567681

Is this tree a Butternut tree or a putative hybrid? * ☒ Butternut ☐ Putative Hybrid

Is the stem of this tree shorter than 1.37 m? * ☐ Yes ☒ No

Is this a single or multi-stemmed tree? * ☐ Single Stem ☒ Multiple Stems

Live Crown %* 90

Tree Stem Diameter (cm)* 28

Number of sooty cankers* At or below 2m (the lower stem) 3 Above 2m 0 At the root (root flares) 0

Number of open cankers* At or below 2m (the lower stem) 1 Above 2m 0 At the root (root flares) 0

Metres from badly cankered tree* ☐ 40 metres or less ☐ Greater than 40 metres ☒ None found

Crown Class

☒ Dominant, full sun

☐ Co-dominant, two sides in the sun

☐ Intermediate, sun only from above

☐ Suppressed, shaded crown

Signs of Stress

☐ Twig dieback

☐ Branch dieback

☐ Defoliation

☐ Discolouration

Seed Signs

☐ Mature stamens or pollen

☐ Receptive pistils

☐ Seed set

☐ None

☒ Unknown

Below Crown

Number of stems 2

Main stem length (m) below crown 3

Number of epic-live 0

Number of epic-dead 0

Number of callused wounds 0

Bark type: ☐ Deep furrows/Narrow ridges

☒ Shallow furrows/Wide ridges

Tree Origin

☐ Naturally-occurring

☐ Planted (cultivated)

☒ Unknown

Is this tree located in an area that is upland, wetland, or riparian?

☒ Upland

☐ Wetland

☐ Riparian

Vegetation Community

☐ Open

☒ Shrub thicket

☐ Savannah - Woodland

☐ Forest

If Savannah-Woodland or Forest selected, select one option from both groups:

☐ Deciduous

☐ Coniferous

☐ Mixed

☐ Climax

☐ Regenerating

Does this tree occupy edge habitat?

☒ Yes ☐ No

If "Yes", select which edge habitat:

☐ Road

☐ Trail

☐ Utility corridor

☒ Fencerow

☐ Forest/woodlot edge

☐ Watercourse/waterbody

Competing Species

1. Wb

2. MM

3. Bucktho

Comments about this tree

Appears to be in good health. Largest stem had no canker.

BHE Report Number KAS002				Start Date of Butternut Health Assessment (yyyy/mm/dd) 2026/05/11				End Date of Butternut Health Assessment (yyyy/mm/dd) 2026/05/11												
Total Number Butternut Trees in BHE Report 1				Butternut Health Expert's Name Kastelic, Luke																
Property Owner/Client Name Marsh, Shawn						Property Address N/A-N/A Pt Lots 7,8 & 9 10 Watson Rd Arkell ON														
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
Tree #	Live Crown %	Tree stem diameter (cm)	# bole cankers (BC)				# root flare cankers (RF)		40 m or less from cankered tree? (Y or N)	Circ. (cm) = Pi * tree stem diameter	Total BC Width (cm) = (D * 2.5) + (E * 2.5) + (F * 5) + (G * 5)	Total RF Width (cm) = (H * 2.5) + (I * 5)	Total BC Width % of Circ. = L / K * 100	Total RF Width % of Circ. = M / K * 100	Total BC + RF Width % of 2 * Circ. = (N + O) / 2	Tree Categories: 1, 2, or 3				
			Sooty (S) (will be assigned 2.5 cm per canker) Open (O) (will be assigned 5 cm per canker)				= Cat 2 if B >= 50 and N=0 else = Cat 1	= Cat 2 if B > 70 and P < 20 else = Cat 1								= Cat 2 if B > 70 and N < 20 else = Cat 1	Preliminary tree call = Cat 2 if Q= Cat 2 or R= Cat 2 or S= Cat 2 else = Cat 1	Final tree call = Cat 3 if T= Cat 2 and C > 19 and J='Y' else T		
			S <= 2m	S > 2m	O <= 2m	O > 2m													S	O
1	90	28	3	0	1	0	0	0	N	87.92	12.5	0.0	14.22	0	7.11	1	2	2	2	2

Appendix I: Results of Breeding Bird Surveys – Colville



September 19, 2023

Mr. Rob Stovel
Stovel and Associates Inc.
Delivered Via Email

RE: **Results of Breeding Bird Surveys – 890 Watson Road, Arkell**

Thank you for contacting Colville Consulting Inc. regarding the completion of breeding bird surveys on the 890 Watson Road property, Arkell (Township of Puslinch). This letter report is intended to present the results of surveys completed on this property.

Study Area

The Subject Property for these surveys is located south of Arkell Road and east of Watson Road, in Arkell (see Figure 1). This property measures approximately 17.4ha (43.1 acres) in size and has been assigned the address of 890 Watson Road. A majority of the property is currently in agricultural production, with a woodland and thicket community on the southern portion of the property.

Results

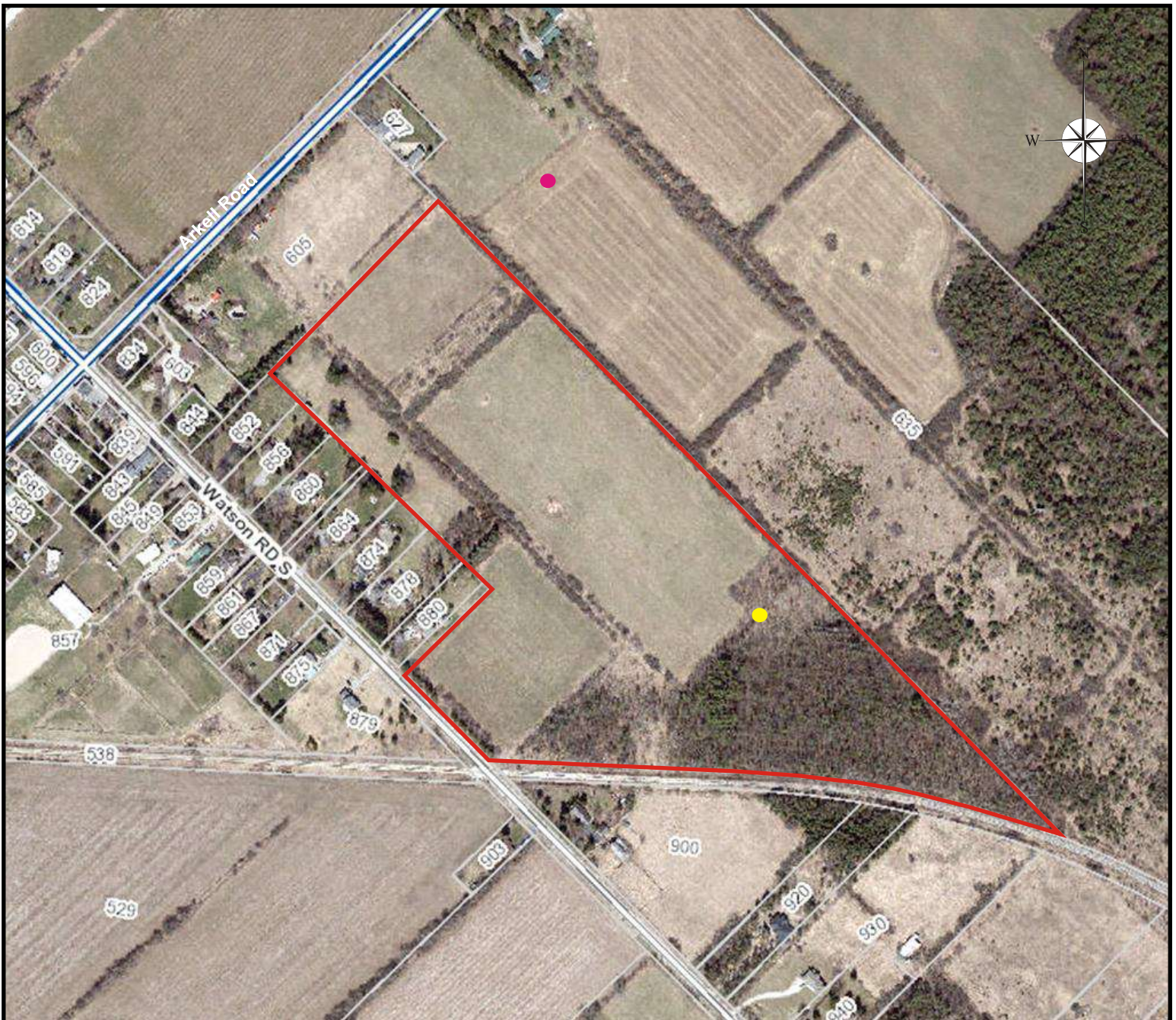
Breeding bird surveys were conducted on May 23, June 10 and June 25, 2023. Surveys were completed at least a week apart, under suitable weather conditions with little to no wind or precipitation. A thorough search of the Subject Property was completed during all surveys between dawn and no later than 10:00 am. All birds seen or heard calling were recorded and the highest breeding evidence per species was determined in accordance with the criteria of the Atlas of the Breeding Birds of Ontario (Cadman et al. 2007).

A total of 44 species of birds were observed or heard on or above the Subject Property and two additional species were observed on adjacent lands (see Table 1). According to Ontario conservation status ranks (S-rank) designations, with the exception of two non-native species, all recorded species are considered to be “secure” (S5 - common, widespread and abundant) or “apparently secure” (S4 - uncommon but not rare) in the province of Ontario.

Several Barn Swallows were observed flying, foraging and calling over the agricultural portions of the property on the first and second site visits. This species is listed as Special Concern in Ontario, and also designated as Special Concern federally. No buildings or structures suitable for nesting are present on the property, and therefore this property is considered to be providing incidental foraging opportunities.

An Eastern Wood-pewee was heard calling in the woodland at the south end of the property during all three site visits. An individual was also observed frequenting a nest site on the second site visit. The approximate location of observations is illustrated in Figure 1. This species is designated as Special Concern in Ontario and Canada.

Although not detected on the property, an Eastern Meadowlark was heard calling from lands east of the property during the second and third site visits. This species is designated as Threatened in Ontario and is also considered to be Threatened in Canada. The estimated location



Legend

- Subject Property
- Approximate Location of Eastern Wood-pewee
- Approximate Location of Eastern Meadowlark

Figure 1
Extent of Subject Property

Breeding Bird Surveys
890 Watson Road, Arkell

Prepared for: **Stovel and Associates Inc.**

Prepared by: **COLVILLE** 
CONSULTING INC.

September 2023

FILE: C23055

Table 1. List of bird species documented within and adjacent to the Study Area.

Species	S Rank	Agricultural Lands	Hedgerow	Woodland	Adjacent Lands	Highest Breeding Evidence*	Breeding Code**
American Crow	S5B		X	X		PO	H
American Goldfinch	S5B		X	X		PO	H
American Robin	S5B		X	X		PO	S
Baltimore Oriole	S4B		X	X		PO	S
Barn Swallow	S4B	X				OBS	
Black-billed Cuckoo	S4S5B			X		PO	S
Black-capped	S5		X	X		PO	S
Blue Jay	S5			X		PO	H
Blue-winged Warbler	S4B			X		CO	CF
Brown-headed	S4B		X	X		PO	
Canada Goose	S5	X				OBS	X
Cedar Waxwing	S5B		X	X		PO	H
Chipping Sparrow	S5B		X	X		PO	S
Common Grackle	S5B		X	X		PO	H
Common Raven	S5				X	PO	H
Common Yellowthroat	S5B		X	X		PO	S
Downy Woodpecker	S5			X		CO	NY
Eastern Bluebird	S5B,S4N			X	X	PO	S
Eastern Kingbird	S4B			X		PO	S
Eastern Meadowlark	S4B,S3N				X	PO	S
Eastern Towhee	S4B		X	X		PO	S
Eastern Wood-pewee	S4B			X		CO	AE
European Starling	SNA			X		PO	H
Field Sparrow	S4B,S3N		X	X	X	PO	S
Gray Catbird	S4B		X	X		PO	S
Great Blue Heron	S4	X				OBS	X
Great Crested	S4B			X		PO	S
Horned Lark	S4	X	X			PO	S
House Finch	SNA			X	X	PO	S
House Wren	S5B		X	X		CO	FY
Indigo Bunting	S5B		X	X		PR	A
Killdeer	S5B	X			X	PO	H
Mallard	S5	X				OBS	X
Mourning Dove	S5		X	X		PO	S
Mourning Warbler	S5B			X		PR	T
Northern Cardinal	S5		X	X		PO	S
Northern Flicker	S4B		X	X		PO	S
Red-eyed Vireo	S5B			X		PR	A
Red-winged Blackbird	S4			X		PO	S
Ring-billed Gull	S5	X				OBS	X
Rose-breasted	S4B			X		PO	S
Ruby-throated	S5B			X		PO	H
Savannah Sparrow	S5B,S3N	X	X		X	PO	S
Sharp-shinned Hawk	S5		X			PO	H
Song Sparrow	S5B		X	X		PO	S
Wild Turkey	S5			X	X	PO	S

Table 1 Legend

* OBS – observed, no evidence of breeding; PO – possible breeding; PR – probable breeding; CO - confirmed breeding

** X – observed in its breeding season, no evidence of breeding

H – species observed in its breeding season in suitable nesting habitat

S – singing male present in its breeding season in suitable nesting habitat

P – pair observed in their breeding season in suitable nesting habitat A – agitated behavior or anxiety calls of an adult

N – nest building or excavation of nest hole FY – recently fledged young

CF – adult carrying food for young NY – nest with young

of this individual is illustrated in Figure 1, however it should be noted that access to this property was not available and no nests were confirmed on the adjacent lands.

Summary and Recommendations

As indicated in Table 1, a majority of the bird species documented on this property were observed in and adjacent to the woodland and hedgerow. All bird species documented using these habitats are considered to be common and secure in the province of Ontario, with one of these species (Eastern Wood-pewee) considered to be a Species of Special Concern. Eastern Wood-pewee were documented in the woodland during each of the breeding bird surveys and this species is considered to be breeding in this woodland.

One meadow species (Savannah Sparrow) was documented using the agricultural portions of the property and Eastern Meadowlark was documented east of this parcel. No use of the property by Eastern Meadowlark was documented during our surveys and no active nests were verified on the adjacent lands. It is therefore our observation that the Subject Property is not providing significant habitat for this species.

Several Barn Swallows were observed flying, foraging and calling over the agricultural portions of the property on the first and second site visits. As no buildings or structures suitable for nesting are present on the property, use of this property by Barn Swallows is considered to be opportunistic.

Please do not hesitate to contact the undersigned should you have any questions regarding the results in this report.

Respectively submitted by:



Ian Barrett, M.Sc.
Colville Consulting Inc.

Appendix J: CV's

ROBERT P. STOVEL, M.Sc., RPP, MCIP, P.Ag.

EDUCATION

M.Sc, Rural Planning, University of Guelph, 1988.

B.A. Geography, (Resources Management), Wilfrid Laurier University, 1986.

MEMBERSHIPS

Member of the Ontario Institute of Agrologists.

Member of the Ontario Professional Planners Institute and the Canadian Institute of Planners.

Member of the Ontario Stone, Sand and Gravel Association.

POSITIONS HELD

1995 - Present: Stovel and Associates Inc., Fergus, Ontario - President.

1993 - 1995: Ecological Services For Planning Ltd., Guelph, Ontario - Senior Project Manager.

1988 - 1992: Ecological Services For Planning Ltd., Guelph, Ontario - Environmental Planner.

1986 - 1987: Environmental Consultant. Waterloo, Ontario.

EXPERIENCE

- extensive project experience in environmental assessments, environmental management plans and ecological enhancement plans in Ontario. These projects have required considerable government and non-government agency liaison, interdisciplinary team coordination and the integration of a variety of scientific disciplines.

Environmental Assessments

- prepared the ecological and agricultural components for municipal road projects in King Township and the City of Stratford.
- prepared agricultural impact assessments for provincial road projects in the County of Essex and the County of Peterborough.
- coordinated environmental assessment projects for waste management master plans in Victoria County, Essex County, Peterborough County and the Regional Municipality of Haldimand-Norfolk (agricultural component).
- prepared route selection reports for the proposed development of an 8" pipeline in Orillia. This project received provincial approval at the Ontario Energy Board in 1994.
- managed the environmental constraint mapping and geotechnical selection component of Ontario Hydro's construction of a 500 kV transmission line from Lennox to Bowmanville. This transmission line was constructed in 1992.

Environmental Inventories and Monitoring

- designed and implemented wetland vegetation monitoring programs for proposed aggregate and estate residential developments.
- designed a transplanting and propagation plan for *Carex jamesii*.
- completed the required seminar on the Ontario Wetland Evaluation System and the Wetland Environmental Impact Study; Technical Manual.
- completed surveys for the following wetlands: Orangeville Reservoir Wetland Complex, Hayesland-Christie Wetland Complex, Dalrymple Lake Wetland Complex, Star Wetland Complex, Eramosa River-Blue Springs Creek Wetland Complex, Orillia Filtration Swamp, Philips Lake Wetland Complex, Mossington Park Wetland Complex, Cranberry/Oil Well Bog, Humber River Marshes Wetland Complex, Speed River Wetland Complex and the Beaverton River Wetland Complex.
- managed deer wintering surveys in Ramara Township, Carden Township, Erin Township and Puslinch Township.
- coordinated fisheries inventories for coldwater and warmwater systems in Ontario (e.g., Eramosa River, Speed River, West Credit River, Dalrymple Lake, Warnock Lake, Caledon Creek, Greenock Creek and Spencer Creek).
- prepared terrestrial enhancement plans for a deer wintering area in Puslinch Township.
- completed forestry evaluations for woodland areas in Wellington County, Simcoe County and the Regional Municipalities of York, Peel and Hamilton-Wentworth.
- managed bird surveys in various Southern Ontario municipalities.
- coordinated vegetation surveys for alvar communities in Simcoe County, Victoria County and the Regional Municipality of Hamilton-Wentworth.
- completed vegetation management plan for alvar communities and upland forest communities for a proposed quarry in the Regional Municipality of Hamilton-Wentworth.

Subwatershed Planning

- participated in subwatershed planning studies in Laurel Creek, Grindstone Creek and Nichol Drain No. 2.
- completed historic vegetation mapping programs in Caledon Creek Subwatershed.

Aggregate Applications

- certified to prepare site plans under Section 8.4 of the Aggregate Resources Act.
- assisted in the preparation of environmental plans and agricultural rehabilitation plans for the proposed Batterman Pit (Grey County), Puslinch Pit, Caledon Sand & Gravel Inc. Pit and Shoemaker Pit.
- conducted environmental evaluations and agricultural appraisals for various aggregate operations in southern Ontario.

- assisted in the preparation of Environmental Impact Studies for the proposed expansions of the Ospringe Pit, the Darrington Pit and Flamboro Quarries.
- prepared Level 1 & 2 Natural Environment and Environmental Impact Statements for aggregate developments in Simcoe County, Wellington County and the Regional Municipalities of York, Halton, Waterloo and Hamilton-Wentworth. These reports were prepared in accordance with the policy requirements of the Aggregate Resources Act (Technical Study Requirements), Wetland Policy Statement, Provincial Policy Statement and/or local/regional Official Plans.
- prepared applications for Certificate of Approvals for pit and quarry operations in southern Ontario.



5369 Wellington 27, RR 1
Rockwood, Ontario N0B 2K0
Tel 519 856 1286 Fx 519 856 4288

★ ★ ★ ★

Email: forstar@execulink.com
Website: <http://www.forestar.ca>

**PETER A. WILLIAMS, M. Sc.,
Registered Professional Forester, Certified Arborist**

EDUCATION:

<u>Degree</u>	<u>Institution</u>	<u>Major</u>	<u>Year</u>
B.Sc.	SUNY College of Environmental Science and Forestry	Environmental Resources Management	1977
M.Sc.	University of Tennessee	Forestry and Soils	1983
Ph.D	University of Guelph	Environmental Biology [Agroforestry]	1989 -1998 not completed (ABD)

EXPERTISE:

Urban Forestry/Arboriculture, Forest Management/Silviculture, Harvest Planning and Management, Forest Ecology/Research, Environmental Consulting, Agroforestry, Technology Transfer/Extension, Certified Arborist, Economic Valuations/Forests Loss of Use. Butternut Health Assessor, Education/Publishing/Workshops.

EXPERIENCE:

<u>Dates</u>	<u>Position</u>	<u>Agency</u>
1985 - present	Consulting Forester, Principal	Williams & Associates, Forestry Consulting Ltd.
1985 -1995	Research Associate - Program Manager, Agroforestry	University of Guelph, Dept of Env. Biology
1986	Resource Technician	Ontario Ministry of Natural Resources
1984-1985	Forester/Assistant Environmental Planner	Ecologistics Ltd. - Waterloo, Ontario
1983	Forester/Arborist, Principal	White Oak Forestry and Landscaping - Knoxville, Tn.
1982	Forester	USDI Bureau of Indian Affairs - Dulce, New Mexico
1979-1983	Graduate Research Assistant	University of Tennessee, Knoxville
1976-1979	Forest Technician	USDA Forest Service - Yampa, Colorado

AWARDS:

Ken Armson Award 2024; Ontario Woodlot Association - Presented to individuals, groups or businesses exemplifying outstanding professional contributions to the vision, mission and values of the OWA.

Distinguished Alumni Award 2025 - SUNY College of Environmental Science and Forestry Presented to those whose accomplishments might be considered "pioneering," whose work has positively affected society, or who are otherwise inspirational to students and fellow alumni.

Developed Extension and in-service training courses in:

- Forest soil/site interpretations for the O.M.N.R. Ecological Land Classification Field Staff
- *Introduction to Forest Soils* (O.M.N.R.)
- *Forest Soils & Silviculture Workshop* (sponsored by the O.P.F.A.)
- *Managing For Oak Decline, A Workshop for Managers of Oak Forests*
- *Sustainable Harvest Systems* (Business management and low impact harvest workshop for loggers) - 2006, 2004, 2003.
- *Skidder Bridge Loan Program*
- *Woodlot Management Training Course for Landowners*
- *Woodlot Tour for Farmers* - 2000, 2003, 2007, 2010.
- Numerous workshops and tours for the Ontario Woodlot Association, Stewardship councils
- *Gypsy Moth Workshop*, Town of Oakville, 2007
- Technical Steering Committee for *A Landowner's Guide to Careful Logging Practices* (2008)
- Author of Draft: *A Landowner's Guide to Careful Logging Practices Workshop Series* (2009)
- Author: Extension Note *Careful Logging Practices: Selecting the Right Harvesting Equipment* (2009)

Produced: *Citizen Arborist Study Guide* (Int. Soc. Arboriculture/Tree Plan Canada)

Forestry Training Course for Landowners (OATI & Waterloo/Wellington Woodlot Owners' Assn.)

Edited & Published: *Key to Silvicultural Treatments for Common Southern Ontario Stand Types*
(Waterloo Stewardship Network and the O.M.N.R.)

MEMBER OF:

Ontario Professional Foresters Association

Society of American Foresters

Ontario Woodlot Association (Past Chapter Chair, current Treasurer)

International Society of Arboriculture

Grand River Conservation Authority, Guelph Representative (1988-1994)

Ontario Horticultural Crops Research and Advisory Committee (Agroforestry Sub-Committee)
(1990-1995; Co-Chair 1993-1995)

REFEREED JOURNAL ARTICLES:

Gordon, A.M., P.A. Williams and E.P. Taylor. 1988. Site index curves for Norway Spruce in southern Ontario. North. J. App. For. 6(2): 23-26.

Williams, P.A., A.M. Gordon and A. Moeller. 1989. Effect of anti-transpirants on seedling growth of *Picea glauca* and *Pinus strobus*. Tree Planter's Notes 41(1): 34-38.

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Gordon AM and PA Williams. 1991. Intercropping Valuable Hardwood Tree Species and Agricultural Crops in Southern Ontario. For. Chronicle, Vol 67(3): 200-208.253-263.

Williams, P.A. and A.M. Gordon. 1992. The potential of intercropping as an alternative land-use system in temperate North America. Agroforestry Systems 19: 253-263.

Matthews, S., S.M. Pease, A.M. Gordon and P.A. Williams. 1993. Landowner perceptions and the adoption of agroforestry practices in southern Ontario, Canada. Agroforestry Systems 21: 159-168.

Williams, P.A. and A.M. Gordon. 1994. Agroforestry applications in forestry. Forestry Chron. 70(2): 143-145.

Williams, P.A. and A.M. Gordon. 1995. Microclimate and soil moisture effects of three intercrops on the tree rows of a newly planted intercropped plantation. Agroforestry Systems 29: 285-302.

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- Williams, P.A. 1991. (Ed) Proceedings of the First Conference on Agroforestry in North America, Guelph, Ontario, August 13-16, 1989. Published by the Ontario Ministry of Agriculture and Food. 262 pp.
- Williams P.A., S.M. Pease and A.M. Gordon 1994. Introduction to Forestry. Department of Environmental Biology, University of Guelph, Guelph, Ontario, N1G 2W1. 264 p.
- Williams, P.A., S.M. Pease and A.M. Gordon. 1993. Introduction to agroforestry. Department of Environmental Biology, University of Guelph, Guelph, Ontario, N1G 2W1. 227 p.
- Williams, P.A. and S.M. Pease. 1994. An Advanced Course in Agroforestry. Department of Environmental Biology, University of Guelph, Guelph, Ontario, N1G 2W1. 164 p.
- Pease, S.M. and P.A. Williams. 1995. Citizen Arborist Study Guide. International Society of Arboriculture, Inc., Box 995, Stn. B., Willowdale, Ontario, M2K 2T6. March, 1995. 142 p.
- Gordon, A.M., S.M. Newman and P.A. Williams 1987. Temperate Agroforestry Systems: an overview. In: Temperate Agroforestry Systems (A.M. Gordon and S. Newman, Eds). C.A.B. International. 198 Madison Ave, NY. p 1-9. 269 p.
- Williams, P.A., A.M. Gordon, L. Buck, and H.E. Garrett. 1997. North American Agroforestry and its Role in Farming Systems. In: Temperate Agroforestry Systems (A.M. Gordon and S. Newman, Eds). C.A.B. International. 198 Madison Ave, NY. p 9-71. 269 p.

OTHER PUBLICATIONS:

- Williams, P.A. 2025. Transitioning Conifer Plantations to Mixed Forests. In Press: Presented at 3rd Northern Hardwoods Conference, August 5-7, 2025, Syracuse, NY. 3 p.
- Williams, P.A. and T. McCay. 2025. Irregular Shelterwood Systems in Ontario. Ontario Woodlander, Issue 120. P 20-22.
- Williams, P.A. and E.P. Taylor 2024. Soil-Site Relationships with Sugar Maple Heartwood/Color Formation in Southern Ontario. Proceedings of the 22nd Central Hardwoods Forest Conference: managing future forests today. Gen. Tech. Rep. NRS-219, Madison, WI: US Dep of AG, Forest Service, N. Res. Stn. P 102-109. <https://doi.org/10.2737/NRS-GTR-219>
- Williams, P.A. 2021. Using irregular shelterwood systems to optimize value growth in southern Ontario maple forests. In Press: Extended Abstract presented at the 1st Northern Hardwoods Forest Conference, June 15-16, Green Bay, Wisconsin. P 175-178.
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- Williams, P.A. and C. Karandiuk. 2016. Planning for and implementing an emerald ash borer borer-induced forest restoration program in municipal woodland in Oakville, Ontario. In Kabrick, John et al. eds. Proceedings 20th Cent. Hardwood Forest Conference, March 28-April 1 2016; Columbia, Missouri. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station P 167: pp 248-256.
- Williams, P.A. 2014. Salvaging Ash from Urban Woodlands in Southern Ontario (Abstract). In: Groninger, John W.; Holzmüller et al., eds. Proceedings, 19th Central Hardwood Forest Conference; 2014 March 10-12; Carbondale IL. U.S. Department of Agriculture, Forest Service; Newtown Square, PA; p 387.
- Williams, P.A., T.D. Schwan and K. Elliot. 2013. A Perspective on S. Ontario Forests. Newsletter, Ont. Prof. For. Assn. Newsletter # 212, December, 2013. p 9.
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Luke Kastelic Forester

EDUCATION:

<u>Degree</u>	<u>Institution</u>	<u>Major</u>	<u>Year</u>
B.Sc.F..	University of New Brunswick	Forestry	2019
Diploma,	Sir Sandford Fleming College	Forest Technician	2016
Sticks and Stones	Wilderness School	Apprentice	2014

CERTIFICATIONS:

Registered Professional Forester, Mechanical Harvesting Equipment Operator Supervisor and Approved Evaluator, First Aid & CPR, Certified Ontario Tree Marker, Managed Forest Plan Approver, Ontario Pesticide Applicator (Forestry).

EXPERTISE:

Forest inventory, managed forest plan development, forestry bylaw infraction assessment, silvicultural prescription development, forest assessment-sensitive site mapping; road and harvest block layout, planning and implementing afforestation projects and restoration projects in S. Ontario, invasive plant control, tree marking, forest harvest preparation and monitoring, arborist reports, butternut health assessment, municipal canopy cover analysis.

EMPLOYMENT EXPERIENCE

Sept. 2022- Current	Forester – Woodland Management planning & management. Forest inventory, Data Management, GIS mapping, Bylaw infraction assessment	Williams & Associates, Forestry Consulting Ltd., Rockwood, Ont
2020 - 2023	Forest Technician, Operational Forester – Planning and implementing afforestation and forest restoration projects – invasive mgt, planting	Bartram Woodlands Ltd. Guelph, Ontario
2018 – 2020	Woodlands Operations Supervisor,	EACOM Timber Ear Falls, Ontario
Summer 2018	Summer Student Forest harvest preparation and management.	EACOM Timber Ear Falls, Ontario
Summer 2017	Summer Watershed Management Student	Halifax Water Halifax, NS
Summer 2016	Timber Layout Technician	Spectrum Resource Group Prince George, BC



Profession

Project Manager- Terrestrial Ecologist

Education

Bachelor of Arts, University of Guelph,
Ontario
2013

Ecosystem Restoration Post Graduate
Diploma, Niagara College, Ontario
2014

Professional Societies

International Society of Arboriculture
certified Arborist

Employment Record

Project Manager- Terrestrial Ecologist,
R.J. Burnside & Associates Limited
(March 2022- Present)

Ecologist, Matrix Solutions Inc. (January
2015- February 2022)

Field Technician, Parish Geomorphic
Ltd. (June 2015- December 2015)

GIS Technician, Durham District School
Board- Transportation Dept. (May-
September 2014)

Water Resource Technician, Central
Lake Ontario Conservation Authority
(May- September 2012 & 2013)

Citizenship

Canadian

Languages

English

Erica Mekli, B.A.

As Project Manager/ Terrestrial Ecologist for R.J. Burnside & Associates Limited, Ms. Mekli's role includes involvement in multiple land development projects from initial natural heritage constraints investigations through to post-construction ecological restoration and monitoring, while also coordinating the management of project budget, scope, and deliverables. Ms. Mekli has a wide variety of experience with field program coordination, field data collection, data management, reporting, and project management. She has extensive experience conducting natural heritage assessments, tree inventories, SAR and SAR habitat assessments, ELC mapping, aquatic habitat mapping, and vegetation monitoring. Ms. Mekli is also an ISA certified arborist (ON-2367A) and Butternut Health Assessor (BHA #658).

Select Project Experience

Private Sector Development

Thompson's Corners- Neighbourhood 20, Seaton TFPM Inc., Seaton, Pickering, Ontario (2022-Present)

Terrestrial Ecologist responsible for ongoing ecological components of overall site development. Coordinates and leads field work related to ELC, amphibian breeding surveys, tree inventories, and SAR habitat assessments. Aids in coordination of compensation and restoration strategies, SAR authorizations, and contributes to scoped environmental impact studies (EIS).

Park 505, City of Mississauga, Mississauga, Ontario (2022-2025)

Terrestrial Ecologist responsible for ongoing ecological components of overall site development. Coordinates and leads field work related to ELC, amphibian breeding surveys, tree inventories, and SAR habitat assessments. Aids in coordination of compensation and restoration strategies, SAR authorizations, and contributes to scoped environmental impact studies (EIS).

Innis Lake Due Diligence, Mattamy Homes, Caledon, Ontario (2022)

Terrestrial Ecologist responsible for ecological data collection of vegetation community identification, SAR habitat assessment, and delineation of environmental setbacks. Main author of a due diligence report that included summary of site visit findings and policy related site constraints.

Salem Environmental Impact Study, Mattamy Homes, Barrie, Ontario (2022-2025)

Project manager responsible for the technical studies, schedule, and budget of the project. Also, the Terrestrial Ecologist responsible for conducting ELC, botanical inventory, and SAR habitat assessments. Led the compilation and completion of the EIS report, including impact assessments. Aided in the completion of an Information Gathering Form (IGF) for SAR bats and Butternut and led the registration of Butternut under O.Reg. 830/21.

Brooklin- Ashburn Environmental Impact Study, Mattamy Homes, Whitby, Ontario (2018-Present)

Led the second submission of the Environmental Impact Study, including updating report to satisfy Conservation Authority first submission comments, evaluating study area for compensation opportunities, and working with engineers and planners to refine environmental constraints during draft plan approval phase.



Wellington Bay Estates Due Diligence, Parkbridge, Prince Edward County, Ontario (2022)

Terrestrial Ecologist responsible for ecological data collection of vegetation community identifications, SAR habitat assessment and delineation of environmental setbacks. Authored a due diligence report that included a summary of findings, policy related constraints, and provided client with next steps relating to natural heritage and SAR.

Environmental Inspection and Monitoring

Parkside Heights Wetland Monitoring, PARTACC Gate Kennedy Developments Inc., Brampton, Ontario (2018-Present)

Conducted amphibian breeding surveys following the *Marsh Monitoring Program Participant's Handbook for Surveying Amphibians* (2008), as well as turtle surveys following the *Survey Protocol for Blanding's Turtle in Ontario* (2015). Provided input into the Year 4, 5 and 6 monitoring reports.

Berczy Glen Restoration Planting Monitoring, Mattamy Homes, Markham, Ontario (2023- ongoing)

Following an approved Adaptive Management Plan (AMP), designed and led the restoration planting monitoring plan to the satisfaction of the Town and TRCA. Used surveyed transects to provide consistent data collection year over year and recorded vegetation density information for comparative discussion. Completed annual monitoring field work and authored the annual vegetation monitoring report.

Seaton i57 Geomorphic and Vegetation Monitoring, Morrison Hershfield, Pickering, Ontario (2020- ongoing)

Aided in the installation of geomorphic monitoring techniques and coordinated the multi-year vegetation monitoring plan. Conducted the remeasurement of longitudinal surveys, erosion pins, and benchmarked cross-sections. Conducted post installation planting investigations to ensure correct quantity of plantings had been installed and that the health of vegetation was adequate. Led the follow up monitoring to report on planting success rates and recommendations for replacement. Completed annual reporting on both geomorphic and vegetation findings to provide client an understanding of post-construction site characteristics.

Natural Heritage Assessments/ Environmental Impact Studies

Pinder Subwatershed Impact Study, Pinder Development Group, Milton, Ontario 2023-ongoing)

Project Coordinator of the ecological field studies and completion of a large-scale Subwatershed Impact Study (SIS). Completed policy review and evaluation of field study results to determine the boundary of the Natural Heritage System and development limit. Lead author of environmental sections of the SIS report, as well as coordinated multiple disciplines/ consultants on compiling SIS document for submission.

Innis Lake Secondary Plan Subwatershed Study, Mattamy Homes, Caledon, Ontario (2025-ongoing)

Managed natural heritage field program including the completion of detailed ELC, amphibian breeding surveys, breeding bird surveys, SAR habitat assessments, significant wildlife habitat verification, and incidental wildlife observations. Completed policy review of newly approved Future Caledon Official Plan to determine significant woodlands and other environmental constraints. Authored existing conditions, significant woodland evaluation, and proposed linkages.

Various Species at Risk Bat Assessments, Infrastructure Ontario, various locations, Ontario (2020-2022)

Co-managed various SAR bat assessments throughout Southern Ontario. Management included field coordination, internal/external structure assessments, acoustic data collection, data management, and authoring large scale reports.

Municipal Infrastructure

Seaton Assignment 12, TFPM Inc./ Durham Region, Pickering, Ontario (2024 to ongoing)

Project Coordinator for terrestrial ecology aspects and lead author of EISs, impact compensation and tracking, restoration planning, and agency liaison for SAR. This includes Ecological Land Classification, amphibian breeding surveys, Butternut Health Assessments, tree management plan, and SAR Information Gathering Form.

Burnhamthorpe Trail Crossing, City of Mississauga, Mississauga, Ontario (2025- 2026)

Completed tree inventory and natural heritage evaluation as it related to the installation of a Multi-Use Trail (MUT) as part of a municipal Active Transportation plan. Created a Tree Preservation Plan (TPP) to be used during the construction phase of the project. Also authored a Natural Heritage Evaluation to determine impacts to the adjacent watercourse and wooded valley based on planned construction work.



Guelph Victoria & Stone Rd Environmental Assessment, Guelph, Ontario (2025-ongoing)

Lead arborist for the collection, management and reporting of all tree data related to road realignment and grading. Co-coordinated the terrestrial ecology fieldwork for the Natural Environment Report including, Ecological Land Classification, amphibian breeding surveys, breeding bird surveys, and Species at Risk habitat assessment. |