Environmental Impact Study
Elora Sands and Keating Lands
Township of Centre Wellington
Wellington County

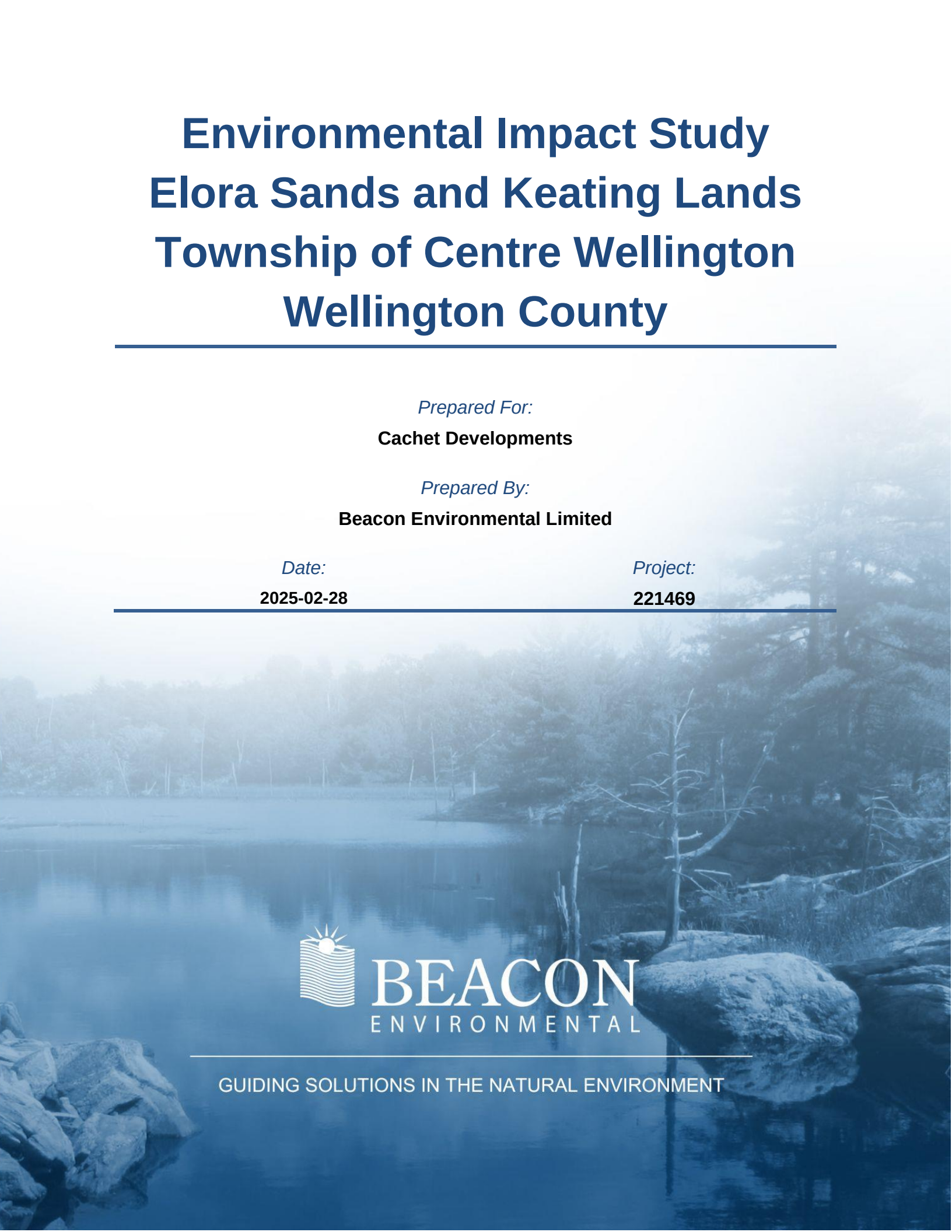
Prepared For:

Cachet Developments

Prepared By:

Beacon Environmental Limited

Date:	*Project:*
2025-02-28	**221469**



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1. Introduction

Beacon Environmental Limited (Beacon) has been retained by Cachet Developments to prepare an Environmental Impact Study (EIS) for a proposed Urban Boundary Expansion and Official Plan Amendment (OPA) The lands that comprise the proposed boundary expansion and OPA are owned by Cachet Developments and Tom Keating.

The parcel of land owned by Cachet Developments is located at 7581 Sideroad 15 (SR15), in the geographic Township of Nichol, located in the community of Salem, Township of Centre Wellington, County of Wellington. These lands are herein referred to as the "Elora Sands subject property". The Elora Sands are generally bounded by SR15 to the northwest, by Gerrie Road to the southeast, by existing agricultural (known as the Keating Lands) to the south, Irvine Street to the southwest, and bisected by the Nichol Drain No. 1 (ND1) (**Figure 1**).

The Elora Sands property comprises a total area of approximately 39.2 ha (96.87 acres). This property is currently developed with a house, barn and accessory structures. The property is primarily in agriculture use with a municipal drain, hedgerows, coniferous plantation and marsh community surrounding the drain within a valley corridor. The marsh community, valley and municipal drain are regulated by the Grand River Conservation Authority (GRCA) and are designated as "Core Greenlands" in the County of Wellington Official Plan (2024).

Tom Keating owns the parcel of land to the south of the Elora Sands subject property legally described as Part of Lot 17, Concession 12. These lands are herein referred to as the "Keating subject property". The Keating subject property is generally bounded by existing agricultural to the north (Elora Sands property), by Gerrie Road to the east, by existing residential, agricultural and unevaluated wetlands and woodland to the south, by Irvine Street to the west and by ND1 to the northeast (**Figure 1**).

The Keating property comprises a total area of approximately 37.75 ha (92.7568 acres). This property is also developed with a house, barn, shed structures and associated buildings in the southeastern portion. The majority of the property is an agricultural field with a municipal drain traversing along the northeastern property boundary as described above. An unevaluated wetland and woodland are present in the southwestern portion of the property and a second unevaluated wetland and woodland are present adjacent to the property to the south. A watercourse is present offsite to the southwest of the Keating subject property (herein referred to as the "Queen Street tributary"). The marsh community, municipal drain, unevaluated wetlands and offsite watercourse are regulated by the GRCA and are designated as "Core Greenlands" in the County of Wellington Official Plan (2024).

The proposed development plans for the Elora Sands and Keating subject properties include a phased approach to develop low density residential, medium density residential, a seniors' residence, a park, stormwater management facilities (SWMF) blocks, municipal right-of-ways and municipal laneways. One of the SWMF blocks includes the SWMF proposed as part of the Clayton subdivision development described in the *Scoped Environmental Impact Study Elora Clayton* (Beacon 2024) that will outlet to the Nichol Drain.

An EIS has been prepared in support of the application for an Urban Boundary Expansion and an OPA. The purpose of this EIS is to:

- Provide an overview of the existing natural heritage conditions and features both on and immediately adjacent to the subject properties;
- Identify applicable environmental polices and evaluate project conformance with relevant provincial and municipal planning documents, and GRCA policies and regulations;
- Identify a Natural Heritage System and discuss potential development impacts to natural heritage features and ecological functions; and
- Describe potential impacts and recommend appropriate mitigation measures to be implemented as the project moves forward.

A terms of reference for the EIS for the subject properties was sent to the GRCA and Township on January 27, 2025 to ensure their planning and ecology staff were in agreement with the scope of work undertaken for this report (**Appendix A**).

2. Methodology

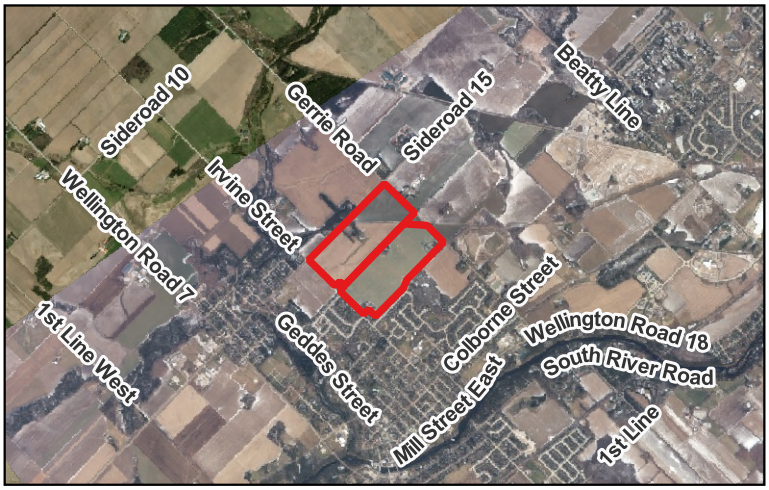
To characterize natural heritage resources and functions associated with the subject properties and adjacent lands, Beacon completed a review of available background information and undertook background and seasonal field investigations. Additional seasonal field investigations will be completed in spring and summer 2025 to support the project as it moves to Draft Plan of Subdivision, as detailed in the sections below. The information reviewed and surveys undertaken is summarized below.

2.1 Background and Policy Review

Background information was gathered and reviewed at the outset of the project. This involved consideration of the following documents and information sources, as relevant to the subject properties:

- Provincial Planning Statement (PPS; 2024);
- County of Wellington Official Plan (July 2024 Office Consolidation);
- Township of Centre Wellington Official Plan (2024);
- Township of Centre Wellington Comprehensive Zoning Bylaw No. 2009-045 (February 2024);
- GRCA policies and regulations (2024);
- Land Information Ontario and Ministry of Natural Resources and Forestry (MNRF) resource information;
- *Endangered Species Act* (ESA; 2007); and
- Federal *Fisheries Act* (1985).

Other sources of information such as current and historical aerial photographs, local topographic survey data, were also reviewed prior to commencing field investigations.



Site Location	Figure 1
Elora Clayton EIS	
BEACON ENVIRONMENTAL	Project: 221469 Last Revised: February 2025
Client: Cachet Developments	Prepared by: BD Checked by: KQ
N 1:12,800	Inset Map: 1:70,000

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Further, Beacon's background review also includes analysis of numerous information sources in a Geographic Information System (GIS) environment that facilitates an assessment of the likelihood that species at risk and other natural heritage features are present in an area of interest. This system allows Beacon to combine the most current information provided by the MNRF through the Land Information Ontario (LIO) portal with GIS layers from other provincial and local datasets, including but not limited to, floral and faunal atlas data. This system enables the creation of a list of Species at Risk for which there are records or which might be expected to occur within 5 km of a location. All relevant layers can then be overlaid on the most recent high resolution ortho-imagery. The screening process helps identify areas that can then be targeted (for example, potential habitat) during the field program to maximize the efficiency and effectiveness of on-site investigations.

Information sources reviewed included:

- Provincially tracked species layer (1 km grid LIO dataset);
- Ontario Reptile and Amphibian Atlas (ORAA);
- Ontario Breeding Bird Atlas (OBBA);
- eBird (via the eBird Hotspot online mapping);
- iNaturalist (via the Explore Observations online mapping):
- Atlas of the Mammals of Ontario (Dobbyn 1994);
- Natural Heritage Information Centre (NHIC) Data via the Make-A-Map application;
- Species at risk range maps (Government of Ontario);
- High resolution aerial photography of the property;
- Natural and physical feature layers (e.g. topographic, wetland, waterbody, watercourse data), LIO and Aquatic Resource Area (ARA) datasets;
- Ontario Geological Survey (OGS) and soil physiography (Chapman and Putnam) datasets; and
- Nichol Drain Subwatershed Study Phase 1 Existing Conditions Final Report (Aquafor Beech Limited 2008).

2.2 Field Investigations

The following field investigations were undertaken by Beacon ecologists in the 2022, 2023 and 2024 field seasons as part of this study to characterize the natural heritage features and functions associated with both of the subject properties. It is acknowledged that additional seasonal surveys will be required as the project moves forward in the planning process; these surveys will be conducted in the 2025 field season.

A summary of the field visits conducted and corresponding survey dates is presented in **Table 1**. Detailed methodology and survey descriptions are provided in the subsections that follow.

Table 1. Summary of Field Investigations

Field Investigation	Dates
Ecological Land Classification and Flora	April 19, 2022; June 14 2023 and November 28, 2024
Wetland Feature Staking by GRCA	September 26, 2023

Field Investigation	Dates
Breeding Bird Surveys	May 29 and June 8, 2023
Amphibian Call Surveys	April 14, May 11 and June 27, 2023
Aquatic Habitat Assessment	April 19, 2022
Bat Habitat Assessment	November 28, 2024

2.2.1 Aquatic Habitat Assessment

An aquatic habitat assessment was completed for the Nichol Drain, part of the Irvine Creek system, on Elora Sands. The assessment of aquatic habitat within the watercourse on the subject property involved a visual assessment of the following characteristics while walking the entire watercourse within the subject property boundaries:

- Channel width and depth profile, bank height, bank stability;
- Substrate types and distribution;
- Fish barriers;
- Riparian vegetation type and cover; and
- In-stream cover type and extent.

An aquatic habitat assessment will be completed for the Queen Street tributary, part of the Irvine Creek system, southwest of the Keating subject property in the summer of 2025 to the extent feasible given private property ownership.

2.2.2 Ecological Land Classification and Floral Inventory

Vegetation surveys and community mapping was undertaken to describe and map the existing vegetation communities on current colour ortho-photography of the lands using the Ecological Land Classification (ELC) system for southern Ontario (Lee *et al*. 1998). This is the standard method used for describing vegetation communities in southern Ontario.

Additionally, a search for Butternut (*Juglans cinerea*), a provincially endangered tree species was conducted during the vegetation community survey.

As the Keating property has only been surveyed for vegetation and community mapping in November 2024, an in-season botanical inventory will be conducted in 2025 on this property.

2.2.3 Woodland Dripline Feature Staking

The approximate boundaries of the woodlands present in the southwestern portion of the Keating subject property were delineated during vegetation community mapping on November 28, 2024 by Beacon. The Township has been invited to review and verify the woodland boundaries in 2025. These boundaries are therefore subject to refinement by the Township.

2.2.4 Wetland Feature Staking

A feature staking of the wetlands present within the northeastern portion of the Elora Sands property was completed on September 26, 2023 with Robert Messier, an ecologist from the GRCA, and Beacon ecologists present. The digital files representing the staked lines were reviewed and verified by GRCA on September 26, 2024 (**Appendix A**). No other natural heritage features were staked during this visit.

No natural heritage feature staking has been completed to date on the Keating property. Should additional feature staking be required, it will be conducted in the 2025 field season.

2.2.5 Breeding Bird Surveys

Two breeding bird surveys were conducted on the Elora Sands property on the mornings of May 29 and June 8, 2023, on days with low to moderate winds (0-2 Beaufort Scale), no precipitation, and temperatures within 5°C of normal average temperatures. The breeding bird community was surveyed using a combination of point counts, transect walking, and roving. The point counts and transects were conducted in the habitat that is suitable for Eastern Meadowlark (*Sturnella magna*) and Bobolink (*Dolichonyx oryzivorus*), to ensure accurate abundance estimate. The point counts involved standing in one spot for 5 minutes and recording all birds seen and heard within a 200 m radius. A point count was done in two different locations within the suitable habitat (**Figure 2**). The transect survey included walking transects and pausing to listen and observe within the suitable habitat as per the *Survey Protocol for Eastern Meadowlark (Sturnella magna) in Ontario* (OMNR 2013). The roving survey, in which all parts of the study area were walked to within 50 m and all birds heard or observed and showing breeding evidence (e.g. singing in suitable habitat or seen in pairs) were recorded as breeding species, was conducted within all other habitats of the subject property. All birds seen or heard were recorded in the location observed on an aerial photograph of the site. The site visits were made more than one week apart in accordance with standard southern Ontario breeding bird survey protocols. For further details on the breeding bird survey methodology used by Beacon ecologists, see **Appendix B**. An annotated species list was compiled indicating provincial breeding status, as well as provincial and federal endangered and threatened species encountered.

Breeding bird surveys will be conducted in the spring of 2025.

2.2.6 Amphibian Call Surveys

Amphibian call surveys were undertaken during the spring of 2023 to determine if any features on the Elora Sands subject property support significant breeding habitat for frogs and toads. Surveys were conducted following the *Marsh Monitoring Protocol* (Bird Studies Canada 2009). The surveys consist of listening for calling males during the prime breeding period to determine presence and abundance.

The surveys involve visiting the site after dusk with minimum night-time air temperatures of at least 5°C for the first survey, 10°C for the second survey and 17°C for the third survey. Surveys were conducted at least 15 days apart. Areas that contained potential breeding amphibian habitat were surveyed from a distance that would enable calling amphibians to be heard. A total of two survey stations were established as illustrated and numbered on **Figure 2**. Survey details, including dates, times and weather conditions are summarized in **Table 2;** wind conditions are provided using the Beaufort Scale.

Table 2. Breeding Amphibian Survey Details

	Survey 1	Survey 2	Survey 3
Date	April 14, 2023	May 11, 2023	June 27, 2023
Start Time	22:02	22:25	22:54
Temperature (°C)	19	16	15
Wind Speed (Beaufort)	0	1	2
Cloud Cover (%)	0	0	100
Precipitation	None	None	None

Calling amphibians, if present, were identified to species and calling activity was assigned a code from the following options, which indicate increasing abundance:

0 - No calls;
1 - Individuals of one species can be counted, calls not simultaneous;
2 - Some calls of one species simultaneous, numbers can be reliably estimated; or
3 - Full chorus, calls continuous and overlapping.

Using this code method, areas that support a Code 1 for a species indicate very low population numbers in the local area, and/or low-quality breeding habitat. Code 3 for species indicates a healthy population and high-quality breeding habitat with over 20 individuals. Code 2 indicates a moderate population and/or lower quality breeding habitat.

Species, calling locations and approximate numbers of calling individuals were recorded and mapped. The survey method provides an indication of amphibian abundance during the breeding season.

Amphibian call surveys will be conducted in the spring of 2025 on the Keating subject property.

2.2.7 Bat Habitat Assessment

A bat habitat assessment was undertaken in accordance with the Ministry of the Environment, Conservation and Parks (MECP) updated 'Species at Risk Bats Survey Note 2022' guideline (undated) and 'Maternity Roost Surveys (Forests/Woodlands)' protocol (hereinafter 'protocol'; undated).

As per Step 1 of the protocol, any coniferous, deciduous or mixed wooded ecosite are considered candidate maternity roost habitat. As noted in the 'Species at Risk Bats Survey Note 2022' guideline, *the Ecological Land Classification (ELC) codes listed are meant to provide guidance, however any area with suitable roost trees should be considered potential maternity or day roost habitat*.

The bat habitat assessment included all treed areas within the proposed development limits of the Elora Sands and Keating subject properties, which included coniferous plantation (CUP3-3) and cultural woodland (CUW1) (**Figure 2**). Based on the community type and canopy cover, these communities could provide potential maternity roost habitat.

Existing Conditions

Figure 2

Elora Clayton EIS

Legend

- Subject Property
- Ecological Communities
- Watercourse (MNRF 2021)
- Staked Wetland (GRCA 2023)
- Approximate Floodplain Limit (From Nichol Drain Subwatershed Study 2008)
- Core Greenlands (Approximate; From County of Wellington Official Plan 2024)
- Greenlands (Approximate; From County of Wellington Official Plan 2024)
- Amphibian Survey Stations
- Bobolink Observation Locations
- Barn Swallow Nesting Habitat
- Bat Habitat Sample Plots (12.6 m radius)

Snag Locations

- Myotis
- Tri-Colored

Code	Wetland Communities
MAM2-2	Reed-canary Grass Mineral Meadow Marsh
SWT2-2	Willow Mineral Thicket Swamp
SWT2-5	Red-osier Mineral Thicket Swamp
	Forest Communities
FOD7	Fresh - Moist Lowland Deciduous Forest
	Cultural Communities
CUM1	Mineral Cultural Meadow
CUP3-3	Scotch Pine Coniferous Plantation
CUT1-5	Raspberry Cultural Thicket
CUW1	Mineral Cultural Woodland
	Other Communities
AG	Agricultural Crop
ANT	Anthropogenic
HE	Hedgerow

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Project: 221469

Last Revised: February 2025

Client: Cachet Developments

Prepared by: BD
Checked by: KQ

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Detailed bat snag surveys were undertaken on November 28, 2024 to determine the occurrence of snag trees in accordance with Step 5 of the protocol. As the portion of the CUP3-3 community within the proposed development limit is less than 0.5 ha in extent, it was surveyed in its entirety using transect surveys as per Step 5 of the protocol, while the CUW1 community was surveyed using the plot methodology in accordance with Step 2 of the protocol. For the plot methodology, ten circular plots with an area of 0.05 ha were randomly placed within the CUW1 community. The survey was completed during leaf off, and under suitable conditions (i.e., no precipitation, not immediately following heavy snowfall). The habitat assessment included trees at least 10 cm diameter at breast height (DBH) as the 'Species at Risk Bats Survey Note 2022' guideline notes that *there are numerous peer-reviewed publications demonstrating that trees measuring less than 25 cm DBH support maternity and day roosts of little brown myotis, northern myotis and tri-colored bat*. Snag trees with characteristics favourable to Myotis species were considered. In addition, oak species with a DBH greater than 10 cm or maple species with a DBH greater than 25 cm were noted to consider habitat for Tri-colored Bat (*Perimyotis subflavus*). All snag trees observed were provided a unique code and the following parameters were documented:

- Species;
- Location;
- Approximate tree height;
- Diameter breast height;
- Number of cavities;
- Characteristics of cavity;
- Approximate height of cavities; and
- Tree condition.

2.2.8 Endangered or Threatened Species

As described in Section 2.1 of this report, Beacon conducts a background review of numerous information sources in a GIS environment. This includes a desktop screening for candidate species at risk for which there are records or which might be expected to occur within 5 km of the subject property of interest. The GIS analysis for this screening uses the information sources listed in Section 2.1 to create a candidate species at risk list which is then assessed based on the habitat present on the subject property to identify whether that species has potential to occur or not. This further informs areas to target during the field program to maximize the efficiency and effectiveness of on-site investigations. Additionally, citizen science data sources, such as eBird, iNaturalist and the Atlas of the Mammals of Ontario (Dobbyn 1994) were reviewed for species at risk recorded within 5 km of the subject properties.

During all field investigations, Beacon staff then further considered the potential habitat suitability for species of plants and animals identified during the desktop screening which are subject to the ESA and associated regulations on the Elora Sands and Keating subject properties.

2.2.9 Significant Wildlife Habitat Screening

Beacon staff considered the presence or absence of candidate SWH per the Ecoregion 6E criteria during all field investigations on the Elora Sands and Keating subject properties in accordance with the PPS (2024). This also included a desktop screening for SWH, including a review of citizen science data sources and the Atlas of the Mammals of Ontario (Dobbyn 1994), using the criteria laid out for Ecoregion 6E in the *Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E* (OMNRF 2015).

2.2.10 Incidental Wildlife

Incidental observations of other wildlife, including reptiles, amphibians and/or mammals were made during field investigations. This included sounds heard, scat, tracks and visual observations. At this time, potential for significant wildlife habitat was also considered.

3. Natural Heritage Policy Review

A policy review was undertaken to identify environmental planning considerations and requirements, as applicable to the subject properties and proposed development and site alteration activities.

3.1 Provincial Planning Statement (2024)

The Provincial Planning Statement (PPS) was issued under section 3 of the *Planning Act* and came into effect October 20, 2024. It replaces the Provincial Policy Statement that came into effect May 1, 2020.

Chapter 4.1 of the PPS provides direction to regional and local municipalities regarding planning policies specifically for the protection and management of natural heritage features and their ecological functions.

The PPS provides planning policies for the following features:

- Significant wetlands;
- Significant coastal wetlands;
- Significant woodlands;
- Significant valleylands;
- Significant wildlife habitat;
- Significant Areas of Natural and Scientific Interest (ANSIs);
- Fish habitat; and
- Habitat, and significant habitat, of endangered and threatened species.

Each of these features is afforded varying levels of protection subject to guidelines, and in some cases, regulations. Identification of the various natural heritage features noted above is a responsibility shared by Ministry of Natural Resources and Forestry (MNRF), Ministry of Environment Conservation and Parks (MECP), Fisheries and Oceans Canada (DFO) and the local planning authority.

MNRF is responsible for the Areas of Natural and Scientific Interest (ANSIs), while MECP is responsible for the confirmation of habitat of endangered species and threatened species, and for its regulation under the *Endangered Species Act*.

Local and regional planning authorities are responsible for the identification of significant wetlands, significant woodlands, significant valleylands, and significant wildlife habitat, with support from applicable guidance documents (i.e., Natural Heritage Reference Manual [MNR 2010]; Significant

Wildlife Habitat Technical Guidelines [MNR 2000]; and Significant Wildlife Habitat Criteria for Ecoregion 6E, [MNRF 2015]). Identification and verification of fish habitat is now self-regulated although enforcement of the related policies and regulations is still managed by MNRF and regulated by the DFO.

In areas where significant natural heritage features are present, the boundaries of natural heritage features are further refined through site-specific studies undertaken as part of the planning process and in accordance with the requirements of municipal policies.

Policy 4.1.4 and 4.1.5 of the PPS state that development and site alteration shall not be permitted in natural features listed above unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.

Policy 4.1.8 states that development of lands adjacent to natural features is not permitted unless the ecological function has been evaluated and it has been demonstrated that there will be no negative impacts on features or functions. Further, policies 4.1.6 and 4.1.7 state that development shall not be permitted in fish habitat or habitat of threatened and endangered species, expect in accordance with provincial and federal requirements.

3.2 County of Wellington (2024)

Within their Official Plan, Wellington County has identified a Greenlands System, which is illustrated on Schedule B1 of the Official Plan. Schedule B1 shows that the Elora Sands subject property is designated as prime agricultural, within the rural system, within the community planning study area and has “Core Greenlands” traversing the subject property in a west to east direction which overlaps with the Nichol Drain, surrounding wetland community and valley in the northeast. “Core Greenlands” continue to the northwest and southeast of the Elora Sands property where they continue to overlap with this municipal drain. Similarly, Schedule B1 shows that the Keating subject property is designated as prime agricultural, within the rural system, within the community planning study area and has “Core Greenlands” traversing the northeastern corner of the property in a west to east direction which overlaps with the Nichol Drain and surrounding wetland community. “Core Greenlands” continue to the east of the Keating property where they continue to overlap with this municipal drain. “Core Greenlands” are also shown in the southwestern corner of the Keating property and adjacent to the Keating property to the south where they overlap with the offsite unevaluated wetlands. “Greenlands” are shown adjacent to the Keating property to the south where they overlap with portions of the offsite woodlands.

The Greenlands System is comprised of various natural heritage features, flood prone areas, and hazard lands. The system is divided into two broad categories: Core Greenlands and Greenlands.

Core Greenlands include the following features:

- Provincially Significant Wetlands (PSW) and all other wetlands;
- Habitat of endangered or threatened species;
- Fish habitat; and
- Floodway and hazardous lands.

Development and site alteration are not permitted in PSWs or habitat of endangered and threatened species, and is restricted in other wetlands, fish habitat, and floodways/hazard lands.

With regard to wetlands, Section 5.4.1 states:

> *All wetlands in the County of Wellington are included in the Core Greenlands. Development and site alteration will not be permitted in wetlands which are considered provincially significant. Provincially significant wetlands are shown in Appendix 3 of this Plan. All other wetlands will be protected in large measure and development that would seriously impair their future ecological functions will not be permitted. The appropriate Conservation Authority should be contacted when development is proposed in or adjacent to a wetland.*

With regard to habitat of endangered or threatened species and fish habitat, Section 5.4.2 states:

> *Development and site alteration will not be allowed in significant habitat of endangered or threatened species except in accordance with provincial and federal requirements. Development or site alteration adjacent to significant habitat of endangered or threatened species shall require a satisfactory Environmental Impact Assessment that demonstrates there will be no negative impact on the significant habitat of endangered or threatened species or its ecological function.*
>
> *Proponents will be directed to the federal or provincial agency that has jurisdiction over the species or habitat to be protected.*
>
> *Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.*

With regard to hazardous lands, Section 5.4.3 states:

> *The Core Greenlands designation includes areas subject to flooding hazards and erosion hazards and hazardous sites that could be unsafe for development or site alteration due to naturally occurring hazards like organic soils or unstable bedrock conditions. Generally, development shall be directed away from areas in which conditions exist which would pose risks to public health and safety or property caused by natural hazards.*
>
> *Development and site alteration will not be permitted in the floodway of a river or stream unless a Special Policy Area has been approved or it is permitted elsewhere in this Plan. In most parts of the County, a one-zone flood plain management concept applies and the floodway encompasses the entire floodplain.*
> *Development and site alterations will only be permitted in the flood-fringe portion of the floodplain (where a two-zone concept applies), in Special Policy Areas and in areas susceptible to other natural hazards if:*
>
> *a. the hazards can be safely addressed, and the development and site alteration is carried out in accordance with established standards and procedures;*
> *b. new hazards are not created and existing hazards are not aggravated;*
> *c. no adverse environmental impacts will result;*

d. essential emergency services have a way of safely entering and exiting the area during times of flooding, erosion and other emergencies;
e. the development does not include institutional uses or essential emergency services or the disposal, manufacturing, treatment or storage of hazardous substances;
f. no reasonable alternative is available.

In addition to the Core Greenlands features, the Greenlands System includes other natural heritage features such as:

- Wildlife habitat;
- ANSI;
- Streams and valleylands;
- Woodlands;
- Environmentally sensitive areas;
- Ponds, lakes and reservoirs; and
- Natural links.

In other Core Greenlands areas, and in Greenlands areas, permitted uses and activities may include:

- Agriculture;
- Existing uses;
- Conservation;
- Forestry;
- Aggregate extraction within Mineral Aggregate Areas subject to appropriate rezoning, licensing and the policies of this Plan;
- Open space; and
- Passive recreation (section 5.6.1).

These natural heritage feature areas are often found within Core Greenlands (section 5.5). Where they are outside Core Greenlands they are identified as Greenlands.

With regard to valleylands, Section 5.5.3 states:

> *Streams and valleylands are included in the Greenlands system. All streams and valleylands will be protected from development or site alterations which would negatively impact on the stream or valley- land or their ecological functions.*

With regard to woodlands, Section 5.5.4 states:

> *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.*

> *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 Bylaw.*
>
> *Smaller woodlands may also have local significance and, where practical, these smaller woodlands should be protected.*

While the Official Plan provides direction for studies (including an Environmental Impact Assessment) when development is proposed adjacent to the Greenlands, it does not provide any recommended or required setbacks to natural features.

With regard to adjacent lands, Section 5.6.3 states

> *For the purposes of this section of the Plan, adjacent lands are considered to be:*
>
> - *lands within 120 metres of provincially significant wetlands, provincially significant Life Science Areas of Natural and Scientific Interest, significant habitat of endangered and threatened species, fish habitat, significant wildlife habitat, significant valleylands, and significant woodlands.*
> - *lands within 30 metres of all other Core Greenlands and Greenland areas.*

With respect to stormwater management infrastructure, Section 12.6.1 “Utilities Allowed” of the Official Plan states that,

> *Except as provided for in Section 4.13, the following uses may be permitted in any land use designation, subject to the provisions of the Zoning By-law:*
>
> a) *utilities and services necessary for the transmission of municipal water, sewage, public roads, parking facilities and facilities for the detention, retention, discharge and treatment of storm water.”*

Section 11.3 provides guidance regarding stormwater management plans and assessment of potential impacts.

3.3 Township of Centre Wellington (2024)

Section A.2 of the Township of Centre Wellington Official Plan (2024) states the following regarding the relationship between the County of Wellington Official Plan and the Township of Centre Wellington Official Plan:

> *The County Official Plan provides a consistent set of planning policies for the entire County. The County Official Plan contains sufficient detail to provide appropriate official plan coverage for all of Centre Wellington.*
>
> *The County Official Plan designates three major land use systems – the Greenlands system, the Rural system and the Urban system. The Greenlands system consists of natural heritage features. The Rural system consists of prime agricultural areas, and the Urban system consists of hamlets and urban centres.*
>
> *In Centre Wellington, there are three Urban Centres, Fergus, Elora-Salem and Belwood. The remainder of the Township is part of the Greenlands and Rural systems.*
>
> *The County Plan also provides for local municipalities to rely on the County's planning policies or to develop their own more detailed policies for all or parts of their community. The Township of Centre Wellington has chosen to prepare its own local municipal plan.*
>
> *However, in order to avoid duplication, the Township has determined that the policies and land use plans of the County Official Plan pertaining to the Greenlands and Rural systems are appropriate for Centre Wellington. It is not necessary for the Township to maintain its own local municipal plan policies for the Rural and Greenlands areas.*
>
> *Therefore, this Municipal plan applies to the Urban Centres of Centre Wellington only. The County Official Plan will govern land use in the rural areas, and will set out the broad policies applying to the urban areas, including the determination of the rural-urban boundaries, but the Township will provide detailed planning policies for land use within the boundaries of the Urban Centres.*

As shown on Schedule A-1 Land Use Plan of the Township's Official Plan, the Elora Sands and Keating subject properties are currently outside of the urban boundary of Elora, and are therefore only under the jurisdiction of the County of Wellington and the GRCA.

3.3.1 Township of Centre Wellington Comprehensive Zoning By-law No. 2009-045 (2024)

Schedule A, Map 12 shows the Elora Sands and Keating subject properties as within the Agricultural (A) zone class with Environmental Protection and Environmental Protection Overlay surrounding the municipal drain. These zoning classes are further described in the table presented in Section 2.6 of the Zoning By-law document.

With respect to the Environmental Protection Zone and Environmental Protection Overlay, Section 2.6.3.5 states that:

> *The Environmental Protection (EP) Zone and Environmental Protection Overlay boundaries identified on the schedules to this By-law are intended to generally identify the location of potentially hazardous environmental features, or natural environment features that must be protected from development. During review of development applications and building permit applications, if necessary, the boundaries of the EP zone or overlay shall be more precisely determined in consultation with the Conservation Authority or other agencies having jurisdiction in the area.*

> *Where detailed resource mapping and/or site inspection results in a reinterpretation of the limits of the EP zone or overlay boundary, a zoning amendment will not be required, and all requirements of this by-law shall be reviewed relative to the revised interpretation of the EP Zone boundary, including any applicable setbacks. The uses and regulations of the adjacent zone on the same lot shall apply. Where a permit has been issued by the Conservation Authority, any provisions as set out in the permit shall also apply and shall supercede the zoning provisions where more restrictive.*

Section 9.2 of the Zoning By-law contains policies associated with the EP Zone and EP Overlay zone. As per Section 9.2.1, permitted uses within the EP Zone include:

- Agricultural uses excluding new buildings and structures and new hobby barns on a lot that also contains land zoned Agricultural (A);
- Flood or erosion control facilities; and
- Uses, buildings and structures accessory to the foregoing with the prior written approval of the Grand River Conservation Authority where applicable.

Section 9.2.3 of the Zoning By-law contains policies specific to the EP Overlay zone. This includes the table in section 9.2.3.2 which specifies that development is not allowed in the natural heritage features listed unless it has been demonstrated to the satisfaction of the Township that there will be no negative impacts on the feature or its ecological function.

With respect to stormwater infrastructure, Section 4.38 “Uses Permitted In All Zones” of the Township of Centre Wellington Comprehensive Zoning Bylaw (February 2024) states that:

> *Nothing in this By-Law shall apply to prevent or otherwise restrict in any way any of the following:*
>
> *4.38.2 The installation or maintenance of a water-main, well, sanitary sewer main, storm sewer main, pumping station, gas main, pipeline, storm water management facility, lighting fixture, overhead or underground electrical services, cable television, telegraph or telephone line or associated tower or transformer, together with any installations or structures appurtenant thereto.*

3.4 Conservation Authorities Act

Part VI of the *Conservation Authorities (CA) Act* (2024) sets out the regulatory powers of conservation authorities. The *CA Act* prohibits, in the absence of a permit, development activities to straighten, change, divert or interfere in any way with the existing channel of a river, creek, stream or watercourse or to change or interfere in any way with a wetland are prohibited. Development activities are also prohibited in hazardous lands in the absence of a permit issued by the GRCA.

Under Ontario Regulation 41/24 (2024) of the *CA Act*, the GRCA regulates hazard lands including floodplains, watercourses, valleylands, shorelines, and wetlands. GRCA also regulates other areas which include areas within 30 m of a wetland and 15 m from the greatest hazard associated with a watercourse (i.e. meanderbelt, floodplain, valley).

The GRCA may issue a permit for a prohibited activity if, in its opinion,

- the activity is not likely to affect the control of flooding, erosion, dynamic beaches, or unstable soil or bedrock;
- the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property; and
- any other requirements that may be prescribed by the regulations are met.

The GRCA may issue a permit with or without conditions.

The Elora Sands property is regulated by GRCA due to the presence of the valley in the northeastern portion of the property and the wetland community associated with the Nichol Drain and floodplain. The Keating property is regulated by GRCA due to the presence of the unevaluated wetland in the southwestern portion of the property, the unevaluated wetland adjacent to the property to the south and the wetland community associated with the Nichol Drain and floodplain in the northeastern portion of the property. Additionally, the Queen Street tributary offsite to the southwest of the Keating property is regulated by GRCA. Any development or site alteration adjacent or within regulated features may trigger the need for a permit.

3.5 Grand River Conservation Authority Policies (2024)

Grand River Conservation Authority Policies for the Administration of the Prohibited Activities, Exemptions and Permits Regulation Ontario Regulation 41/24 (GRCA 2024) includes policies for watercourses and areas of interference and provides guidance on the permitted uses and EIS requirements.

Per Section 8.1.1,

> *Development will not be permitted within the Riverine Flooding Hazard except in accordance with the policies in Sections 7.1.2-7.1.3 – General Policies and Sections 8.1.2-8.1.29 – Policies for One-Zone Policy Areas.*

Per Section 8.1.14,

> *Stormwater Management Facilities may be permitted within the Riverine Flooding Hazard but outside of the riparian zone or effective flow area, whichever is greater, in accordance with the policies in Sections 7.1.2-7.1.3 - General Policies, provided that there is no feasible alternative site outside the Riverine Flooding Hazard and where it can be demonstrated that:*
>
> *a. there is no loss of flood storage,*
> *b. natural erosion and sedimentation processes within the receiving watercourse are not impacted,*

c. where unavoidable, intrusions on significant natural features or hydrologic or ecological functions are minimized and it can be demonstrated that best management practices including site and infrastructure design and appropriate remedial measures will adequately restore and enhance features and functions,
d. facilities are excavated with minimal berming, special policy areas and floodplain flow regimes for a range of rainfall events including the Regional Storm are maintained, and all excavated material is removed from the Riverine Flooding Hazard, and
e. design and maintenance performance requirements as determined by the GRCA for the receiving watercourse are met and the effect of the floodplain flow regime on the intended function of the facility is incorporated into the siting and design.

Per Section 8.4.13,

Stormwater Management Facilities within a wetland may be approved for flood control purposes provided that a comprehensive plan supported by the GRCA, demonstrates that all alternatives to avoid wetland loss have been considered and a flood control structure is required to alleviate an existing flood or erosion problem of a regional scope, and where it can be demonstrated that:
a) all structural components and actively managed components of the stormwater management facility are located outside of the wetland,
b) a detailed study (scoped EIS) consistent with the comprehensive plan demonstrates how the hydrologic functions of the wetland will be protected, restored or enhanced,
c) sedimentation during construction and post construction are minimized using best management practices including site and facility design, construction controls, and appropriate remedial measures,
d) design and maintenance requirements as determined by the GRCA are met, and
e) works are constructed, repaired or maintained according to accepted engineering principles and approved engineering standards or to the satisfaction of the GRCA, whichever is applicable based on the scale and scope of the project.

In addition to satisfying the necessary policies, a permit must be obtained for any development and/or site alteration within a regulated area.

3.6 *Endangered Species Act* (2007)

Ontario's ESA came into effect on June 30, 2008 and replaced the former 1971 Act. The ESA protects species listed as endangered and threatened by the Committee on the Status of Species at Risk in Ontario (COSSARO). The purposes of the ESA are:

- To identify species at risk based on the best available scientific information, including information obtained from community knowledge and aboriginal traditional knowledge;

- To protect species that are at risk and their habitats, and to promote the recovery of species that are at risk; and
- To promote stewardship activities to assist in the protection and recovery of species that is at risk.

Section 9 of the ESA prohibits the killing, harming, harassing, possession, collection, buying and selling of extirpated, endangered, and threatened species on the Species at Risk in Ontario (SARO) List; and Section 10 prohibits the damage or destruction of protected habitat of species listed as extirpated, endangered or threatened on the SARO List.

There are several species protected under the ESA that occur within the County of Wellington with some degree of regularity. Seasonally appropriate field studies are typically required to determine if these species are present or using the landscape to fulfill a part of their life cycle.

3.7 Federal *Fisheries Act* (1985)

Fish and fish habitat are protected under the Federal *Fisheries Act* (1985), which was last updated August 2019. In Ontario, Fisheries and Oceans Canada (DFO) manages fish habitat and the Ministry of Natural Resources and Forestry (MNRF) manages fisheries. Section 35 (1) of the Federal *Fisheries Act* precludes "No person shall carry on any work, undertaking or activity that results in the harmful alteration, disruption or destruction of fish habitat".

The *Fisheries Act* defines habitat as "water frequented by fish and any other areas on which fish depend directly or indirectly to carry out their life processes, including spawning grounds and nursery, rearing, food supply and migration areas". Further DFO provides guidance regarding the need for their review of a project.

4. Existing Conditions

The Elora Sands property is approximately 39.2 ha in area and is situated within the Upper Grand River watershed with rolling topography. The adjacent Keating property is approximately 37.5 ha in area and is also situated within this watershed with rolling topography. Both are currently used primarily for agriculture.

4.1 Aquatic Resources

4.1.1 Nichol Drain

The Nichol Drain traverses the Elora Sands property in a westerly direction. It originates in the southeast portion of site and travels approximately 450 m before crossing under the driveway to the Gibson Field property via a steel pipe culvert measuring 3 m in diameter (**Photograph 1**). The drain then continues another ~100 m to the Sideroad 15 crossing via another steel pipe culvert measuring 4 m in diameter (**Photograph 2**).

Photograph 1. Steel Pipe Culvert Under the Driveway to The Property. Facing Upstream (April 19, 2022)

Photograph 2. Steel Pipe Culvert Traveling Under Sideroad 15. Facing Downstream (April 19, 2022)

Upstream of the Driveway Culvert

Upstream of the driveway culvert, the surrounding land use is agricultural. The stream is entrenched, with both the left and right bank rising approximately 1.5 m above the watercourse. The entrenchment spans ~10 m across. The stream meanders within its entrenchment through the farm field with a small riparian zone extending an average of 3 m from the watercourse on either bank (**Photograph 3**). The upstream portion of the watercourse had moderate flow and was split evenly between runs, riffles, and flats. No pools were present. The wetted width averages 1.2 m and the wetted depth averages 0.3 m. Substrate composition consists of 10% cobble, 25% gravel, 40% sand and 15% silt. There is good sorting of bed materials, with the cobble/gravel being the dominant substrate in riffles and runs and sand/silt being the dominate substrate in the flats.

Photograph 3. A View of The Upstream Portion of the Nichol Drain. Facing Upstream (April 19, 2022)

Riparian vegetation was covered in snow at the time of the visit, making it difficult to assess specific flora. In general, riparian vegetation was limited to grasses and a few scattered riparian trees that provided no shading to the watercourse. Small undercut banks measuring < 0.1 m were found throughout the reach. Large undercut banks measuring ~0.3 m were found immediately upstream of the driveway culvert. Dormant grasses that had fallen in the watercourse along the banks provide surface cover for fish throughout the length of the reach. Pockets of watercress were found intermittingly throughout the reach (**Photograph 4**) indicating potential groundwater inputs. Four tile drain outlets were observed within the banks, draining into the watercourse. This provides a possible explanation for watercress in an agricultural field with no overhead cover.

Photograph 4. Watercress Found in the Upstream Portion of the Site (April 19, 2022)

Downstream of Driveway Culvert

Downstream of the driveway culvert, the surrounding land use on the left bank is the front yard of the farmhouse with manicured lawn. The surrounding land use on the right bank is a small woodlot separating the drain from Sideroad 15. The downstream portion is less entrenchment than the upstream portion. Immediately downstream of the driveway culvert the stream flows into a ~3 m wide pool (**Photograph 5**). The pool extends ~20 m from the culvert before condensing into a riffle with an average wetted width of 1 m until reaching the Sideroad 15 culvert. The substrate composition of the pool is 70% sand and 30% silt. The substrate composition of the riffle is 5% boulder, 30% cobble, 40% gravel, 20% sand and 5% silt.

Photograph 5. The Pool Immediately Downstream of The Driveway Culvert. Facing Downstream (April 19, 2022)

Photograph 6. The Riffle in The Downstream Reach. Facing Upstream (April 19, 2022)

The riparian zone extends ~5 m on both banks with the primary vegetation consisting of grasses, dogwood and raspberry bushes. Riparian trees only occupy the right bank within the riffle, providing 30% canopy cover the downstream reach. Small undercut banks measuring ~0.1 m can be found throughout the reach. No instream vegetation was observed in the downstream reach. The south side roadside ditch of Sideroad 15 was a dry, defined channel which conveys flow to the Nichol drain from beyond Irvine Street to the west. The Nichol Drain is ~1.5 m lower than the roadside ditch, providing a significant barrier to fish from the drain being able to occupy the culvert (**Photograph 7**).

Photograph 7. Photo Taken From The Roadside Ditch Showing The 1.5 m Drop to The Watercourse (April 19, 2022)

4.1.1.1 Nichol Drain Fish Community

An electrofishing survey was conducted on July 19, 2006 as part of the Nichol Drain Sub-Watershed Study Phase 1 Existing Conditions Final Report (Aquafor Beech Limited 2008). In total, two stations were surveyed; the first was downstream of Beatty Line and the second was downstream of Irvine Street, which are upstream and downstream of Elora Sands. The fish capture information can be found in **Table 3.**

The Nichol Drain Sub-Watershed Study Phase 1 also recorded surface water temperature at the two stations. The results suggest that the Nichol Drain should be considered to have coldwater fishery potential and be classified as a coldwater stream for construction and stormwater management perspective. Watercress was visible during the Beacon investigation, supporting this designation.

Table 3. Fish Capture Information from Nichol Drain Sub Watershed Study Phase 1, Conducted in 2006

Common Name	Scientific Name	Individuals Caught by Station	
		Irvine Street	Beatty Line
Blacknose Dace	*Rhinichthys obtusus*	7	11
Brook Stickleback	*Culaea inconstans*	3	30
Central Stoneroller	*Campostoma anomalum*	2	0
Creek Chub	*Semotilus atromaculatus*	10	27
Iowa Darter	*Etheostoma exile*	0	2
White Sucker	*Catostomus commersonii*	0	2
	Total	**22**	**72**

Information adapted from Nichol Drain Sub-Watershed Study Phase 1 Existing Conditions Final Report (Aquafor Beech Limited 2008).

The electrofishing survey conducted as part of the Nichol Drain Subwatershed Study Phase 1 Existing Conditions Final Report (Aquafor Beech Limited 2008) confirmed Redside Dace (*Clinostomus elongatus*) is not present within this feature. Further, the NHIC and MECP were consulted to confirm whether this species or occupied/contributing habitat for this species is present on the subject property within the Nichol Drain or within the area surrounding the property, including Irvine Creek. Both the NHIC and MECP responded confirming that they do not have any records of Redside Dace being present in Irvine Creek or the Nichol Drain (**Appendix C**).

4.1.2 Queen Street Tributary

The Queen Street Tributary is an unnamed tributary of Irvine Creek located outside of the subject property. The information presented here has been compiled using aerial photographs and Aquatic Resource Area data from Land Information Ontario (LIO; 2025). Additional field investigations are necessary to verify the provided data.

The tributary originates to the east of Irvine Street, where a stormwater management pond (SWMP) collects flow from the surrounding area. The flow travels westward beneath Irvine Street, meandering through a small forested area bordered by mixed commercial and residential land uses. In this forested area, the tributary receives additional flow from a shallow aquatic habitat. The flow continues alongside Queen Street before passing under Geddes Street and eventually joining Irvine Creek. The presence of any fish barriers is currently unknown. The approximate length of the tributary is 620 m.

The surrounding forest provides substantial shading for the watercourse. The stormwater facility at the tributary's upstream limit likely supports an intermittent to permanent flow regime. Aerial imagery indicates that the tributary is channelized. The estimated average wetted width of the tributary is approximately 0.5 m.

4.1.2.1 Queen Street Tributary Fish Community

Fish community data for the unnamed tributary, sourced from Land Information Ontario (2025), is presented in **Table 4**. Due to the lack of recent fish community data for this tributary, general fisheries data based on the thermal regime of the watercourses were used. The unnamed tributary to Irvine Creek is classified as having both a warm and coldwater thermal regime. Given the uncertainty regarding the presence of fish barriers, it is assumed that fish may utilize this channel at certain times of the year.

Table 4. Records from Land Information Ontario (2025) Fish Community Species Data for the unnamed Tributary to Irvine Creek

Common Name	Scientific Name	Thermal Regime*
Common Shiner	*Luxilus cornutus*	Coolwater
Fantail Darter	*Etheostoma flabellare*	Coolwater
Johnny Darter	*Etheostoma nigrum*	Coolwater
Fathead Minnow	*Pimephales promelas*	Warmwater
Longnose Dace	*Rhinichthys cataractae*	Coolwater
Rainbow Darter	*Etheostoma caeruleum*	Coolwater
River Chub	*Nocomis micropogon*	Coolwater
Rock Bass	*Ambloplites rupestris*	Coolwater
Smallmouth Bass	*Micropterus dolomieu*	Coolwater
Tessellated Darter	*Etheostoma olmstedi*	Coolwater
White Sucker	*Catostomus commersonii*	Coolwater

*Thermal Regime provided by https://www.ontariofishes.ca

4.2 Terrestrial Resources

4.2.1 Ecological Land Classification

As per agency request, ELC data cards and flora lists were completed for each vegetation community type found on the properties and master flora list for both properties that is included in **Appendix D**. The vegetation community boundaries are illustrated in **Figure 2**.

Agricultural (AG)

The Elora Sands and Keating properties are both primarily used for agriculture, with majority of the land used for row crops labelled as (**AG**). On the Elora Sands property there are three agricultural fields, the smaller two fields south of Nichol Drain were planted with Timothy Grass, and small amounts of Alfalfa were present likely from the previous growing season (**Photograph 8**). The agricultural field to the north on the Elora Sands property was planted with soybean, and the agricultural field at the Keating property was planted with winter wheat at time of surveys.

Anthropogenic (ANT)

The dwellings, outbuildings, associated maintained yards, and overall disturbed areas can be classified as anthropogenic (**ANT**). On the Elora Sands property, the anthropogenic area is located in the center of the property. The Elora Sands anthropogenic area includes a single-family dwelling that is occupied and in good condition. Additionally, there is a storage building and large barn, that are both in deteriorating condition. There are landscaped areas and maintained lawns surrounding the buildings (**Photograph 8**).

On the Keating property there is one anthropogenic area with a single-family dwelling that is surrounded by landscaped areas. This anthropogenic area is located in the southeast corner of the property, is unoccupied and in deteriorating condition. This anthropogenic area also contained a large metal silo, several barns, and outbuildings that appeared to be used for farm equipment storage and some previously for livestock (**Photograph 9**).

The landscaped areas and maintained lawns are similar for both the Elora Sands and Keating properties. There are several planted ornamental tree and shrub species found on either property that include Sugar Maple (*Acer saccharum*), Common Apple (*Malus pumila*), Black Locust (*Robinia pseudoacacia*), Norway Spruce (*Picea abies*), White Pine (*Pinus strobus*), and Eastern White Cedar (*Thuja occidentalis*), Common Lilac (*Syringa vulgaris*), and Japanese Yew (*Taxus cuspidata*). Some herbaceous flora found in the landscaped areas and maintained lawns consist of Orange Daylily (*Hemerocalis fulva*), Garden Peony (*Paeonia officinalis*), Ground-Ivy (*Glechoma hederacea*), Common Dandelion (*Taraxacum officinale*), Red Clover (*Trifolium pratense*), Hairy Crab Grass (*Digitaria sanguinalis*) and Kentucky Blue Grass (*Poa pratensis*), among others.

Hedgerows (HE)

There are hedgerows (**HE**) present on both the Elora Sands and Keating properties. On the Elora Sands property, the hedgerows are in the center of the property, lining the landscaped areas, driveway, and small agricultural field. The hedgerows are composed of coniferous trees that include White Spruce (*P. glauca*), Norway Spruce, and Colorado Blue Spruce (*P. pungens*). The understory of the hedgerows is sparse and includes European Buckthorn (*Rhamnus cathartica*), Chokecherry (*Prunus virginiana*), and Riverbank Grape (*Vitis riparia*).

On the Keating property there is one hedgerow along the northwest property boundary. The hedgerow is primarily composed of Manitoba Maple (*A. negundo*), Austrian Pine (*P. nigra*), White Spruce, Black Walnut (*Juglans nigra*), Sugar Maple, and there is also European Buckthorn and Riverbank Grapevine in the understory.

Anthropogenic and agricultural areas as well as hedgerows are not considered formal ELC communities but recorded to document current land use. No ELC data cards were necessary for these areas, however flora species present were added to the flora list (**Appendix D**).

Photograph 8. View of Dwelling and Anthropogenic Area (ANT) at Elora Sands Property (June 13, 2023)

Photograph 9. View of Silo and Barns at Keating Property Facing North (November 28, 2024)

4.2.1.1 Cultural Communities

Mineral Cultural Meadow (CUM1)

There are two cultural meadows noted in the center portion of the Elora Sands property. The narrow meadow community bordering Sideroad 15 was dominated by cool season grasses (e.g., *Bromus inermis, Poa pratensis*, and *Festuca rubra*), Canada Goldenrod (*Solidago canadensis*), Common Milkweed (*Asclepias syricia*), Queen Anne's Lace (*Daucus carota*), and Asters (*Symphyotrichum novae-angliae*, *S. lanceolatum*, and *S. puniceum*), Teasel (*Dipsacus fullonum*), and Canada Anemone (*Anemonastrum canadense*; **Photograph 10**). The other meadow community near the anthropogenic area is less biodiverse. It is dominated by Smooth Brome and additionally includes Canada Thistle (*Cirsium arvense*), Field Bindweed (*Convolvulus arvensis*), Elecampane (*Inula helenium*), and Common Milkweed.

Photograph 10. View Within Cultural Meadow (CUM1) on Elora Sands Property Facing Southwest (June 14, 2023)

Scots Pine Coniferous Plantation (CUP3-3)

The plantation was delineated on Elora Sands property along the northwestern property boundary abutting Sideroad 15. The community is middle aged and primarily composed of Scots Pine (*Pinus sylvestris*). There were also two planted rows of Norway Spruce along the western limit, and a few individual Black Cherry (*Prunus serotina*), and Sugar Maple in the canopy (**Photograph 11**). Several Scots Pine trees were in decline or dead, particularly by the road, likely due poor spacing at time of planting.

The plantation understory is dense, composed primarily of European Buckthorn, and to lesser extent Tatarian Honeysuckle (*Lonicera tatarica*), Alternate-leaved Dogwood (*Cornus alternifolia*), European Mountain-ash (*Sorbus aucuparia*), Choke Cherry, and sapling Green Ash (*Fraxinus pennsylvanica*) and Black Walnut. The lower layers are similarly dense and contain Eastern Prickly Gooseberry (*Ribes cynosbati*), European Buckthorn, Garlic Mustard, Wild Strawberry (*Fragaria virginiana*), Herb-Robert (*Geranium robertianum*), Woolly Blue Violet (*Viola sororia*), and Bittersweet Nightshade (*Solanum dulcamara*), among others.

Along the community edge, and within canopy openings there is an inclusion of Raspberry Cultural Thicket (**CUT1-5**) dominated by Red Raspberry (*Rubus idaeus*) and includes other common meadow species.

Cultural Woodland (CUW1)

This forest community (0.78 ha in size) is located primarily on the Keating Property along the northern property boundary, with a small portion extending onto the Elora Sands property. The woodland soils appear to be relatively moist, possibly indicating a perched water table or excess drainage from the adjacent agricultural lands. It is a successional woodland community, that is relatively open with canopy cover of less than 60%. The canopy species are primarily composed of Yellow Birch (*Betula alleghaniensis*), Basswood (*Tilia americana*), Red Maple (*Acer rubrum*), Manitoba Maple, Crack Willow (*Salix x fragilis*), Black Willow (*S. nigra*), and Eastern White Cedar (*Thuja occidentalis*). There was also scattered individual Red Oak (*Quercus rubra*), Balsam Poplar (*Populus balsamifera*), White Poplar (*P. alba*), and Eastern Hemlock (*Tsuga canadensis*).

The lower layers were very dense, dominated by Ostrich Fern (*Matteuccia struthiopteris*) and to a lesser extent there was European Mountain-ash, Alternate-leaved Dogwood, European Buckthorn, and Red Elderberry (*Sambucus racemosa*). Other species noted include Virginia Waterleaf (*Hydrophyllum virginianum*), Wild Cucumber (*Echinocystis lobata*), Herb-Robert, Garlic Mustard, Jack-in-the-pulpit (*Arisaema triphyllum*), Broad-leaved Enchanter's Nightshade (*Circaea canadensis*) and Coltsfoot (*Tussilago farfara*; **Photograph 12**).

There was past disturbance in the woodland as evident with wood debris and discarded old farm equipment.

Raspberry Cultural Thicket (CUT1-5)

Within the center of the cultural woodland on the Keating property, there is also a relatively large raspberry cultural thicket (**CUT1-5**). This cultural thicket is dominated by Red Raspberry, and there also other disturbance tolerant species interspersed such as Wild Cucumber, Common Bedstraw (*Galium aparine*), Curled Dock (*Rumex crispus*), Common Burdock (*Arctium minus*), and Canada Goldenrod, among others. There are also scattered individual Black Cherry, Sugar Maple, and Basswood within the thicket community.

Photograph 11. View within Scots Pine Plantation (CUP3-3) on Elora Sands Property Facing South (June 14, 2023)

Photograph 12. View Within Cultural Woodland (CUW1) on Elora Sands Property Facing Northwest (June 14, 2023)

4.2.1.2 Forest Community

Fresh - Moist Lowland Deciduous Forest (FOD7)

This woodland community is located in the southwest corner of the Keating property and is separated into two units adjacent by wetland communities. The woodland soils are relatively moist. There are standing dead trees, and wind fallen trees throughout the community. The woodland community is dominated by Manitoba Maple, and there are remnant native trees that include Black Cherry, Eastern White Cedar, Sugar Maple, and living and dying Green Ash. The understory is relatively dense composed of primarily European Buckthorn and Bell's Honeysuckle (*Lonicera x bella*). The ground layer is sparse and composed of Garlic Mustard, Herb-Robert (*Geranium robertianum*), Broad-leaved Enchanter's Nightshade and seedling European Buckthorn (**Photograph 13**).

There is some history of disturbance in this woodland as evident by wood debris and discarded old metal scraps. Likewise, there is some encroachment by the neighbouring property to the south with sections of understory mowed and cleared trails.

Photograph 13. Lowland Deciduous Woodland (FOD7; background) and Red Osier Thicket Swamp (SWT2-5; foreground) on Keating Property Facing Southeast (November 28, 2024)

4.2.1.3 Wetland Communities

Red-osier Mineral Thicket Swamp (SWT2-5)

There are two Red-osier Mineral Thicket Swamp (**SWT2-5**) units located in the southwest corner of the Keating property, on either side of the Lowland Deciduous Forest (**FOD7**).

This community is dominated by Red Osier Dogwood (*Cornus sericea*). Also present there are scattered Bittersweet Nightshade, Purple Loosestrife (*Lythrum salicaria*), Purple-stemmed Aster (*S. puniceum*), and sapling Manitoba Maple (**Photograph 13**).

At the southern limits of the larger **SWT2-5** unit, there is an inclusion for a Mineral Shallow Marsh (**MAS**). Within this area there is some standing water, and the surrounding vegetation includes Cattail species (*Typha sp.*), European Reed (*Phragmites australis ssp. Australis*), Soft-stemmed Bulrush (*Schoenoplectus tabernaemontani*), Fowl Mannagrass (*Glyceria striata*), and Curled Dock.

Willow Mineral Thicket Swamp (SWT2-2)

The Willow Mineral Thicket Swamp (**SWT2-2**) community is located adjacent to Red-osier Mineral Thicket Swamp (**SWT2-5**) in the southwest corner of the Keating property. This swamp thicket community is dominated by shrubs, and with a relatively even combination of Pussy Willow (*Salix discolor*), Cottony Willow (*S. eriocephala*), Red Osier Dogwood, European Highbush Cranberry (*Viburnum opulus*), and European Buckthorn. There are some scattered Red Maple and Manitoba Maple along the community edges. The understory is composed of Sensitive Fern (*Onoclea sensibilis*), Bittersweet Nightshade, Common Bedstraw, Herb-Robert, Evergreen Wood Fern (*Dryopteris intermedia*), and Field Mustard (*Brassica rapa*), among others (**Photograph 14**).

Reed Canary Grass Mineral Meadow Marsh (MAM2-2)

This community transects both the Elora Sands and Keating properties east to west, extending approximately 3 m on either side of Nichol Drain. Within the area of this community staked by the GRCA, this community extends almost to Sideroad 15, on the north side of the Nichol Drain. The community is dominated by Reed Canary Grass (*Phalaris arundinacea*), and to a lesser extent Elecampane, Purple Loosestrife, Common Burdock, Canada Goldenrod, Swamp Aster, Canada Anemone, Dame's Rocket (*Hesperis matronalis*), Spotted Joe Pye Weed (*Eutrochium maculatum*), and Cow Vetch (*Vicia cracca*; **Photograph 15**). There are a few scattered woody species that include European Highbush Cranberry Red Osier Dogwood, Pussy Willow, Cottony Willow, and sapling Manitoba Maple. Majority of the woody vegetation was found near the **CUP3-3** on the Elora Sands property and near Gerrie Road on the Keating property, however cumulatively they compose less than 25% of the total vegetation cover.

Throughout the majority of Nichol Drain there were patches of Reed Canary Grass and Watercress (*Nasturtium officinale*) growing directly in the watercourse.

Photograph 14. View Within Willow Thicket Swamp (SWT2-2) on Keating Property, Facing South (November 28, 2024)

Photograph 15. View within Reed Canary Grass Mineral Meadow Marsh (MAM2-2) Facing West (June 14, 2023)

4.2.1.4 Off Property Communities

To the south of the Keating property, there are woodlands that have the composition and characteristics of a Dry - Fresh Deciduous Forest (**FOD4**). There was no access to these woodlands as they were located off property. This community was surveyed from the Keating property boundary and observed approximately 20 m into the feature. The woodlands were composed of Manitoba Maple, American Elm (*Ulmus americana*), Common Apple, and Sugar Maple. The understory was very dense and contained European Buckthorn and Bell's Honeysuckle. There was a relatively steep slope that appeared to be approximately 15 m within the woodland.

Within the woodland, there appear to be open patches of wetland dominated by Red Osier Dogwood, and some scattered Cattail species. These wetlands would be classified as Red-osier Mineral Thicket Swamps (**SWT2-5**).

4.2.2 Flora

One hundred thirty-six (136) plant *taxa* were recorded on the subject property (**Appendix D**), with half (~50%) being non-native plant species, reflecting the disturbed character of the site.

Most native plant species are ranked provincially *as* S5 (Secure) with the exception of both Green and White Ash, Black Walnut, Virginia Creeper (*Parthenocissus quinquefolia*), Black Willow, and Canada Yew (*Taxus canadensis*) found within the CUP3-3, CUW1, and FOD7 on the subject property, that are provincially ranked S4 (Apparently Secure).

Additionally, Black Ash (*Fraxinus nigra*) is ranked as S3 (Vulnerable) and is provincially listed as Endangered. Black Ash are located within the CUW1 on the Keating property.

With the exception of Black Ash, all these species are common locally within Wellington County (Anderson and Frank 2004).

4.2.3 Breeding Birds

A total of 19 species of breeding birds were recorded on the Elora Sands subject property during the 2023 surveys (**Appendix E**). This avian diversity is reflective of the habitat diversity within the subject property discussed in the preceding sections, with a fallow field, agricultural field, hedgerows, and a residential yard.

The majority of breeding records were grassland specialist species and common species regularly found in urbanizing areas of southern Ontario, including the most abundant in descending order: Bobolink (*Dolochonyx oryzivorus*), Savannah Sparrow (*Passerculus sandwichensis*), Barn Swallow (*Hirundo rustica*), Red-winged Blackbird (*Agelaius phoeniceus*), Song Sparrow (*Melodia melospiza*), Chipping Sparrow (*Spizella passerina*), and American Robin (*Turdus migratorius*). Other species observed with multiple breeding territories included American Goldfinch (*Spinus tristis*) and American Crow (*Corvus brachyrhynchos*).

Some species of forest habitat were observed and included: Hairy Woodpecker (*Dryobates villosus*), Northern Flicker (*Colaptes auratus*), and Black-capped Chickadee (*Poecile atricapillus*).

Species of open habitat were associated with the edges of the agricultural field and included: Killdeer (*Charadrius vociferus*), Eastern Kingbird (*Tyrannus tyrannus*), and Brown-headed Cowbird (*Molothrus ater*).

Area-sensitive birds require larger tracts of suitable habitat in which to breed or have higher breeding success in larger areas of suitable habitat. Three such species were recorded: Hairy Woodpecker, Savannah Sparrow, and Bobolink. Hairy Woodpecker breeds in large tracts of forests and woodlands. One Hairy Woodpecker was recorded in the coniferous trees in the residential yard on the Elora Sands property, which is unlikely to be a large enough area for breeding. It likely had a breeding territory in the forest on the north side of the road. The Savannah Sparrow is an inhabitant of open country or grassland habitat and six distinct breeding territories were recorded during the surveys on the Elora Sands property throughout the fallow field. Bobolink breeds in similar habitat and seven breeding territories were recorded during the surveys throughout the hayfield.

Bobolink, listed as threatened under the ESA, was observed breeding on the subject property. Seven territories of Bobolink were recorded nesting in the hayfield on the Elora Sands property (**Figure 2**).

Barn Swallow (*Hirundo rustica*) is a special concern species under the provincial ESA (2007) and was observed foraging above the hayfield on the Elora Sands property. Barn Swallow nests almost exclusively on human-made structures that are open such as open barns, under bridges and in culverts. A barn is present on the Elora Sands subject property and birds were seen entering and exiting the structure, but the inside of the structure was not searched for nests at the time of the 2023 breeding bird surveys. During the November 28, 2024 site visit, this barn was searched and at least 11 Barn Swallow nests were recorded within the barn (**Figure 2**). No other endangered or threatened bird species were recorded.

No species ranked as S1 through S3 (Critically Imperiled through Vulnerable) by the province were present during the 2023 breeding season.

4.2.4 Breeding Amphibians

The results of the amphibian breeding surveys are summarized below in **Table 4** and **Appendix F**.

Table 5. Anuran Survey Results 2023

Station	Survey 1	Survey 2	Survey 3
1	-	**AMTO 2(6)***	-
2	-	-	-

*= Call recorded from outside of station area
Results in **bold** are recorded outside the subject property
AMTO = American Toad
Code 0 – No calling detected
Code 1 – Individuals can be counted; calls not simultaneous. Estimated number of individuals indicated in brackets
Code 2 – Calls distinguishable, some simultaneous calling. Estimated number of individuals indicated in brackets
Code 3 – Full chorus; calls continuous and overlapping.

Beacon ecologists surveyed for breeding amphibians at a total of two stations on the Elora Sands property (**Figure 2**). No species of amphibians were recorded on the subject property at either station. As station one was facing south on the edge of the subject property boundary, one species was recorded outside of the subject property, north of the road, American Toad (*Anaxyrus americanus*).

No threatened or endangered amphibian species were recorded on the subject property.

4.2.5 Bat Habitat Assessment

A total of five snag trees were recorded within the portion of the CUP3-3 community surveyed within its entirety (**Figure 2**). Of the five snag trees, all five demonstrated characteristics favourable to Myotis species. A summary of individual tree characteristics is included in **Appendix G** (**Table G-1**).

An additional 11 snag trees were recorded within the sample plots within CUW1 (**Figure 2**). Since the area of each plot is 0.05 ha ($A = \pi r^2$), bat maternity roost tree density for this treed community is calculated as shown in **Appendix G** (**Table G-2 and G-3**). Based on these calculations, the CUW1 provides potential bat maternity roosting habitat at approximately 22 snags/ha.

4.2.6 Endangered or Threatened Species

Beacon has conducted a desktop screening, a review of citizen science data sources and the Atlas of the Mammals of Ontario (Dobbyn 1994), on site habitat assessment and targeted field surveys (as described in Section 2.2.7) to assess the potential for each of the indicated species to be present. The results of the endangered and threatened species assessment are based on site review combined with knowledge of the habitat preferences and natural history of the species known to occur within 5 km of the subject property (**Table 6**).

Table 6. Threatened or Endangered Species with Potential to Occur on Subject Properties

Species	Status on SARO List	Were Species and/or Habitat Documented during on-site Assessment?
Vascular Plants (Dicots)		
Butternut, *Juglans cinerea*	END	**No,** a targeted search for Butternut trees (*Juglans cinerea*) was conducted. This species is a provincially and nationally endangered tree species that, while still relatively common in southern Ontario, has been listed because the population has been declining due to the presence of a Butternut Canker disease. No Butternut were present on either of the subject properties.
Black Ash, *Fraxinus nigra*	END	**Yes,** a targeted search for Black Ash trees (*Fraxinus nigra*) was conducted. This species is a provincially endangered tree species that has been listed because the population has been declining due to the presence of the invasive Emerald Ash Borer (*Agrilus planipennis*). Three Black Ash that appeared to be dead were found on the Keating property within the CUW1 (**Figure 2**). As these Black Ash were recorded outside of the growing season during the November 2024 site visit, additional surveys will be completed during the 2025 growing season (May to September) to confirm if these trees are dead, and to search for additional trees.
Reptiles and Amphibians		
Blanding's Turtle, *Emydoidea blandingii*	END	**No,** suitable habitat is not present on or adjacent to the subject properties.
Birds		
Bank Swallow, *Riparia riparia*	THR	**No**, vertical exposed banks (suitable habitat) are not present on the Elora Sands or Keating subject properties. Seasonal surveys also did not record this species on the Elora Sands property. Seasonal surveys will be completed in 2025 for the Keating property.
Chimney Swift, *Chaetura pelagica*	THR	**Potential** nesting habitat within the open brick chimney on the house and the open chimney on the shed on the Elora Sands property. Potential nesting habitat within the open concrete silo on the Keating property. Seasonal species-specific surveys will be completed in 2025 for the Elora Sands and Keating properties to confirm presence or absence of this species.
Bobolink, *Dolichonyx oryzivorus*	THR	**Yes**, suitable nesting habitat is present on the Elora Sands subject property within the agricultural fields where hay is growing. Seasonal studies confirmed seven Bobolink breeding territories in the southern agricultural field on the Elora Sands property (AG, **Figure 2**). There is suitable nesting habitat on the Keating property within the agricultural field where winter wheat is growing. Seasonal surveys will be completed in 2025 for the Keating property to confirm presence or absence of this species.
Eastern Meadowlark, *Sturnella magna*	THR	Although suitable habitat is present in the hay field on the Elora Sands property, seasonal studies confirmed this species is not present on this property. Seasonal surveys will be completed in 2025 for the Keating property, however given the lack of suitable habitat on the Keating property it is not anticipated that this species will be recorded.

Species	Status on SARO List	Were Species and/or Habitat Documented during on-site Assessment?
Eastern Whip-poor-will, *Antrostomus vociferus*	THR	**No**, suitable nesting habitat is not present on the subject properties.
Northern Bobwhite, *Colinus virginianus*	END	**No**, suitable nesting habitat is not present on the Elora Sands or Keating subject properties. In addition, the Northern Bobwhite is no longer found in the area where the subject properties are located. Seasonal surveys also did not record this species on the Elora Sands property. Seasonal surveys will be completed in 2025 for the Keating property, however it is not anticipated that this species will be recorded.
Aquatic Species		
Redside Dace, *Clinostomus elongatus*	END	The NHIC and MECP were consulted to confirm whether this species or occupied/contributing habitat for this species is present on the subject property within the Nichol Drain or within the area surrounding the property, including Irvine Creek. Both the NHIC and MECP responded confirming that they do not have any records of Redside Dace being present in Irvine Creek or the Nichol Drain (**Appendix C**). Further, the electrofishing survey conducted as part of the Nichol Drain Subwatershed Study Phase 1 Existing Conditions Final Report (Aquafor Beech Limited 2008) did not find this species to be present.
Mammals		
Endangered Bats • Little Brown Myotis, *Myotis lucifugus* • Northern Myotis, *Myotis septentrionalis* • Tri-colored Bat, *Perimyotis subflavus* • Eastern Small-footed Myotis, *Myotis leibii*	END	**No,** suitable overwintering habitat present. **Potential** roosting habitat may be present within the shed and barn structures on the Elora Sands property. **Potential** roosting habitat may also be present within three of the barn structures and vacant house on the Keating property. Seasonal bat exit surveys will be completed in 2025 for the Elora Sands and Keating properties to confirm presence or absence of these endangered bat species within the structures. Although the snag surveys on both the Elora Sands and Keating properties found potential maternity roosting habitat within the coniferous plantation (CUP3-3) and cultural woodland (CUW1; **Figure 2**), acoustic monitoring has not yet been completed on these properties to confirm presence or absence of endangered bat species. Acoustic monitoring will be completed in June 2025 on both properties. Although the southwestern woodland (FOD7) on the Keating property and the offsite woodland to the south of the Keating property (**Figure 2**) will not be surveyed for this study, there is **potential** roosting habitat within these woodland communities. The FOD7 and offsite woodland are within the protected Greenlands and will be retained.

SARO: Species at Risk in Ontario List
END: Endangered
THR: Threatened

Based on the above assessment in **Table 6** and on-site investigations, three Black Ash trees that appeared to be dead were identified on the Keating subject property within the CUW1 (**Figure 2**). As these Black Ash were recorded outside of the growing season during the November 2024 site visit, additional surveys will be completed during the 2025 growing season (May to September) to confirm if these trees are dead, and to search for additional trees.

Potentially suitable nesting habitat for Chimney Swift is present in several chimney structures on the Elora Sands and Keating subject properties. Seasonal species-specific surveys will be completed in 2025 on both properties to confirm presence or absence of this species.

There is suitable nesting habitat for Bobolink present within the hay field on the Elora Sands subject property. Potentially suitable nesting habitat is present within the agricultural field on the Keating subject property. Seasonal surveys in 2025 will confirm the presence or absence of this species on the Keating property. This species is discussed in Section 5.6.

Eastern Meadowlark was not recorded on the Elora Sands subject property during seasonal surveys in 2023. As the agricultural field on the Keating property is currently planted in winter wheat, it is not anticipated that Eastern Meadowlark will be recorded on this property during the 2025 seasonal surveys. The federal recovery strategy for Eastern Meadowlark specifically states that small-grain crops, including winter wheat, are rarely or only occasionally used by this species as breeding habitat and this habitat type is not considered to be necessary for the survival or recovery of this species. Further, the recovery strategy says that this habitat type is not identified as critical habitat (Environment and Climate Change Canada 2022).

Potential roosting habitat is present for endangered bats within several structures on both the Elora Sands and Keating subject properties. Seasonal bat exit surveys will be conducted in 2025 on both properties to confirm the presence or absence of these species.

Although the snag surveys on both the Elora Sands and Keating properties found potential maternity roosting habitat for endangered bats within the coniferous plantation (CUP3-3) and cultural woodland (CUW1; **Figure 2**), acoustic monitoring has not yet been completed on these properties to confirm presence or absence of endangered bat species. Acoustic monitoring will be completed in June 2025 on both properties. Although the southwestern woodland (FOD7) on the Keating property and the offsite woodland to the south of the Keating property (**Figure 2**) will not be surveyed for this study, there is potential roosting habitat within these woodland communities. The FOD7 and offsite woodland are within the protected Greenlands and will be retained.

4.2.7 Significant Wildlife Habitat

Neither the Township, nor the County have identified SWH on the Elora Sands or Keating subject properties. During field investigations in 2022, 2023 and 2024 the Elora Sands and Keating subject properties were assessed for the presence of any SWH. An assessment of potential SWH is provided in **Appendix H**. Given the habitat present on both subject properties and the lack of habitat criteria present to satisfy significant wildlife habitat categories, it was concluded that significant wildlife habitat is likely not present on either the Elora Sands or Keating subject properties, however additional seasonal field investigations are required on both properties in 2025 to confirm these conclusions (**Appendix H**).

4.2.8 Incidental Wildlife

A number of incidental wildlife species were recorded during field investigations on the subject properties. Mammal species recorded on the subject properties included Red Squirrel (*Sciurus vulgaris*) and Eastern Cottontail (*Sylvilagus floridanus*). Evidence of White-tailed Deer (*Odocoileus virginianus*) and Raccoon (*Procyon lotor*), present on the subject properties was also recorded. Additional incidental wildlife observations will be recorded during the 2025 seasonal field investigations on both properties.

5. Natural Heritage Features and Constraints

The natural heritage features on and adjacent to the subject properties are discussed in the next paragraphs in the context of the proposed development, the results of the vegetation and wildlife surveys, and based on applicable policy and regulations related to natural heritage.

5.1 Woodland

The woodland present along the northern property boundary of the Keating property, which extends onto the Elora Sands property (CUW1; **Figure 2**) does not overlap with the County of Wellington's Greenlands System. This woodland is small (0.78 ha) and therefore does not meet the criteria for significance according to the County's definition of significant woodland within the Rural System. Additionally, this woodland is a cultural community with evidence of past disturbance. The approximate boundaries of this woodland were delineated during vegetation community mapping at the November 2024 site visit as well as during the June 2023 site visit. It is not expected that the Township will review and verify the boundaries of this woodland in 2025 as this woodland is not part of the Greenlands System.

The coniferous plantation present along the northwestern boundary of the Elora Sands property (CUP3-3; **Figure 2**) overlaps with portions of the County of Wellington's Greenlands System and is within the floodplain limit of the Nichol Drain. This plantation is small (0.256 ha) and therefore does not meet the criteria for significance according to the County's definition of significant woodland within the Rural System. Additionally, this community is planted with low species and community diversity.

The woodland present in the southwestern portion of the Keating subject property (FOD7; **Figure 2**) overlaps with portions of the County of Wellington's Greenlands System. This woodland is small (0.747 ha) and therefore does not meet the criteria for significance according to the County's definition of significant woodland within the Rural System. The County, however, does recognize that smaller wooded areas may have local significance and should be protected where practical. The approximate boundaries of this woodland were delineated during vegetation community mapping at the November 2024 site visit. The Township has been invited to review and verify the boundaries of this woodland in 2025. These boundaries are therefore subject to refinement by the Township.

The woodlands present off-site to the south of the Keating property overlap with portions of the County of Wellington's Greenlands System. These woodlands are larger in size (9.6 ha) and are therefore considered significant based on size according to the County's definition of significant woodland within the Rural System.

The boundaries of this woodland will not be delineated as it is located entirely off-site and a draft plan approval for a subdivision in this area to the south is proposing an extension of Walser Street along the northern boundary of this woodland (North-South Environmental 2022).

There are no forest communities present on the Elora Sands subject property.

5.2 Valleyland

The valley present adjacent to the Nichol Drain in the northeastern portion of the Elora Sands property is included in the County of Wellington's Greenlands system and is regulated by the GRCA. The County's Official Plan does not provide criteria for determining significance of valleylands. According to the *Natural Heritage Reference Manual* (2005), this valley is not considered significant as it does not have an average width of greater than 25 m, does not have distinct geomorphic forms (i.e. oxbows, bottomlands, terraces), riparian vegetation is less than 30 m in width on either side and it is composed of a planted cultural plantation with low species and community diversity and is not a rare vegetation community.

There is no valleyland on or adjacent to the Keating subject property.

5.3 Watercourses and Fish Habitat

The Nichol Drain traverses the Elora Sands property and traverses along the northeastern Keating subject property boundary in a westerly direction and is immediately surrounded by the meadow marsh community (**Figure 2**). The Nichol Drain has a varied morphology and substrate and its riparian conditions are associated with the adjacent meadow marsh. The results of the aquatic habitat assessment determined that the Nichol Drain provides coldwater fish habitat. The roadside ditch would not be considered fish habitat as the drop from the ditch to the drain would act as a barrier to fish passage. The Nichol Drain and the lands adjacent to it are regulated by the GRCA.

The Queen Street Tributary is an unnamed tributary of Irvine Creek that is located off-site to the southwest of the Keating subject property. This tributary originates to the east of Irvine Street, where a SWMP collects flow from the surrounding area. The flow travels westward beneath Irvine Street, meandering through a small forested area bordered by mixed commercial and residential land uses. In this forested area, the tributary receives additional flow from a shallow aquatic habitat. The flow continues alongside Queen Street before passing under Geddes Street and eventually joining Irvine Creek. The presence of any fish barriers is currently unknown. This tributary is classified as having both a warm and coldwater thermal regime. Given the uncertainty regarding the presence of fish barriers, it is assumed that fish may utilize this channel at certain times of the year. An aquatic habitat assessment will be conducted in 2025 to study this tributary. The Queen Street Tributary and the lands adjacent to it are regulated by the GRCA.

5.4 Floodplain

A floodplain is present on the Elora Sands and Keating subject properties in association with the Nichol Drain (**Figure 2**). This floodplain is part of the Greenlands System within the County of Wellington. This floodplain is regulated by the GRCA.

5.5 Wetlands

There is one wetland community present on the Elora Sands subject property, which continues onto the Keating subject property. This wetland community surrounds the Nichol Drain on both sides of the watercourse and runs parallel to the watercourse through the Elora Sands subject property and along the northeastern property boundary of the Keating property (MAM2-2, **Figure 2**). This community has not been evaluated through the Ontario Wetland Evaluation System (OWES) and is not considered provincially significant. This wetland community and the lands adjacent to it are regulated by the GRCA. The wetland boundaries within the northeastern portion of the Elora Sands subject property were staked and confirmed by the GRCA in September 2023 and September 2024.

In the southwestern portion of the Keating subject property, adjacent to the FOD7, there are three wetland communities, two of which are defined as SWT2-5 and one of which is defined as SWT2-2 (**Figure 2**). These communities have not been evaluated through OWES and are not considered provincially significant. These wetland communities are part of the County's Core Greenlands. These wetland communities and the lands adjacent to them are regulated by the GRCA. The GRCA has been invited to stake these wetlands in 2025.

There are also wetland communities offsite to the south of the Keating property within the offsite woodlands. These communities have not been evaluated through OWES and are not considered provincially significant. These wetland communities are part of the County's Core Greenlands. These wetland communities and the lands adjacent to them are regulated by the GRCA. The limits of these wetlands will not be delineated as they are located entirely off-site and a draft plan approval for a subdivision in this area to the south is proposing a road at the immediate northern boundary of the woodland they are located within.

5.6 Habitat of Endangered and Threatened Species

The provincially threatened Bobolink was confirmed breeding on the Elora Sands subject property within the southern agricultural field (AG, **Figure 2**) during the 2023 breeding bird surveys. Seven Bobolink breeding territories were recorded in this southern agricultural field. Under the habitat regulations for these species (Sections 14 to 19 of Ontario Regulation 830/21), it is possible to remove the habitat provided suitable habitat is created within the same ecoregion. As an alternative to creating suitable habitat, O. Reg. 829/21 also provides the option to pay into the Species Conservation Fund. MECP has developed species specific guidelines and regulations to address habitat removals. Prior to removal of regulated meadow habitat, a plan must be developed in accordance with MECP guidelines to ensure compliance with the regulations. Seasonal surveys in 2025 will confirm the presence or absence of this species on the Keating property.

Three Black Ash trees that appeared to be dead were identified on the Keating subject property within the CUW1 (**Figure 2**). As these Black Ash were recorded outside of the growing season during the November 2024 site visit, additional surveys will be completed during the 2025 growing season (May to September) to confirm if these trees are dead, and to search for additional trees.

Additional surveys will be conducted in the 2025 season to determine the presence/absence of other threatened and endangered species.

6. Proposed Development Concept

6.1 Residential Development

The Concept Plan (**Figure 3**) for this potential residential development comprises the following:

- Low and Medium Density Residential lands;
- Park and Walkway Blocks;
- Three Stormwater Management Facility (SWMF) Blocks;
- One Sanitary Pumping Station (SPS) Block; and
- Municipal Right-of-Ways.

6.2 Site Servicing

A Functional Servicing Report (FSR; MTE 2025a) and Preliminary SWM Strategy Report (MTE 2025b) have been prepared for the proposed residential development and have been submitted as companion reports, the proposed servicing is summarized below.

The hydrogeological assessment and erosion hazard assessment are being conducted and will be incorporated as the project moves forward to draft plan.

6.2.1 Access

The proposed development is serviced by three major collector roads: Irvine Street to the west, Sideroad 15 to the north and Gerrie Road to the east and two local street connections to the approved Ainley subdivision to the south.

6.2.2 Sanitary Servicing

The proposed development will be serviced by the Elora Wastewater Treatment Plant (WWTP). The Elora WWTP is a Class III extended Aeration Facility. Aeration Tank #1 and Clarifier #3 remain offline until sewage flows increase and when more treatment capacity is required. As detailed in the FSR report (MTE 2025a), the Elora WWTP has capacity for the development of the subject properties.

To accommodate future development of the subject properties, some improvements are required to the trunk sewers on North Queen Street and Colborne Street. The scope of the improvement may need to be broadened. Details are provided in the FSR Report (MTE 2025a).

There are two sanitary outlets for the proposed development. The Irvine Street Trunk which outlets to the Colborne Trunk and the Ainley Farm Subdivision Trunk which outlets to the Steven Way trunk which outlets to the Colborne Trunk and North Queen Street Trunk which are being proposed for improvements. The main trunk sanitary sewers will be extended onto the subject properties and designed to ensure adequate flow velocities under the MECP design standards.

The drainage area of the proposed SPS includes the small area at the northwest corner of the Elora Sands property (**Figure 3**), as well as lands north of the Nichol Drain. The lands north of the Nichol Drain are proposed to be serviced by a gravity sewer that will cross under the Nichol Drain at SR15 and discharge into the proposed SPS. The forcemain for the pumping station will outlet to the Ainley trunk sewer system via the gravity sewer extension on the subject properties.

6.2.3 Water Supply

A number of connection points to the existing and future municipal watermain system are available to provide water supply for the proposed development. The Township is to confirm whether adequate pressure and flow is available and the sizing of proposed internal water distribution network.

6.2.4 Stormwater Management

The proposed SWM strategy includes water quality, quantity, erosion protection for Nichol Drain and Queen Street Tributary and thermal mitigation for stormwater discharged to Nichol Drain. The proposed SWM strategy requires the implementation of a wet pond SWMF designed to accommodate stormwater runoff from the majority of the subject lands. Two of the SWM block areas are located on the Elora Sands property near the Nichol Drain and the third is on the Keating property by the southwestern woodland and wetlands (**Figure 3**).

As described by MTE (2025b):

> *Minor system runoff from the contributing areas will be conveyed through the proposed storm sewer system and overland flow routes to the SWMFs. Roof areas for all units, where possible, will be directed to lot-level infiltration galleries prior to any overflow being directed to the SWMFs. Excess runoff from the major storms will flow overland to the SWMF via the proposed rights-of-way and designated overland flow routes.*

7. Impact Assessment and Mitigation

Figure 3 illustrates the natural features present within the Study Area in accordance with Natural Heritage System (NHS) criteria based on seasonal surveys conducted to date in the context of the proposed concept plan.

Proposed Development	Figure 3

Elora Clayton EIS

Legend

- Subject Property
- Proposed Development
- Ecological Communities
- Watercourse (MNRF 2021)
- Watercourse + 15 m
- Staked Wetland (GRCA 2023)
- Staked Wetland + 10 m
- Woodland + 10 m
- Approximate Floodplain Limit (From Nichol Drain Subwatershed Study 2008)

Code	Wetland Communities
MAM2-2	Reed-canary Grass Mineral Meadow Marsh
SWT2-2	Willow Mineral Thicket Swamp
SWT2-5	Red-osier Mineral Thicket Swamp
	Forest Communities
FOD7	Fresh - Moist Lowland Deciduous Forest
	Cultural Communities
CUM1	Mineral Cultural Meadow
CUP3-3	Scotch Pine Coniferous Plantation
CUT1-5	Raspberry Cultural Thicket
CUW1	Mineral Cultural Woodland
	Other Communities
AG	Agricultural Crop
ANT	Anthropogenic
HE	Hedgerow

BEACON ENVIRONMENTAL

Project: 221469
Last Revised: February 2025

Client: Cachet Developments

Prepared by: BD
Checked by: KQ

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The presence of an NHS does not impede the lands from being brought into a Settlement Area; rather this information can be used to develop a fulsome NHS as the project moves forward.

The following sections provide a high level assessment of potential impacts and best practice mitigation measures that will be refined as the project moves forward.

7.1 Impact Assessment

The proposed development is generally confined to lands that are actively managed for agricultural row crops, hedgerows, cultural communities (meadow, woodland and thicket) and some existing residences with landscaped areas surrounding the existing buildings. The natural heritage features are protected with the proposed development plan and detailed grading will be submitted at the draft plan stage. The subject properties are located in an area that is subject to existing urban and active agricultural stressors and disturbances (e.g., noise, light). Accordingly, it is anticipated that negative effects to natural heritage will be minimal. However, there are several potential effects that could occur if appropriate mitigation is not employed (a) during the construction phase and (b) following completion of construction, as discussed below.

Potential environmental effects of the proposed development of the property include:

- Removal of habitat for local urban adapted wildlife related to tree and vegetation removals;
- Removal of Bobolink Habitat;
- Increase in impervious surfaces; and
- Mobilization of soil and sediment during construction.

7.1.1 Removal of Habitat

A large portion of the subject properties are characterized as agricultural crop and anthropogenic. The anthropogenic portions contain associated manicured areas and ornamental vegetation.

The remainder of the subject properties that will be affected by the proposed development contain cultural meadow, cultural woodland, cultural thicket and hedgerow. These communities, including the hedgerows, provide habitat for urban-tolerant birds, bats and other wildlife. Detailed field investigations will be conducted in 2025 on the Keating subject property to confirm habitat use by wildlife of the impacted cultural communities.

A Tree Inventory and Preservation Plan (TIPP) and Arborist Report will be prepared at the draft plan stage of the development that will detail proposed tree removals.

Most of the species recorded in this area are common in the urban environment. Black Ash, a provincially endangered species, was also recorded. These trees appeared to be dead at the time of the November 2024 site visit, however additional surveys will be completed during the 2025 growing season (May to September) to confirm if these trees are dead, and to search for additional trees.

7.1.2 Removal of Bobolink Habitat

Seven territories for Bobolink were recorded in the southern agricultural field of the Elora Sands subject property. This species utilizes meadow habitat, including hayfields which was growing in this agricultural field. This field is proposed for removal as part of the proposed development.

7.1.3 Increase in Impervious Surfaces

The proposed development plan represents an increase of impervious surfaces, with the bulk of the residential areas, proposed roads and SWMF's being converted from agricultural crops to hard surfaces on the Elora Sands and Keating subject properties. Runoff from these areas, and reduced infiltration can cause thermal and erosion impacts to the receiving onsite and offsite watercourses.

7.1.4 Soil Mobilization

Without mitigation construction works such as grading, grubbing and excavation have the potential to result in the movement of sediment into the woodlands, wetlands and watercourse on both the Elora Sands and Keating subject properties.

7.1.5 Noise and Light Effects on Wildlife

Acute and cumulative effects for a single development associated with noise and light are very difficult to quantify. Noise in particular may be a reason why landscape-level effects are known to occur within urban matrices even as natural areas are set aside. The effects of these stressors can be significant in previously undeveloped areas, however, this system is already heavily influenced by the light and noise of the nearby urban developments and major roadways. This has resulted in a suite of species that are already urban-tolerant.

7.2 Recommended Mitigation Measures

The proposed development is located within active agricultural fields and has been impacted historically by this land use; however the above potential impacts have been addressed and the following mitigation measures have been proposed to ensure protection and enhancement of the natural heritage system.

7.2.1 Buffers to the NHS

A 10 m setback has been applied to all wetlands on the Elora Sands and Keating properties. This includes the staked wetland in the northeastern portion of the Elora Sands property, the wetland community along the Nichol Drain and the wetland communities located within the southwestern woodland on the Keating property (**Figure 3**).

A 15 m setback was applied to the Nichol Drain, however the surrounding floodplain limits provide a much larger setback to the Nichol Drain and surrounding wetland community within the County's Greenlands System (**Figure 3**).

A 10 m setback has also been applied to the southwestern woodland on the Keating property (**Figure 3**). This setback will be refined during the draft plan stage once a TIPP and Arborist report have been prepared and Tree Protection Zones (TPZs) have been determined.

The woodland and wetland communities located off-site to the south of the Keating property will not be delineated as they are located entirely off-site. A draft plan approval for a subdivision in this area to the south is proposing an extension of Walser Street along the northern boundary of this off-site woodland which will separate this feature from the proposed development on the subject properties.

7.2.2 Restoration and Landscape Plantings

In order to ensure no adverse effects on the removal of the cultural communities, in particular, the cultural woodland community, plantings along the floodplain of the Nichol Drain are recommended to provide compensation during the detailed design phase. Additionally, a landscape enhancement plan was proposed on the Elora Sands subject property between the northwestern SWMF and the Nichol Drain to compensate for encroachment on the Clayton property west side of Irvine Street) as described in the *Scoped Environmental Impact Study Elora Clayton* (Beacon 2024). The extent of plantings will exceed a 1:1 area and design will be completed through detailed design and will include plantings of native trees and shrubs suitable to the local area.

These plantings will, over time, enhance the ecological function of these natural features and will increase the total area within the Natural Heritage System resulting in a net benefit in both area and function.

7.2.3 Tree Inventory and Protection Plan

A TIPP and Arborist Report will be prepared at the draft plan stage of the development that will detail proposed tree removals. There is potential for damage to occur to trees during construction if proper precautions and protection measures are not implemented.

TPZs will be established on the ground consistent with tree protection fencing prior to the start of construction and shall remain in good condition throughout the duration of all site work. No grading, soil disturbance or surface treatments shall occur within the TPZ. No equipment or materials shall be stored inside the TPZ. If grading or site alteration is required within the TPZs an ISA certified arborist should be consulted. Where trees have been identified for retention, tree protection fencing will be erected and maintained throughout the duration of all construction activity. There shall be no disturbance within the tree protection zone.

Further details will be outlined in the Arborist Report at the draft plan stage of development.

7.2.3.1 Tree Compensation

Tree removals will be detailed at the draft plan stage of development. Tree removals will be compensated for by the planting of native trees along the floodplain of the Nichol Drain as part of a restoration/landscape planting plan. The details of this tree compensation plan will be proposed at the detailed design phase.

Specific measures regarding planting technique, soil requirements, and tree care will be provided in the Arborist Report at the draft plan stage of development.

7.2.4 Bobolink Habitat Requirements

Seven Bobolink breeding territories were recorded in the southern agricultural field (AG, **Figure 2**). Under the habitat regulations for this species (Sections 14 to 19 of Ontario Regulation 830/21), it is possible to remove the habitat provided suitable habitat is created within the same ecoregion. As an alternative to creating suitable habitat, O. Reg. 829/21 also provides the option to pay into the Species Conservation Fund. MECP has developed species specific guidelines and regulations to address habitat removals. Prior to removal of the hay field, a plan must be developed in accordance with MECP guidelines to ensure compliance with the regulations.

7.2.5 Water Balance

MTE (2025b) propose the use of Low Impact Design (LID) best management practices to mimic pre-development recharge rates. Infiltration galleries are proposed to infiltrate roof runoff for 25mm events. Pervious landscaped areas throughout the subject lands will be designed to implement amended topsoil and improve groundwater recharge by means of passive infiltration.

For surface water balance, MTE (2025b) propose to complete a surface runoff water analysis to confirm that existing surface water volume inputs into the Nichol Drain are maintained or exceeded.

7.2.6 Stormwater Management Techniques

In order to mitigate for thermal effects for the Nichol Drain, MTE (2025b) propose to implement thermal mitigation through the use of at-source roof water infiltration, bottom draws and cooling trenches so that the coldest water will be drawn from the bottom of the SWMF and discharge to the Nichol Drain. In order to mitigate for chloride, MTE (2025b) propose to implement a winter bypass for the southwestern wetland on the Keating subject property. MTE (2025b) also propose the preparation of a planting plan during detailed design around the SWMFs to help with erosion protection, long term bank stability of the Nichol Drain, thermal mitigation, limiting pedestrian access into the permanent pool components, and providing aesthetics and safety benefits.

7.2.7 General Mitigation Measures

Sediment and Erosion Control

Any grading or site alteration related activities should be confined to the established limit of development. Fencing at the development limit should be regularly inspected and maintained in good working order throughout the construction period. Fencing should be removed upon completion of construction after exposed soils have been stabilized. Standard Best Management Practices, including the provision of sediment control measures, should also be employed during the construction process.

Suggested site-specific ESC measures will be detailed during the draft plan stage of this proposed development.

Timing of Vegetation Removal

The federal *Migratory Birds Convention Act* (2022) and provincial *Fish and Wildlife Conservation Act* protect the nests, eggs and young of most bird species from harm or destruction. As the breeding bird season in southern Ontario is generally from early April to August, the clearing of vegetation (including grasses and shrubs) should occur outside of these periods.

For any proposed clearing of vegetation within these dates, or where birds may be suspected of nesting outside of typical dates, an ecologist should undertake detailed nest searches immediately prior to site alteration to ensure that no active nests are present.

Noise and Light Effects

Noise and light can cause negative effects on wildlife in areas that are previously undeveloped, or in cases where new development occurs adjacent to natural features. In this situation, the proposed development is occurring in an urbanized area which has been subject to both noise and light for an extended period. Urban-tolerant wildlife using this area are expected to already be well adapted to these conditions. Based on this assessment we do not anticipate a measurable effect on wildlife as a result of the proposed development and no further mitigation is proposed.

8. Policy Conformity

The natural heritage policy framework with respect to the Elora Sands and Keating subject properties was detailed under Section 3 of this report.

8.1 Provincial Planning Statement

The Elora Sands and Keating subject properties do not contain significant valleyland, significant wetlands, significant coastal wetlands, significant wildlife habitat, or significant ANSIs. A woodland located offsite to the south of the Keating property, defined as significant by the County's OP,

will not be impacted by the proposed development on the Keating subject property. A draft plan of subdivision was approved to the south of the Keating property and this plan is proposing an extension of Walser Street along the northern boundary of this woodland. Compensation is proposed for this woodland as part of the draft plan of subdivision (North-South Environmental 2022).

Fish habitat is present within the Nichol Drain watercourse on the Elora Sands subject property and along the northeastern Keating subject property boundary and development has provided an appropriate buffer to this feature. The construction of the SWMF outfall will be addressed with DFO, as necessary. Fish habitat is also present within the Queen Street tributary to the southwest of the Keating property. This tributary is not within the proposed development footprint, however it is expected that stormwater outfalls will flow towards this tributary. The proposed stormwater management plan will mitigate impacts from pre- to post-development peak flows towards this tributary.

Threatened and endangered species will be addressed in accordance with MECP requirements as detailed in Section 8.6.

8.2 County of Wellington Official Plan

The NHS has been identified through this EIS on and adjacent to both the Elora Sands and Keating subject properties. Features of the NHS include the Nichol Drain traversing the Elora Sands subject property and traversing along the northeastern Keating property boundary, the surrounding wetland communities and the floodplain limit. These features are included in the County's Greenlands System and will be protected with a 10 m buffer to the wetland communities, a 15 m buffer to the Nichol Drain and the outer floodplain limits.

Additionally, the southwestern woodland and wetland communities on the Keating subject property are part of the NHS and will be protected from the proposed development with 10 m buffers. The setback to the woodland community will be refined during the draft plan stage once a TIPP and Arborist report have been prepared and Tree Protection Zones (TPZs) have been determined. The woodland and wetland communities located off-site to the south of the Keating property will not be delineated as they are located entirely off-site.
A draft plan approval for a subdivision in this area to the south is proposing an extension of Walser Street along the northern boundary of this off-site woodland which will separate this feature from the proposed development on the subject properties.

8.3 Township of Centre Wellington Official Plan

The NHS has been identified through this EIS on and adjacent to both the Elora Sands and Keating subject properties in accordance with the applicable natural heritage policies. The identified natural heritage features within the NHS will be protected and buffered with the proposed development plan. Based on these findings, there is nothing to prevent these lands from being brought into the urban boundary.

8.4 Grand River Conservation Authority

A watercourse (Nichol Drain) and surrounding wetland and floodplain traverses the Elora Sands property as well as a valley in the northeastern portion of the property. This watercourse and surrounding wetland and floodplain continue onto the Keating property and traverse the Keating property in the northeastern portion and along the northeastern property boundary. Additionally, the Keating property has wetland communities in the southwestern portion and additional wetland communities to the south of the property boundary. There is also a tributary offsite to the southwest of the Keating property. These features, and the lands adjacent to them, are regulated by the GRCA.

A 10 m buffer was applied to the wetland that surrounds the Nichol Drain.

A 10 m buffer was also applied to the wetland communities in the southwestern portion of the Keating subject property. The proposed SWMF adjacent to these wetland communities does not encroach into the buffer. Detailed grading will be submitted at the draft plan stage.

The wetland community within the woodland to the south of the Keating property will not be impacted by the proposed development on the Keating subject property. A draft plan of subdivision was approved to the south of the Keating property and this plan is proposing an extension of Walser Street along the northern boundary of this woodland.

8.5 Endangered Species Act

The provincially threatened Bobolink was confirmed breeding on the Elora Sands subject property within the southern agricultural field during the 2023 breeding bird surveys. The removal of this habitat for the proposed development will be addressed in conformance with the ESA.

Pending seasonal surveys in 2025, if the provincially threatened Chimney Swift is confirmed nesting or roosting in any of the structures on the subject properties, the removal of this habitat will be addressed in conformance with the ESA and *Species at Risk Act* (2002).

Three Black Ash trees that appeared to be dead were identified on the Keating subject property. As these Black Ash were recorded outside of the growing season in 2024, additional surveys will be completed during the 2025 growing season (May to September) to confirm if these trees are dead, and to search for additional trees. The removal of these Black Ash trees will be addressed in conformance with the ESA.

Although the snag surveys on both the Elora Sands and Keating properties found potential maternity roosting habitat for endangered bats within the CUP3-3 and CUW1, acoustic monitoring has not yet been completed on these properties to confirm presence or absence of endangered bat species. Acoustic monitoring will be completed in June 2025 on both properties. Although the southwestern woodland on the Keating property and the offsite woodland to the south of the Keating property will not be surveyed for this study, there is potential roosting habitat within these woodland communities. The southwestern woodland and offsite woodland are within the County's Greenlands System and will be protected with the proposed development plan.

If any endangered species of bats are confirmed on the subject properties within the CUP3-3 or CUW1, consultation with the MECP will be undertaken to confirm next steps. Similarly, there is potential roosting habitat for endangered bats within several structures on both the Elora Sands and Keating subject properties. Seasonal bat exit surveys will be conducted in 2025 on both properties to confirm the presence or absence of these species and the removal of these structures will be addressed in conformance with the ESA should any confirmed endangered bat habitat be recorded.

The proponent will consult with the MECP to ensure the requirements of the ESA are addressed.

8.6 Federal *Fisheries Act*

The need to address the Federal *Fisheries Act* and provide DFO with a Request for Review will be determined upon detailed design of the SWMF outfalls.

9. Conclusion

Beacon has conducted a background review and field investigations in order to prepare this EIS for the identification of an NHS to address the expansion of the Urban Boundary and proposed OPA. Seasonal field studies including vegetation characterization, breeding bird surveys, amphibian surveys, bat habitat assessment and aquatic habitat assessment were completed.

This EIS was prepared using information collected through a review of relevant background information and field investigations in 2022, 2023 and 2024. Additional field investigations are planned for 2025.

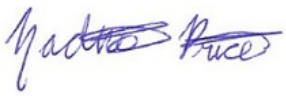
The report characterizes existing natural heritage features on the Elora Sands and Keating subject properties within the study area and addresses potential impacts of the proposed development on the natural heritage features and functions on and immediately adjacent to the proposed development. Although the impacts outlined herein are limited in intensity and scope, a series of mitigation measures are also recommended to ensure that the natural heritage features and functions on the subject properties and in the adjacent lands are appropriately addressed.
The proposed Urban Area expansion will incorporate the NHS and associated buffers and the proposed concept for development will be largely confined to portions of the sites that are in agricultural use, existing dwellings and anthropogenic areas that are landscaped. The appropriate natural heritage policy framework was reviewed with respect to the PPS, County of Wellington Official Plan, Township of Centre Wellington Official Plan, Township of Centre Wellington Zoning By-law, as well as the GRCA regulations and ESA.

The Nichol Drain and associated riparian corridor are located on and adjacent to the Elora Sands and Keating properties. The southwestern woodland and wetland communities on the Keating property and the woodland and wetland communities to the south of the Keating property will be protected by the proposed development. The presence of these features does not impede the lands from being brought into an Urban Area boundary; rather this information can be used to develop a fulsome NHS as the project moves forward.

Potential impacts are limited to tree removal outside of woodland features, removal of Bobolink habitat and potential impacts to the riparian corridor of the Nichol Drain with respect to the construction of a SWMF outfall. Mitigation measures have been recommended including the application of buffers and development of restoration planting plans. General best practice mitigation measures including timing windows and erosion and sediment control will be undertaken. With the implementation of the recommended mitigation, no negative effects on the natural heritage system area are anticipated and enhancements to the subject property will be proposed as the project moves forward.

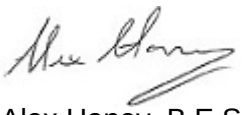
MECP will be consulted with respect to the requirements of the ESA, specifically as they relate to Bobolink to ensure all aspects of the Act are addressed. Should any additional regulated species be confirmed on the subject properties, MECP will be consulted to ensure conformity with the ESA.

Prepared by:
Beacon Environmental Ltd.



Nadine Price, M.Sc.,
Ecologist

Prepared by:
Beacon Environmental Ltd.



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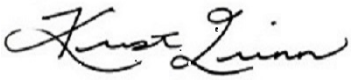
Reviewed by:
Beacon Environmental Ltd.



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Principal, Senior Environmental Planner

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Appendix A

Agency Correspondence

From:	Nadine Price
To:	Jessica Conroy
Cc:	Meagan Ferris; Brett Salmon; Astrid Clos; Kristi Quinn
Subject:	Terms of Reference - Elora Sands and Keating properties - Elora - BEL 221469
Date:	January 27, 2025 1:57:00 PM
Attachments:	2025-01-27_Elora Sands-Keating TOR_221469_FINAL.pdf

Dear Ms. Conroy,

Please find attached to this email our Terms of Reference letter to conduct an Environmental Impact Study for the proposed development of Elora Sands (southern quadrant of Sideroad 15 and Gerrie Road, on the east side of Irvine Street) and Keating properties (to the immediate south of Elora Sands) in Elora.

Please advise if you are in agreement with this work plan. Please also confirm if you will require a site visit to complete a natural feature staking of the wetlands on the Keating property.

For the Township or County, please also advise if you are in agreement with this work plan and confirm if you will require a site visit to complete a natural feature staking of the woodlands on the Keating property. If Brett or Meagan are no longer the correct contacts at the Township or County, please forward this email and Terms of Reference letter to the correct contacts.

Best regards,

Nadine

Nadine Price, M.Sc. / Ecologist (She/her)
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January 27, 2025 BEL 221469

Jessica Conroy
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via email: Jessica Conroy, Grand River Conservation Authority, jconroy@grandriver.ca
cc: Meagan Ferris, County of Wellington, meaganf@wellington.ca
Brett Salmon, Township of Centre Wellington, bsalmon@centrewellington.ca
Astrid Clos, Planning Consultants, astrid.clos@ajcplanning.ca

Re: Terms of Reference for Environmental Impact Study - Elora Sands and Keating Properties, Elora

Dear Ms. Conroy:

Beacon Environmental Limited (Beacon) has prepared the following Terms of Reference (TOR) for an Environmental Impact Study (EIS), for your review and comment, in support of a proposed development for the adjacent subject properties, herein referred to as the "Elora Sands subject property" and the "Keating subject property". The Elora Sands subject property is located at 7581 Sideroad 15, at the southern quadrant of the intersection of Sideroad 15 and Gerrie Road, on the east side of Irvine Street in in the community of Salem, Township of Centre Wellington, County of Wellington. The Keating subject property is located immediately south of the Elora Sands subject property and is legally described as Part of Lot 17, Concession 12 (**Figure 1**).

Beacon has prepared an EIS for the adjacent Elora Clayton lands which was scoped with the GRCA and County and this TOR is consistent with what was approved for those lands. These lands are proposed for residential development and will ultimately utilize the stormwater infrastructure on the Elora Sands property that has been reviewed and presented as part of that application.

Based on a preliminary desktop review and previous field investigations (conducted in 2022, 2023 and 2024), the Elora Sands subject property is composed of agricultural fields, a residential area, some small wooded areas, hedgerows, a marsh community, valley and a regulated municipal drain (Nichol Drain) traversing the property in a west to east direction. The Keating subject property is also composed primarily of agricultural fields, along with residential areas, a cultivated woodland and thicket, the Nichol Drain and a marsh community surrounding the Nichol Drain. An unevaluated wetland and woodland are present in the southwestern portion of the property and a second unevaluated wetland and woodland are present adjacent to the property to the south. An additional watercourse is present offsite to the southwest of the Keating subject property. Both subject properties are located within the Growth Plan

for the Greater Golden Horseshoe (GGH) and are subject to municipal and regional official plans as well as the policies and regulations of the Grand River Conservation Authority (GRCA). An EIS is required to demonstrate that the proposed development complies with applicable environmental legislation, policies and regulations of the province, municipality and GRCA and to ensure any potential impacts to the natural environment have been avoided or mitigated.

Beacon will prepare an EIS including the following key components:

- Background/Context;
- Identification of Natural Heritage Features and Functions;
- Impact Identification and Analysis;
- Response to Impacts; and
- Conclusion/Recommendations.

In preparing the EIS, Beacon proposes to undertake the following tasks.

1. Background and Policy Review

Existing information will be compiled for the area, including aerial photographs, area mapping, GRCA information, Natural Heritage Information Centre (NHIC) and any other relevant data that are available. The following background report will be consulted for baseline and management guidance:

- Nichol Drain No. 1 Sub-Watershed Study: Phase 1 (Township of Centre Wellington 2008).

A desktop screening will be completed for Species at Risk (SAR) and potential Significant Wildlife Habitat through the review of background information including:

- Provincially tracked species layer (1 km grid LIO dataset);
- Ontario Reptile and Amphibian Atlas (ORAA);
- Ontario Breeding Bird Atlas (OBBA);
- eBird (via the eBird Hotspot online mapping);
- iNaturalist (via the Explore Observations online mapping):
- Atlas of the Mammals of Ontario (Dobbyn 1994);
- Natural Heritage Information Centre (NHIC) Data via the Make-A-Map application;
- Species at risk range maps (Government of Ontario); and
- Natural and physical feature layers (e.g. topographic, wetland, waterbody, watercourse data), LIO and Aquatic Resource Area (ARA) datasets.

The relevant environmental/natural heritage policies that may apply to the subject properties at a provincial and municipal level will be reviewed including the *Endangered Species Act* (2007; ESA), Provincial Policy Statement, Growth Plan for the Greater Golden Horseshoe, County of Wellington Official Plan, Centre Wellington Official Plan, and GRCA regulations and policies. Additionally, the federal *Fisheries Act* (1985) will be reviewed as it applies to the subject properties.

2. Field Investigations

Based on the known conditions on the Elora Sands and Keating subject properties the following field investigations have been and/or will be completed to identify existing natural heritage features within the study area.

Vegetation Community Classification and Flora Survey

Beacon ecologists conducted site visits in April 2022 and June 2023 to document the flora and vegetation communities on and immediately adjacent to the Elora Sands subject property. Additionally, Beacon ecologists conducted a single site visit to the Keating subject property in November 2024 to document the flora and vegetation communities on and immediately adjacent to this subject property. Vegetation communities were mapped and described following the Ministry of Natural Resources' Ecological Land Classification (ELC) for southern Ontario. A single in-season site visit in summer 2025 to the Keating subject property will provide an update to the flora and vegetation community data collected on this property in 2024.

A targeted search for Butternut (*Juglans cinerea*) and Black Ash (*Fraxinus nigra*), both of which are listed as endangered species of trees under the ESA, were undertaken on the Elora Sands and Keating subject properties. If Butternut or Black Ash are encountered, locations will be recorded using an EOS Arrow GNSS Receiver with sub-meter accuracy and an assessment will be conducted according to provincial guidelines.

Breeding Bird Surveys

Breeding bird surveys will be conducted on the subject properties.. They will consist of early morning point count and roving surveys in which the entire site will be walked to within 50 m of its edge and all representative habitats will be sampled. The surveys will occur at least one week apart during suitable weather in late May to early July 2025 to determine the presence/absence of Species at Risk. This will confirm the presence/absence of any Threatened or Endangered grassland bird species (i.e. Bobolink and Eastern Meadowlark).

Aquatic Habitat Assessment

The Nichol Drain has been identified on the Elora Sands and Keating subject properties and field investigations were completed in 2022 to assess any potential impacts of a stormwater outfall. A visual assessment of aquatic habitats within the study area were completed. Detailed fisheries surveys were not undertaken as it is understood that background data is available. The results of this survey will be incorporated in the EIS for reference.

The Queen Street tributary has been identified offsite to the southwest of the Keating subject property. Field investigations will be completed in summer 2025 to assess any potential impacts of a stormwater outfall. A similar visual assessment of aquatic habitats will be completed for this tributary. Detailed fisheries surveys will not be undertaken as it is understood that background data is available and property access is not available. The results of this survey will be incorporated in the EIS for reference.

Breeding Amphibians

Based on the presence of the marsh community and regulated municipal drain features on the Elora Sands subject property, there is the possibility for breeding amphibians to be present. Three amphibian breeding surveys were completed from April to June 2023 and consisted of evening visits that were scheduled during the spring under suitable weather conditions. The purpose of these surveys is to determine the presence/absence of breeding amphibians, focussing on any potential breeding areas on or immediately adjacent to the subject property.

Based on the presence of the marsh community, regulated municipal drain and unevaluated wetlands on and adjacent to the Keating subject property, there is the possibility for breeding amphibians to be present. Three amphibian breeding surveys will be completed on this property from April to June 2025.

Bat Habitat Assessment

Bat snag surveys were conducted in leaf-off condition as required to address the potential for endangered bats within the wooded communities on the Elora Sands and Keating subject properties in November 2024. The results of this survey will be incorporated in the EIS for reference.

Bat Acoustic Monitoring

Bat acoustic monitoring will be conducted during the breeding season in June 2025 as required to address the potential for endangered bats within the wooded communities on the Elora Sands and Keating subject properties. Upon completion of acoustic data analysis Beacon will prepare a technical memorandum for submission to the MECP in order to address the requirements of the *Endangered Species Act* (ESA) and to determine next steps, if necessary.

Bat Exit Surveys and Chimney Swift Surveys

Several structures are present on both the Elora Sands and Keating subject properties. Bat exit surveys and Chimney Swift surveys will be conducted at these structures during the breeding season in June and July 2025 to confirm presence or absence of these regulated species.

Feature Staking

An on-site feature staking with GRCA was required to assist in determining the limits of the marsh community in the northeastern portion of the Elora Sands subject property. This staking took place in September 2023 and no other natural heritage features required staking during this visit.

An on-site feature staking with GRCA and the Township may be required to assist in determining the limits of natural features and constraints on the Keating subject property in 2025 (i.e. wetlands and woodlands). This exercise will involve staking wetland areas on and immediately abutting the subject property. Similar staking will be done for the woodlands should the Town require these to be staked. Beacon will GPS the limits of features. Beacon will consult with GRCA and the County of Wellington to determine if staff will require a site walk or feature staking.

Screening for Endangered and Threatened Species

A targeted search for species protected by the ESA and their potential habitat has and will be undertaken at the time of the vegetation surveys and breeding bird surveys on the Elora Sands and Keating subject properties.

Incidental Wildlife Observations

During the site visit surveys, incidental wildlife observations will be recorded (i.e., scat, tracks, visual observation). This will also include an assessment of candidate significant wildlife habitat during all field investigations.

3. Data Analysis and Report Production

The EIS report will summarize the findings of the background review and field investigations, assess the function and significance of natural heritage features, evaluate impacts of the proposed development, recommend mitigation and enhancement opportunities, and assess conformity with provincial, county, and GRCA policies and regulations. The EIS will be prepared according to the following outline:

Introduction – This section of the report will include introductory remarks regarding the purpose and scope of the study, a general description of the site and the site location, and a brief description of the proposed development.

Policy Review – The report will include a summary of applicable provincial, municipal and conservation authority natural heritage policies and legislation, and their relevance to the property, including the Provincial Policy Statement, Growth Plan for the Greater Golden Horseshoe, County of Wellington, and GRCA policies and regulations. A summary of the federal *Fisheries Act* (1985) will also be included as it applies to the subject properties.

Methodology – This section of the report will include a description of the methods used to characterize the site's natural heritage features and functions. A list of background information sources consulted as well as details of all field work and assessments will be included.

Findings – The report will provide a detailed description of existing conditions based on the results of the background review and field investigations. We will characterize existing biophysical resources on the subject property, including wildlife and vegetation communities using available information from relevant background resources and field work.

Description of Proposed Development – This section of the report will provide a description and map of the proposed development.

Impact Assessment – This section will evaluate potential direct and indirect impacts of the proposed development on the natural heritage features and ecological functions on/adjacent to the subject property. This will include an assessment of the potential direct and indirect stormwater impacts on the receiving watercourse.

Mitigation and Enhancement Recommendations – This section of the report will recommend mitigation measures to prevent, minimize, or off-set any identified impacts to natural heritage features.

Policy Conformity - We will review the proposed development with respect to applicable federal, provincial, municipal and conservation authority policies and regulations.

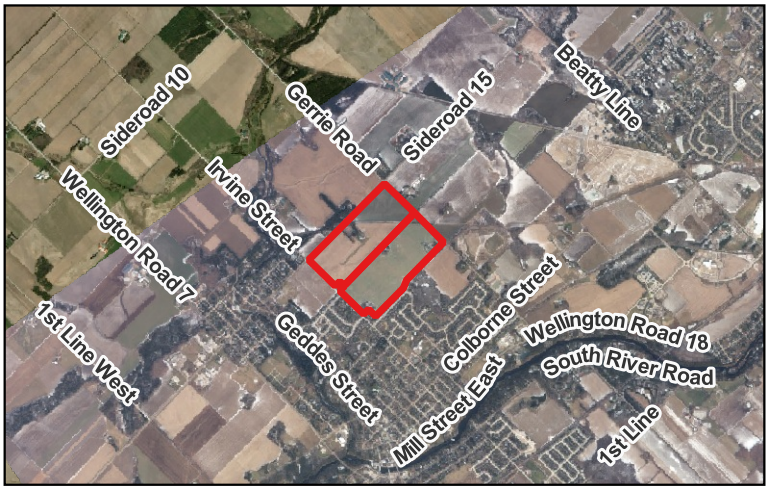
We propose that the approach described above be used as Terms of Reference for the EIS. Should you have any comments or questions, or if the GRCA has an interest in visiting the subject property, please do not hesitate to contact the undersigned at (647) 461-4359 or nprice@beaconenviro.com.

Prepared by:
Beacon Environmental Ltd.

Nadine Price, M.Sc.
Ecologist

Reviewed By:
Beacon Environmental Ltd.

Kristi Quinn, B.E.S., Cert. Env. Assessment
Principal, Senior Environmental Planner



Site Location	Figure 1
Elora Clayton EIS	
BEACON ENVIRONMENTAL	Project: 221469 Last Revised: January 2025
Client: Cachet Developments	Prepared by: BD Checked by: KQ
N 1:12,800	Inset Map: 1:70,000

C:\ODB\OneDrive - Beacon Environmental\GeoSpatial\Geo Projects\2021\221469 Elora Clayton EIS\Q Project Files\20241122_Elora Keating EIS_221469.qgz

From: Jessica Conroy
To: Nadine Price; Robert Messier
Cc: Kristi Quinn
Subject: RE: Terms of Reference - Elora Sands - Elora - BEL 221469
Date: September 26, 2024 1:59:29 PM
Attachments: image001.png

Hi Nadine,

Thank you for following up with this update and providing the wetland shapefile for our review. The shapefile accurately reflects what was confirmed on the ground, and we will update our mapping accordingly.

Thank you,
Jessica

Jessica Conroy, MES Pl.
Resource Planner
Grand River Conservation Authority

400 Clyde Road, PO Box 729
Cambridge, ON N1R 5W6
Office: 519-621-2763 ext. 2230
Toll-free: 1-866-900-4722
Email: jconroy@grandriver.ca
www.grandriver.ca | Connect with us on social media

From: Nadine Price <NPrice@beaconenviro.com>
Sent: Thursday, September 26, 2024 9:15 AM
To: Jessica Conroy <jconroy@grandriver.ca>; Robert Messier <RMessier@grandriver.ca>
Cc: Kristi Quinn <kquinn@beaconenviro.com>
Subject: RE: Terms of Reference - Elora Sands - Elora - BEL 221469

Good morning Jessica and Robert,

The Elora Clayton project is back up and running – our client is preparing for a second submission for this project. Further to this, Robert Messier completed a feature staking of the wetland on site with us on the Elora Sands property on September 26, 2023. He requested to review the wetland linework once it was ready after this site visit. I am therefore sending both the CAD file that we received recently from the surveyor for wetland linework as well as our Figure 2 showing the staked wetland mapped on there along with the ELC we originally mapped prior to the feature staking for your review.

Please review these at your earliest convenience and let us know if you have any comments/feedback to provide.

We look forward to hearing from you.

Thanks,

Nadine

Nadine Price, M.Sc. / Ecologist
BEACON ENVIRONMENTAL
80 Main Street North, Markham, ON L3P 1X5
T) 365.363.6348 C) 647.461.4359
www.beaconenviro.com

From: Jessica Conroy <jconroy@grandriver.ca>
Sent: September 1, 2023 1:25 PM
To: Nadine Price <NPrice@beaconenviro.com>
Cc: Kristi Quinn <kquinn@beaconenviro.com>; Alex Haney <AHaney@beaconenviro.com>
Subject: RE: Terms of Reference - Elora Sands - Elora - BEL 221469

Great, thank you Nadine.

We are looking forward to meeting to then!

Best,
Jessica

Jessica Conroy, MES Pl.
Resource Planner
Grand River Conservation Authority

400 Clyde Road, PO Box 729
Cambridge, ON N1R 5W6
Office: 519-621-2763 ext. 2230
Toll-free: 1-866-900-4722
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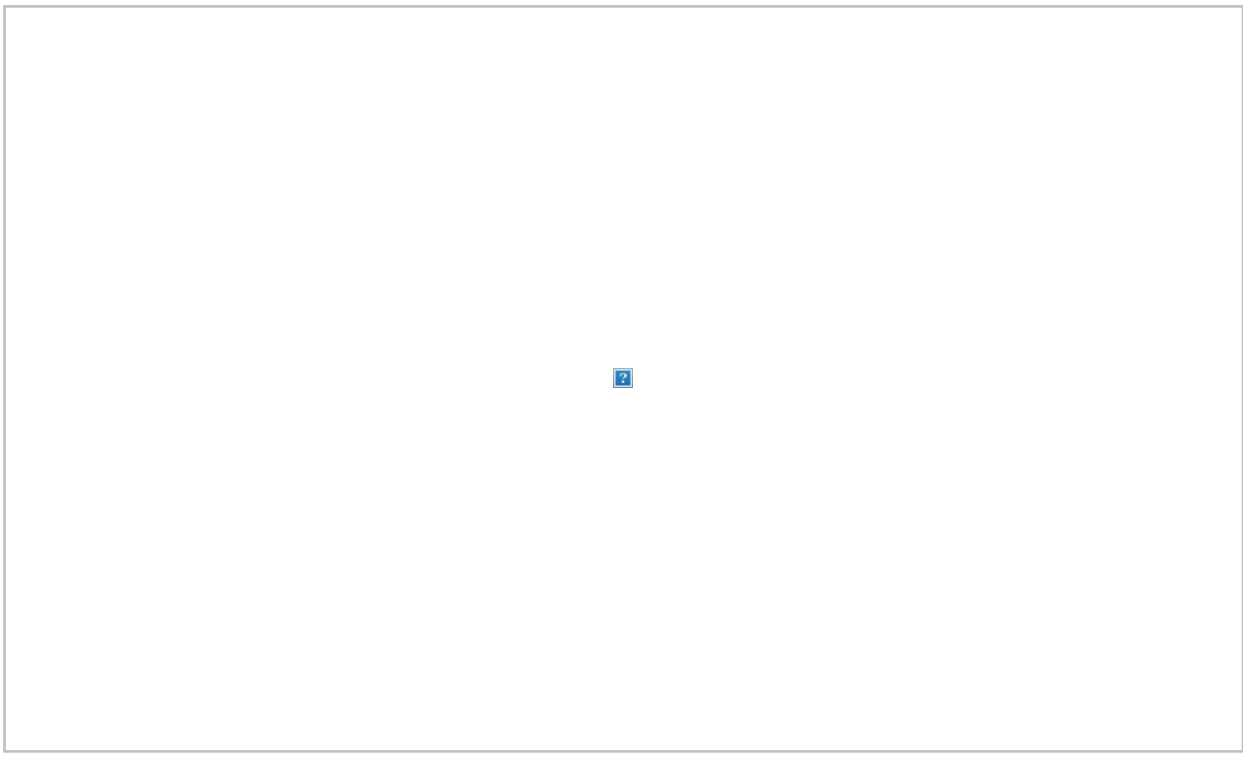
From: Nadine Price <NPrice@beaconenviro.com>
Sent: Friday, September 1, 2023 12:21 PM
To: Jessica Conroy <jconroy@grandriver.ca>
Cc: Kristi Quinn <kquinn@beaconenviro.com>; Alex Haney <AHaney@beaconenviro.com>

Subject: RE: Terms of Reference - Elora Sands - Elora - BEL 221469

Hi Jessica,

Thank you for letting me know. Let's meet at 2 pm on Sept. 26 by the driveway to the property on Sideroad 15. (See the circled P in my screenshot below).

I look forward to meeting with you and Robert.



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To protect our staff, families, clients and the greater community all Beacon staff are working remotely. We will continue to provide timely communications *via* email and telephone and are committed to providing the highest level of service possible during this challenging time.

From: Jessica Conroy <jconroy@grandriver.ca>
Sent: Thursday, August 31, 2023 12:55 PM
To: Nadine Price <NPrice@beaconenviro.com>
Cc: Kristi Quinn <kquinn@beaconenviro.com>; Alex Haney <AHaney@beaconenviro.com>
Subject: RE: Terms of Reference - Elora Sands - Elora - BEL 221469

Hi Nadine,

Anytime is currently open for us, just let us know when is best for us to come and confirm the wetland boundary.

Thank you,
Jessica

Jessica Conroy, MES Pl.
Resource Planner
Grand River Conservation Authority

400 Clyde Road, PO Box 729
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Toll-free: 1-866-900-4722
Email: jconroy@grandriver.ca
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From: Nadine Price <NPrice@beaconenviro.com>
Sent: Wednesday, August 30, 2023 1:15 PM
To: Jessica Conroy <jconroy@grandriver.ca>
Cc: Kristi Quinn <kquinn@beaconenviro.com>; Alex Haney <AHaney@beaconenviro.com>
Subject: RE: Terms of Reference - Elora Sands - Elora - BEL 221469

Hi Jessica,

Yes September 26 works for us. We can do anytime that day, although please note that we will be driving from Toronto or further to the site so would prefer the earliest start time to be around 10 am.

Please confirm what time works for both of you.

Thanks,

Nadine

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From: Jessica Conroy <jconroy@grandriver.ca>
Sent: Wednesday, August 30, 2023 9:34 AM
To: Nadine Price <NPrice@beaconenviro.com>
Cc: Kristi Quinn <kquinn@beaconenviro.com>; Alex Haney <AHaney@beaconenviro.com>
Subject: RE: Terms of Reference - Elora Sands - Elora - BEL 221469

Hi Nadine,

We are currently available on September 26th if that works?

Robert Messier (rmessier@grandriver.ca) would be the GRCA ecologist attending to confirm the flagged wetland boundary and I will likely join as well.

Thank you,
Jessica

Jessica Conroy, MES Pl.
Resource Planner
Grand River Conservation Authority

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From: Nadine Price <NPrice@beaconenviro.com>
Sent: Thursday, August 24, 2023 4:09 PM
To: Jessica Conroy <jconroy@grandriver.ca>
Cc: Kristi Quinn <kquinn@beaconenviro.com>; Alex Haney <AHaney@beaconenviro.com>
Subject: RE: Terms of Reference - Elora Sands - Elora - BEL 221469

Hi Jessica,

Thank you, much appreciated.

Regards,

Nadine

Nadine Price, M.Sc. / Ecologist
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80 Main Street North, Markham, ON L3P 1X5
T) 365.363.6348 C) 647.461.4359
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From: Jessica Conroy <jconroy@grandriver.ca>
Sent: Thursday, August 24, 2023 9:29 AM
To: Nadine Price <NPrice@beaconenviro.com>
Cc: Kristi Quinn <kquinn@beaconenviro.com>; Alex Haney <AHaney@beaconenviro.com>
Subject: RE: Terms of Reference - Elora Sands - Elora - BEL 221469

Hi Nadine,

I'm looking into staff availability for these dates and will get back to you hopefully next week.

Thank you,
Jessica

Jessica Conroy, MES Pl.
Resource Planner
Grand River Conservation Authority

400 Clyde Road, PO Box 729
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Toll-free: 1-866-900-4722
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From: Nadine Price <NPrice@beaconenviro.com>
Sent: Monday, August 21, 2023 4:22 PM
To: Jessica Conroy <jconroy@grandriver.ca>
Cc: Kristi Quinn <kquinn@beaconenviro.com>; Alex Haney <AHaney@beaconenviro.com>
Subject: RE: Terms of Reference - Elora Sands - Elora - BEL 221469

Hi Jessica,

Thank you for sending us your comments. We would like to arrange a site visit with GRCA staff to stake the wetland boundary before the end of September and want to confirm what dates you currently have available? The only dates we are not available between are Sept. 18 to 25 and Sept. 28.

Please let us know what dates might work for the wetland staking.

Thanks,

Nadine

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From: Jessica Conroy <jconroy@grandriver.ca>
Sent: Monday, August 14, 2023 9:07 AM
To: Nadine Price <NPrice@beaconenviro.com>
Subject: RE: Terms of Reference - Elora Sands - Elora - BEL 221469

Good morning Nadine,

Please see below GRCA comments on the EIS Terms of Reference:

Required Comments:

- The GRCA will want to confirm the flagged wetland boundary.
- The final EIS must identify how the site's water balance and contributions to Irvine Creek and associated wetlands will be maintained.
- The final EIS report must summarize and interpret the findings and recommendations of the other technical reports, such as but not limited to geotechnical, hydrogeological, and Storm Water Management reports.

Advisory Comments:

- The proposed development of the site has the potential to alter surface and groundwater contributions to Irvine Creek. Water balances should be identified as well as channel stability or erosion thresholds should be identified and interpreted to ensure the long term health and stability is maintained.
- The EIS terms of reference identifies that the proposed Elora Sands development will be supported by the Clayton Lands SWM infrastructure. The final EIS should identify how the site's water balance will be maintained post development.

Please let me know if you have any questions.

Thank you,
Jessica

Jessica Conroy, MES Pl.
Resource Planner
Grand River Conservation Authority

400 Clyde Road, PO Box 729
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Office: 519-621-2763 ext. 2230
Toll-free: 1-866-900-4722
Email: jconroy@grandriver.ca
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From: Nadine Price <NPrice@beaconenviro.com>
Sent: Thursday, July 20, 2023 2:15 PM
To: Jessica Conroy <jconroy@grandriver.ca>
Cc: Kristi Quinn <kquinn@beaconenviro.com>
Subject: FW: Terms of Reference - Elora Sands - Elora - BEL 221469

Dear Ms. Conroy,

I am forwarding the email below and attached Terms of Reference to you regarding the proposed development of the Elora Sands property in Elora. Our original contact at the GRCA for the adjacent property was Ben Kissner and his email appears to have bounced back on me. Would you be the correct person to review this Terms of Reference or is there someone else that I should reach out to at the GRCA?

Thanks,

Nadine

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From: Nadine Price
Sent: Thursday, July 20, 2023 2:02 PM
To: Ben Kissner <bkissner@grandriver.ca>
Cc: Meagan Ferris <meaganf@wellington.ca>; Brett Salmon <BSalmon@centrewellington.ca>; Astrid Clos <astrid.clos@ajcplanning.ca>; Kristi Quinn <kquinn@beaconenviro.com>
Subject: Terms of Reference - Elora Sands - Elora - BEL 221469

Dear Mr. Kissner,

Please find attached to this email our Terms of Reference letter to conduct an Environmental Impact Study for the proposed development of Elora Sands (southern quadrant of Sideroad 15 and Gerrie Road, on the east side of Irvine Street) in Elora.

Please advise if you are in agreement with this work plan. Please also confirm if you will require a site visit to complete a natural feature staking of the wetland and valley on the property.

Best regards,

Nadine

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Appendix B

Breeding Bird Survey Methods

Appendix B

Breeding Bird Survey Methods

Beacon Environmental Limited (Beacon) staff undertake hundreds of breeding bird surveys every year across the province and have done so for many years. These are in support of federal, provincial and municipally regulated and or reviewed projects. We have not in the past had an issue raised with our site specific survey techniques.

Contrary to the information provided by the TRCA (cite) there is no "standard" for breeding bird surveys. We have seen in various sources the Ontario Breeding Bird Atlas (OBBA) methodology raised as a potential standard. In our opinion this method is not scientifically valid for site specific work. The following paragraphs will provide a rationale for this position and explain our methods comparatively.

The OBBA uses two methods for collecting bird data.

One method is a walkabout within the area of interest to record presence and evidence of breeding, some birds that are present but without evidence of breeding may be considered "possible" breeders rather than "probable" or "confirmed". This is absence/presence.

The second method is the point count. Point counts are used to assess abundance (but not at the site level). Birds are not attracted to the counter in any way. The protocol was devised mainly to make the process easy for counters and easy to standardise. However, the abundance data created are aggregated across hundreds of counts. This is necessary for birds due to the high variability in detections (and presence) and annual variability creating, substantial variance. The atlas uses this approach to enable comparison of data for large geographic areas across years using a repeatable methodology. The methodology is geared towards large data sets being compared over time, not to site specific investigations. Generally speaking, and according to our discussions in the past with Environment Canada statisticians, point counts need to be in the order of 100 counts before they become very useful for comparing abundance data across space or time, this is due to issues of power as previously discussed here. There are many critiques in the literature on the use of point counts, especially for small data sets.

Beacon staff conduct surveys where the primary objective is to establish existing conditions, not to compare data over time.

The objective then is typically not to provide a multi-year monitoring protocol that can allow comparative data to be generated across vast geographic areas. Even if it were, point counts would not be able to provide such data at the site level, for reasons discussed above. Beacon uses a roving transect approach whereby most or all portions of a subject property are approached to within approximately 50 m. The transects are effectively 50 m each side of the observer. All potentially breeding birds are mapped. Transects are much more efficient than point counts as they record all data at any time during the site visit, not just while at timed point points. The Beacon distance used for detection (50 m) is half that of the OBBA method, thus overall, Beacon surveys provide much greater density of coverage. We also do not have the issue of bias, as point counts to be representative must be selected randomly. Species that are less common are easily missed by point counts and more easily encountered with a roving transect.

Further, Beacon takes the conservative position that any species present during the breeding season, in suitable habitat and showing any disposition towards breeding (e.g., song, pair), be considered breeding. This is a conservative approach that is entirely appropriate for site specific investigations. We use the highest "pair" value from two or three site visits, which starts to approach the gold-standard of bird surveys methods (i.e., territory mapping).

In summary the Beacon approach provides:

- Greater density and granularity of data;
- Increases site specific coverage sometimes by an order of magnitude and thereby increases the likelihood of detection, covering typically >90% of a subject property;
- A roving transect covers the entire site not just a potion of the site, most sites will support only a few 100 m point counts 250 m apart, sampling perhaps les than 50% of a subject property;
- Less common species are more likely to be detected;
- The ability to attract birds to the observer without compromising the data set; and
- Conservative position that birds present in suitable habitat are likely breeding.

The provincial point count system as devised for the Atlas data is meant to compare large standardised data sets over time (and may be appropriate for that purpose) but it is not an appropriate scientific methodology for site specific investigations of the kind that we undertake on a regular basis.

We recommend for further reading: Monitoring Bird Populations by Point Counts (Ralph et al. US Forest Service General Technical Report PSW-GTR-149, Pacific Southwest Research Station, Albany, CA.) and Bird Census Techniques by Bibby et al. 1992. Academic Press Limited.

Appendix C

Redside Dace Agency Correspondence

From: NHIC-Requests (MNR)
To: Nadine Price
Cc: Kristi Quinn; NHIC-Requests (MNR); Species at Risk (MECP)
Subject: RE: Elora Clayton and Elora Sands project - SAR fish inquiry
Date: October 2, 2024 1:31:46 PM
Attachments: image001.png

Hi Nadine,

We don't have any element occurrences of Redside Dace from within or near the subject property. Element occurrences are areas that have conservation value for the species. For Redside Dace, element occurrences are based on evidence of historical presence, or current and likely recurring presence at a given location. Such evidence minimally includes collection or reliable observation and documentation of one or more individuals (including eggs and larvae) in appropriate habitat. For more information see Redside Dace on NatureServe Explorer.

The fact that we don't have any element occurrences for Redside Dace on or near your project site, does not mean it doesn't occur there. The area may not have been surveyed or data may not have been reported to us. Our data are not a substitute for site visits.

Depending on how an element occurrence is mapped, it may include some habitat. However, we do not map habitat. We also cannot comment on what constitutes habitat under the *Endangered Species Act*. For questions related to critical or recovery habitat, we recommend contacting the Species at Risk Branch in the Ministry of Environment, Conservation and Parks at SAROntario@ontario.ca.

Please let me know if there is anything else the NHIC can help you with.

Best regards,
Martina

Martina Furrer
Natural Heritage Information Centre | Science and Research Branch
Ministry of Natural Resources | Ontario Public Service
705-755-2159 | NHICrequests@ontario.ca

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Please note: As part of providing accessible customer service, if you have any accommodation needs, require communication supports, or alternate formats please let me know.

From: Nadine Price <NPrice@beaconenviro.com>
Sent: Tuesday, October 1, 2024 1:25 PM
To: NHIC-Requests (MNR) <nhicrequests@ontario.ca>
Cc: Kristi Quinn <kquinn@beaconenviro.com>
Subject: RE: Elora Clayton and Elora Sands project - SAR fish inquiry

Hi Matthew,

We are not looking for specific records of Redside Dace. Rather, we want to confirm if the aquatic resource area is considered occupied or recovery habitat for Redside Dace (within the vicinity of the subject property).

Please see that attached map for the area of the subject property.

Thanks,

Nadine Price, M.Sc. / Ecologist
BEACON ENVIRONMENTAL
80 Main Street North, Markham, ON L3P 1X5
T) 365.363.6348 C) 647.461.4359
www.beaconenviro.com

From: NHIC-Requests (MNR) <nhicrequests@ontario.ca>
Sent: September 27, 2024 1:27 PM
To: Nadine Price <NPrice@beaconenviro.com>
Subject: Re: Elora Clayton and Elora Sands project - SAR fish inquiry

Hi Nadine,

Thank you for your inquiry about Redside Dace. We have records for observations in the province that you would be able to access under a sensitive data use licensing agreement, which can be initiated by filling out the NHIC's data access request form.

If you have any questions please let us know. Anyone who will be accessing the data will require data sensitivity training.

Kind regards,

Matthew, NHIC Information Officer

From: Species at Risk (MECP) <SAROntario@ontario.ca>
Sent: Thursday, September 26, 2024 8:26 PM
To: NHIC-Requests (MNR) <nhicrequests@ontario.ca>
Subject: FW: Elora Clayton and Elora Sands project - SAR fish inquiry

Hello,

I have let Nadine know you will get back to them soon as they seek Redside dace location data near Elora.

Thank you.

SARB

From: Nadine Price <NPrice@beaconenviro.com>
Sent: Thursday, September 26, 2024 10:09 AM
To: Species at Risk (MECP) <SAROntario@ontario.ca>
Cc: Kristi Quinn <kquinn@beaconenviro.com>
Subject: Elora Clayton and Elora Sands project - SAR fish inquiry

Good morning,

We have been retained to complete an Environmental Impact Study for the proposed development of the Elora Clayton and Elora Sands lands. As the Nichol Drain traverses the Elora Sands lands and this Drain connects with Irvine Creek, we would like to confirm if there is any Redside Dace habitat or other species at risk fish habitat within the Nichol Drain that we should consider on the Elora Sands property (or in the surrounding area).

I have attached a map of the properties for your reference.

We look forward to your response.

Thanks,

Nadine

Nadine Price, M.Sc. / Ecologist

Beacon Environmental

80 Main Street North, Markham, ON L3P 1X5

T) 365.363.6348 C) 647.461.4359

www.beaconenviro.com

From: D"Arcey, Brayden (She/Her) (MECP)
To: Nadine Price
Subject: RE: Elora Clayton and Elora Sands project - SAR fish inquiry
Date: October 7, 2024 2:47:40 PM
Attachments: image001.png

Hi Nadine,

Thank you for getting the UTM coordinate to me (and no worries, I use an online converter as well!).

As per the ministry shapefiles, we do not have any records of Redside Dace being present in Irvine Creek or the Nichol Drain. The NHIC dataset does have sightings of Eastern Meadowlark and Bobolink within this area.
Please be advised that it is strongly recommended to conduct surveys to identify any SAR present in the subject area. Clients are responsible for ensuring their activities comply with the Endangered Species Act (ESA), 2007.

I hope this is helpful. Please don't hesitate to reach out with any further questions or concerns.

Brayden D'Arcey (pronouns: she/her/hers)
A/Management Biologist | Species at Risk Branch/Lands and Waters Division
Ministry of the Environment, Conservation and Parks | Ontario Public Service
705-668-0587 | Brayden.D'Arcey@ontario.ca

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---

From: Nadine Price <NPrice@beaconenviro.com>
Sent: Monday, October 7, 2024 1:41 PM
To: Species at Risk (MECP) <SAROntario@ontario.ca>
Cc: D'Arcey, Brayden (She/Her) (MECP) <Brayden.D'Arcey@ontario.ca>
Subject: RE: Elora Clayton and Elora Sands project - SAR fish inquiry

Hi,

Thank you Brayden for reviewing this. The UTM coordinate for the project site is: 17T 545727 4838809. Note that I used an online converter to get this UTM coordinate – the original latitude and longitude is as follows: 43◦42'3.20"N, 80◦25'57.06" W.

Thanks,

Nadine Price, M.Sc. / Ecologist

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80 Main Street North, Markham, ON L3P 1X5
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www.beaconenviro.com

From: Species at Risk (MECP) <SAROntario@ontario.ca>
Sent: October 7, 2024 12:17 PM
To: Nadine Price <NPrice@beaconenviro.com>
Cc: D'Arcey, Brayden (She/Her) (MECP) <Brayden.D'Arcey@ontario.ca>
Subject: RE: Elora Clayton and Elora Sands project - SAR fish inquiry

Hi Nadine,

Thank you for attaching a map of the project site. Can you please provide a UTM coordinate? Brayden D'Arcey, cc'd, will be reviewing your file and will be in touch with you regarding your request.

Thank you,
Species at Risk Branch

From: Nadine Price <NPrice@beaconenviro.com>
Sent: Monday, October 7, 2024 8:55 AM
To: Species at Risk (MECP) <SAROntario@ontario.ca>
Cc: Kristi Quinn <kquinn@beaconenviro.com>
Subject: RE: Elora Clayton and Elora Sands project - SAR fish inquiry

Hi again,

Thank you for sending my inquiry to the NHIC. They have responded to my request and have suggested that I contact you (SAROntario) regarding my question about habitat. More specifically, we want to confirm if the aquatic resource area is considered occupied or recovery habitat for Redside Dace (within the vicinity of the subject property).

Please see the attached map for the area of the subject property.

Thanks,

Nadine

Nadine Price, M.Sc. / Ecologist
BEACON ENVIRONMENTAL
80 Main Street North, Markham, ON L3P 1X5

T) 365.363.6348 C) 647.461.4359
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From: Species at Risk (MECP) <SAROntario@ontario.ca>
Sent: September 26, 2024 4:26 PM
To: Nadine Price <NPrice@beaconenviro.com>
Cc: Kristi Quinn <kquinn@beaconenviro.com>
Subject: RE: Elora Clayton and Elora Sands project - SAR fish inquiry

Hi Nadine,

Thanks for contacting MECP's Species at Risk Branch about your Elora Clayton and Sands project.

The species at risk branch of MECP do use datasets that contain species at risk sightings across Ontario, including Redside dace, however this information is not owned by us, and requires data sensitivity training to acquire.

I have forwarded your inquiry to the MNRF's Natural Heritage Information Centre (NHIC) (NHICrequests@ontario.ca) who are the stewards of this date. NHIC get back to you soon and help you through the process, including the data sensitivity training.

If you are not looking for exact information, there are some useful websites that can be used to obtain general SAR information in the area. These include the Ontario Reptile and Amphibian Atlas, Fisheries and Oceans Canada's critical habitat map for aquatic species, and NHIC's Make a Map application.

Enjoy your day,
Species at Risk Branch

From: Nadine Price <NPrice@beaconenviro.com>
Sent: Thursday, September 26, 2024 10:09 AM
To: Species at Risk (MECP) <SAROntario@ontario.ca>
Cc: Kristi Quinn <kquinn@beaconenviro.com>
Subject: Elora Clayton and Elora Sands project - SAR fish inquiry

Good morning,

We have been retained to complete an Environmental Impact Study for the proposed development of the Elora Clayton and Elora Sands lands. As the Nichol Drain traverses the

Elora Sands lands and this Drain connects with Irvine Creek, we would like to confirm if there is any Redside Dace habitat or other species at risk fish habitat within the Nichol Drain that we should consider on the Elora Sands property (or in the surrounding area).

I have attached a map of the properties for your reference.

We look forward to your response.

Thanks,

Nadine

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Appendix D

Vascular Plant Species List

Appendix D

Vascular Plant Species List

Scientific Name	Common Name	SRank	SARO (ESA)	Wellington (Anderson and Frank 2004)
Acer negundo	Manitoba Maple	S5	No status	
Acer platanoides	Norway Maple	SE5	No status	
Acer rubrum	Red Maple	S5	No status	
Acer saccharinum	Silver Maple	S5	No status	
Acer saccharum	Sugar Maple	S5	No status	
Acer x freemanii	Freeman's Maple	SNA	No status	
Actaea rubra	Red Baneberry	S5	No status	
Aesculus hippocastanum	Horse Chestnut	SE2	No status	
Alliaria petiolata	Garlic Mustard	SE5	No status	
Ambrosia artemisiifolia	Common Ragweed	S5	No status	X
Anemonastrum canadense	Canada Anemone	S5	No status	X
Arctium lappa	Great Burdock	SE5	No status	
Arctium minus	Common Burdock	SE5	No status	
Arisaema triphyllum	Jack-in-the-pulpit	S5	No status	
Asclepias syriaca	Common Milkweed	S5	No status	X
Betula alleghaniensis	Yellow Birch	S5	No status	X
Borago officinalis	Common Borage	SEH	No status	
Brassica rapa	Field Mustard	SE5	No status	
Bromus inermis	Smooth Brome	SE5	No status	
Carex pedunculata	Long-stalked Sedge	S5	No status	X
Chelidonium majus	Greater Celandine	SE5	No status	
Circaea canadensis	Broad-leaved Enchanter's Nightshade	S5	No status	X
Cirsium arvense	Canada Thistle	SE5	No status	
Convolvulus arvensis	Field Bindweed	SE5	No status	
Cornus alternifolia	Alternate-leaved Dogwood	S5	No status	X
Cornus sericea	Red-osier Dogwood	S5	No status	X
Crataegus monogyna	English Hawthorn	SE4	No status	
Crataegus punctata	Dotted Hawthorn	S5	No status	X
Daucus carota	Wild Carrot	SE5	No status	
Digitaria sanguinalis	Hairy Crabgrass	SE5	No status	
Dipsacus fullonum	Common Teasel	SE5	No status	
Dryopteris intermedia	Evergreen Wood Fern	S5	No status	X
Echinocystis lobata	Wild Cucumber	S5	No status	X
Erigeron annuus	Annual Fleabane	S5	No status	X
Eutrochium maculatum	Spotted Joe Pye Weed	S5	No status	
Festuca rubra	Red Fescue	S5	No status	
Fragaria virginiana	Wild Strawberry	S5	No status	
Fraxinus americana	White Ash	S4	No status	X

Scientific Name	Common Name	SRank	SARO (ESA)	Wellington (Anderson and Frank 2004)
Fraxinus nigra	Black Ash	S3	END	X
Fraxinus pennsylvanica	Red Ash	S4	No status	X
Galium aparine	Common Bedstraw	S5	No status	X
Geranium robertianum	Herb-Robert	S5	No status	
Geum urbanum	Wood Avens	SE3	No status	
Glechoma hederacea	Ground-ivy	SE5	No status	
Glyceria striata	Fowl Mannagrass	S5	No status	X
Glycine max	Soybean	SE2	No status	
Hemerocallis fulva	Orange Daylily	SE5	No status	
Hesperis matronalis	Dame's Rocket	SE5	No status	
Hosta ventricosa	Hosta		No status	
Hydrophyllum virginianum	Virginia Waterleaf	S5	No status	X
Impatiens capensis	Spotted Jewelweed	S5	No status	X
Inula helenium	Elecampane	SE5	No status	
Juglans nigra	Black Walnut	S4?	No status	X
Leonurus cardiaca	Common Motherwort	SE5	No status	
Leucanthemum vulgare	Oxeye Daisy	SE5	No status	
Lonicera tatarica	Tatarian Honeysuckle	SE5	No status	
Lonicera x bella	Bell's Honeysuckle	SE5	No status	
Lythrum salicaria	Purple Loosestrife	SE5	No status	
Malus pumila	Common Apple	SE4	No status	
Matteuccia struthiopteris	Ostrich Fern	S5	No status	
Medicago sativa	Alfalfa	SE5	No status	
Melilotus albus	White Sweet-clover	SE5	No status	
Melilotus officinalis	Yellow Sweet-clover	SE5	No status	
Myosotis stricta	Upright Forget-me-not	SE4	No status	
Nasturtium officinale	Watercress	SE	No status	
Nepeta cataria	Catnip	SE5	No status	
Onoclea sensibilis	Sensitive Fern	S5	No status	X
Oxalis stricta	Upright Yellow Wood-sorrel	S5	No status	
Paeonia officinalis	Common Peony	SE1	No status	
Parthenocissus quinquefolia	Virginia Creeper	S4?	No status	X
Parthenocissus vitacea	Thicket Creeper	S5	No status	X
Phalaris arundinacea	Reed Canarygrass	S5	No status	X
Phragmites australis ssp. australis	European Reed	SE5	No status	
Picea abies	Norway Spruce	SE3	No status	
Picea glauca	White Spruce	S5	No status	X
Picea pungens	Blue Spruce	SE1	No status	
Pilosella caespitosa	Meadow Hawkweed	SE5	No status	
Pinus nigra	Austrian Pine	SE3	No status	
Pinus strobus	Eastern White Pine	S5	No status	X
Pinus sylvestris	Scots Pine	SE5	No status	

Scientific Name	Common Name	SRank	SARO (ESA)	Wellington (Anderson and Frank 2004)
Plantago lanceolata	English Plantain	SE5	No status	
Plantago major	Common Plantain	SE5	No status	
Poa pratensis	Kentucky Bluegrass	S5	No status	
Populus alba	White Poplar	SE5	No status	
Populus balsamifera	Balsam Poplar	S5	No status	X
Populus tremuloides	Trembling Aspen	S5	No status	X
Potentilla recta	Sulphur Cinquefoil	SE5	No status	
Prunus serotina	Black Cherry	S5	No status	X
Prunus virginiana	Chokecherry	S5	No status	
Quercus rubra	Northern Red Oak	S5	No status	X
Ranunculus acris	Common Buttercup	SE5	No status	
Rhamnus cathartica	European Buckthorn	SE5	No status	
Ribes cynosbati	Eastern Prickly Gooseberry	S5	No status	X
Robinia pseudoacacia	Black Locust	SE5	No status	
Rubus allegheniensis	Allegheny Blackberry	S5	No status	X
Rubus idaeus	Red Raspberry	S5	No status	
Rumex crispus	Curled Dock	SE5	No status	
Rumex obtusifolius	Bitter Dock	SE5	No status	
Salix discolor	Pussy Willow	S5	No status	X
Salix eriocephala	Cottony Willow	S5	No status	X
Salix nigra	Black Willow	S4	No status	X
Salix x fragilis	(Salix alba X Salix euxina)	SNA	No status	
Sambucus canadensis	Common Elderberry	S5	No status	X
Sambucus racemosa	Red Elderberry	S5	No status	X
Schoenoplectus tabernaemontani	Soft-stemmed Bulrush	S5	No status	X
Silene vulgaris	Bladder Campion	SE5	No status	
Solanum dulcamara	Bittersweet Nightshade	SE5	No status	
Solidago canadensis	Canada Goldenrod	S5	No status	X
Sonchus arvensis	Field Sow-thistle	SE5	No status	
Sonchus oleraceus	Common Sow-thistle	SE5	No status	
Sorbus aucuparia	European Mountain-ash	SE4	No status	
Symphyotrichum lanceolatum	Panicled Aster	S5	No status	
Symphyotrichum novae-angliae	New England Aster	S5	No status	X
Symphyotrichum puniceum	Purple-stemmed Aster	S5	No status	
Syringa vulgaris	Common Lilac	SE5	No status	
Tanacetum vulgare	Common Tansy	SE5	No status	
Taraxacum officinale	Common Dandelion	SE5	No status	
Taxus canadensis	Canada Yew	S4	No status	X
Taxus cuspidata	Japanese Yew		No status	
Thlaspi arvense	Field Pennycress	SE5	No status	
Thuja occidentalis	Eastern White Cedar	S5	No status	X
Tilia americana	Basswood	S5	No status	X
Trifolium hybridum	Alsike Clover	SE5	No status	
Trifolium pratense	Red Clover	SE5	No status	

Scientific Name	Common Name	SRank	SARO (ESA)	Wellington (Anderson and Frank 2004)
Trifolium repens	White Clover	SE5	No status	
Tsuga canadensis	Eastern Hemlock	S5	No status	X
Tussilago farfara	Coltsfoot	SE5	No status	
Typha sp	Cattail species		No status	
Ulmus americana	White Elm	S5	No status	X
Verbascum thapsus	Common Mullein	SE5	No status	
Viburnum lantana	Wayfaring Viburnum	SE2	No status	
Viburnum opulus ssp. opulus	Cranberry Viburnum	SE3?	No status	
Vicia cracca	Tufted Vetch	SE5	No status	
Viola sororia	Woolly Blue Violet	S5	No status	X
Vitis riparia	Riverbank Grape	S5	No status	X

ELC Community Description and Classification

Map #: Elora Sands	Polygon: CUM 1		
Surveyor(s): Alex Honey	Date: June 14/23	Time start: / finish: /	
UTMZ: 17	UTMZ:	UTMN:	

Polygon Description

(See Figure 2.)

System	Substrate	Topographic Feature	Plant Form	Community
☒ Terrestrial	☐ Organic	☐ Lacustrine	☐ Plankton	☐ Lake
☐ Wetland	☒ Mineral Soil	☐ Riverine	☐ Submerged	☐ Pond
☐ Aquatic	☐ Parent Min.	☐ Bottomland	☐ Floating-LVD.	☐ River
Site	☐ Acidic Bedrk	☐ Terrace	☒ Graminoid	☐ Stream
☐ Open Water	☐ Basic Bedrk	☐ Valley Slope	☐ Forb	☐ Marsh
☐ Shallow Water	☐ Carb. Bedrk	☒ Tableland	☐ Lichen	☐ Swamp
☐ Surficial Dep.		☐ Roll. Upland	☐ Bryophyte	☐ Fen
☐ Bedrock		☐ Cliff	☐ Deciduous	☐ Bog
History		☐ Talus	☐ Coniferous	☐ Barren
☐ Natural		☐ Crevice/Cave	☐ Mixed	☒ Meadow
☒ Cultural		☐ Alvar		☐ Prairie
Cover		☐ Rockland		☐ Thicket
☒ Open		☐ Beach / Bar		☐ Savannah
☐ Shrub		☐ Sand Dune		☐ Woodland
☐ Treed		☐ Bluff		☐ Forest
				☐ Plantation

Stand Description

Layer	HT	CVR	Species In Order of Decreasing Dominance (up to 4 sp) (>> Much Greater Than; > Greater Than; = About Equal To)
1	5	4	BROINN > SOLCANA > ANECANA > ASCSYR
2	6	3	EQUARV = ANECANA = POTRECT
3			
4			

HT Codes: 7 <0.2m 6 >0.2-0.5m 5 >0.5-1m 4 >1-2m 3 >2-6m 2 >6-25m 1 >25m
CVR Codes: 0 = none 1 0% - 10% 2 10 - 25% 3 25 - 60% 4 > 60%

Stand Composition:	Size Class Analysis:								
		N	<10	N	10-24	N	25-50	N	>50
BA:	Standing Snags:	N	<10	N	10-24	N	25-50	N	>50
	Deadfall / Logs:	R	<10	R	10-24	N	25-50	N	>50

Abundance Codes: N = None R = Rare O = Occasional A = Abundant

N/A - Meadow

Com. Age:	☐ Pioneer	☒ Young	☐ Mid-Age	☐ Mature	☐ Old Growth

Ecosite:	Cultural	Code:	CU
Vegetation Type:	Cultural Meadow	Code:	CUM
Inclusion:	Mineral cultural Meadow	Code:	CUM1
Complex:		Code:	

Community Profile Diagram/Comments

1 M –
0.2 M –

Notes: Some weeds.

Tree Tally by Species

Prism Factor: 2

Species	Tally 1	Tally 2	Tally 3	Tally 4	Total	Rel. Avg.
				N/A		
Total						100
Basal Area (BA)						
Dead						

- Cultural Meadow NO trees.

Soils Ontario and ELC Soils Description

Site Metrics		Pit/Auger #								Summary
	UTM	Zone								Moisture Regime
		Easting								
		Northing								
	Slope	Position								Drainage
		Aspect								
		Percent								
		Slope Length								
Depth to...		Mottles								Effective Texture (indicate below)
		Gley								
		Water Table								
		Carbonates								
		Bedrock								
Soil Horizon Description	1	Depth from zero		% CF		% CF		% CF		% CF
		Texture								
	2	Depth from zero		% CF		% CF		% CF		% CF
		Texture								
	3	Depth from zero		% CF		% CF		% CF		% CF
		Texture								
	4	Depth from zero		% CF		% CF		% CF		% CF
		Texture								
		% Surface Stone/Rock								
		Moisture Regime								
		Drainage								

- Mineral soils
- No Auger

Vascular Plant Species List

Project: Elora Sands

Date: June 14/23

BEACON ENVIRONMENTAL

Species	Abundance/Layer				Species	Abundance/Layer			
	Canopy	Sub-canopy	Understory	Groundlayer		Canopy	Sub-canopy	Understory	Groundlayer
Trees					**Herbaceous Vegetation**				
					BROINN				D
					POAPRAT				D
					FESRUBR				A
					SOLCANA				A
					ASCSYRI				A
					ASTNOVA				A
					ASTLANC				O
					ASTPUNI				O
					MATRESMATR				R
					CIRARVE				O
					CONARVE				O
					EQUARVE				A
					INVHELE				R
					DRYFILL				O
					ANECANA				D
					EUTMACU				R
					ERIANNU				O
Shrubs/Vines					IMPCAPE				R
VITRIPA				O	PHAARUN				R
PARINSE				O	POTRECT				O
RUBIDME				O	TANVULG				O
					TIRREPE				O
					TRIPRAT				O
					VERTHAP				O
					VICCRAC				A

D = Dominant, A= Abundant, O = Occasional, R = Rare

Polygon: CUM1

Surveyor(s): Alex Haney

Vascular Plant Species List

Project: Elora Sands

Date: June 14/23

BEACON ENVIRONMENTAL

Incidental Wildlife Observations/Comments/General Notes:

-> Two cultural meadows on subject property.
-> One Meadow near roadside dominated by cool season grasses and forbs.
-> BROINN, ANECANA, AJTNOVA, Etc.
-> Meadow near anthroposeric area less biodiverse mostly BROINN.

D = Dominant, A= Abundant, O = Occasional, R = Rare

Polygon: CUM1

Surveyor(s): Alex Haney

ELC Community Description and Classification

Map #: Elora Sands | Polygon: CUP 3-3

Surveyor(s): Alex Honey | Date: June 14/23 | Time start: / finish: /

UTMZ: | UTMZ: | UTMN:

(See figure 2)

Polygon Description

System	Substrate	Topographic Feature	Plant Form	Community
☒ Terrestrial	☐ Organic	☐ Lacustrine	☐ Plankton	☐ Lake
☐ Wetland	☒ Mineral Soil	☐ Riverine	☐ Submerged	☐ Pond
☐ Aquatic	☐ Parent Min.	☐ Bottomland	☐ Floating-LVD.	☐ River
Site	☐ Acidic Bedrk	☐ Terrace	☐ Graminoid	☐ Stream
☐ Open Water	☐ Basic Bedrk	☐ Valley Slope	☐ Forb	☐ Marsh
☐ Shallow Water	☐ Carb. Bedrk	☒ Tableland	☐ Lichen	☐ Swamp
☐ Surficial Dep.		☐ Roll. Upland	☐ Bryophyte	☐ Fen
☐ Bedrock		☐ Cliff	☐ Deciduous	☐ Bog
History		☐ Talus	☒ Coniferous	☐ Barren
☐ Natural		☐ Crevice/Cave	☐ Mixed	☐ Meadow
☒ Cultural		☐ Alvar		☐ Prairie
Cover		☐ Rockland		☐ Thicket
☐ Open		☐ Beach / Bar		☐ Savannah
☐ Shrub		☐ Sand Dune		☐ Woodland
☒ Treed		☐ Bluff		☐ Forest
				☒ Plantation

Stand Description

Layer	HT	CVR	Species In Order of Decreasing Dominance (up to 4 sp) (>> Much Greater Than; > Greater Than; = About Equal To)
1	1	4	PINSYLV > PICABIE > ACESASA = PRUSERO
2	2	2	SORAMCU > TRIAMENN
3	4	3	RUBIDME > PRUVIRG > RHACATH > RABCYMO
4	7	2	FRAVIRG > CORRODE > CIRVUL > VIBOPUL

HT Codes: 7 <0.2m 6 >0.2-0.5m 5 >0.5-1m 4 >1-2m 3 >2-6m 2 >6-25m 1 >25m

CVR Codes: 0 = none 1 0% - 10% 2 10 - 25% 3 25 - 60% 4 > 60%

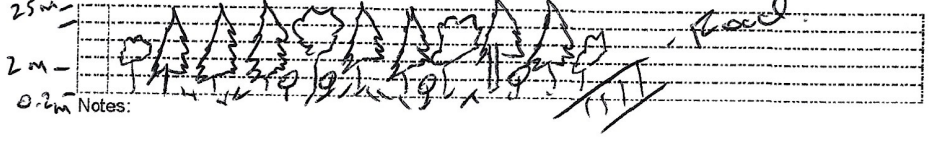
Stand Composition:	Size Class Analysis:	<10	10-24	25-50	>50
	Standing Snags:	N	N	O	R
BA:	Deadfall / Logs:	N	N	O	N

Abundance Codes: N = None R = Rare O = Occasional A = Abundant

Com. Age: ☐ Pioneer ☐ Young ☒ Mid-Age ☐ Mature ☐ Old Growth

Ecosite:	Cultural	Code:	CU
Vegetation Type:	Cultural plantation	Code:	CUP
Inclusion:	Conifrous cultural plantation	Code:	CUP3
Complex:	Scots pine coniferous plantation	Code:	CUP3-3

Community Profile Diagram/Comments



Tree Tally by Species

Prism Factor: 2

Species	Tally 1	Tally 2	Tally 3	Tally 4	Total	Rel. Avg.
Total						100
Basal Area (BA)						
Dead						

Soils Ontario and ELC Soils Description

									Summary
Site Metrics		Pit/Auger #							
	UTM	Zone							
		Easting							Moisture Regime
		Northing							
	Slope	Position							
		Aspect							
		Percent							Drainage
		Slope Length							
Depth to...		Mottles							
		Gley							
		Water Table							Effective Texture (indicate below)
		Carbonates							
		Bedrock							
Soil Horizon Description	1	Depth from zero		% CF		% CF		% CF	% CF
		Texture							
	2	Depth from zero		% CF		% CF		% CF	% CF
		Texture							
	3	Depth from zero		% CF		% CF		% CF	% CF
		Texture							
	4	Depth from zero		% CF		% CF		% CF	% CF
		Texture							
		% Surface Stone/Rock							
	Moisture Regime								
	Drainage								

- Prism not used
- Plot
- 10m² area
- 10 PICABIE
- 6 PINSYLV, 1 PRUSERO
- 10m² area
- Tree size 15-50 cm DBH
- Mineral Soil
- NO Auger

Vascular Plant Species List

Project: Flora Sands – CUP 3-3

Date: June 14/23

BEACON ENVIRONMENTAL

Species	Abundance/Layer			
	Canopy	Sub-canopy	Understory	Groundlayer
Trees				
PINSYLV	D			
PICABIE	O			
PRUSERO	R	R		
ACESASA	R	R		R
SORAUCU		R	R	R
FRAPENN		O	O	
FRAAMER			O	
Shrubs/Vines				
RHACATH			A	
RHICYNO			O	
VITRIPA			O	O
SOLDULC				O
PRUVIRG			A	O
CORALTE			A	
SAMCANA			O	
RUBIDME			D	
PARINSE			O	A
VIBLANA			O	

Species	Abundance/Layer			
	Canopy	Sub-canopy	Understory	Groundlayer
Herbaceous Vegetation				
FRAVIRG				A
GEUROSE				A
ALLPETI				O
VIOSORO				R
CIRCUTE				O
ARITRIF				R
CAREDU				R
GLECHEDE				O
POTRECT				R
TAROFFI				A
ACTRUBR				R
MYOSTRI				O
CHEMAJU				O
TRIREPE				O
THAALVE				R
SILVULG				O

D = Dominant, A= Abundant, O = Occasional, R = Rare

Polygon: CUP 3-3

Surveyor(s): Alex Haney

Vascular Plant Species List

Project: Elora Sands

Date: June 14/23

BEACON ENVIRONMENTAL

Incidental Wildlife Observations/Comments/General Notes:

-> Middle aged Scots Pine plantation.
-> Several Scots Pine in decline and dead, particularly by road side
-> Two planted rows of Norway Spruce along Western boundary.
- Small amount of wood debris and fallen trees.
-> understory / Ground layer dense.
-> Along community edge and within canopy openings there is Red Raspberry thicket.

D = Dominant, A= Abundant, O = Occasional, R = Rare

Polygon: Cup 3-3

Surveyor(s): Alex Haney

ELC Community Description and Classification

Map #: Elora Sands	Polygon: CUW2		
Surveyor(s): Alex Harry	Date: June 14/23	Time start:	finish:
UTMZ:	UTMZ:	UTMN:	

(See Figure 2)

Polygon Description

System	Substrate	Topographic Feature	Plant Form	Community
☒ Terrestrial	☐ Organic	☐ Lacustrine	☐ Plankton	☐ Lake
☐ Wetland	☒ Mineral Soil	☐ Riverine	☐ Submerged	☐ Pond
☐ Aquatic	☐ Parent Min.	☐ Bottomland	☐ Floating-LVD.	☐ River
Site	☐ Acidic Bedrk	☐ Terrace	☐ Graminoid	☐ Stream
☐ Open Water	☐ Basic Bedrk	☐ Valley Slope	☐ Forb	☐ Marsh
☐ Shallow Water	☐ Carb. Bedrk	☒ Tableland	☐ Lichen	☐ Swamp
☐ Surficial Dep.		☐ Roll. Upland	☐ Bryophyte	☐ Fen
☐ Bedrock		☐ Cliff	☐ Deciduous	☐ Bog
History		☐ Talus	☐ Coniferous	☐ Barren
☐ Natural		☐ Crevice/Cave	☒ Mixed	☐ Meadow
☒ Cultural		☐ Alvar		☐ Prairie
Cover		☐ Rockland		☐ Thicket
☐ Open		☐ Beach / Bar		☐ Savannah
☐ Shrub		☐ Sand Dune		☒ Woodland
☒ Treed		☐ Bluff		☐ Forest
				☐ Plantation

Stand Description

Layer	HT	CVR	Species In Order of Decreasing Dominance (up to 4 sp) (>> Much Greater Than; > Greater Than; = About Equal To)
1	1	3	POPTRIB? POPBAL? TILAMER = BETALLE
2	3	2	SORAUCU > CORALT
3	5	4	MATSTRU >> RHACATH = CORTRIG
4	7	3	HYDVIRG ZALPETI = GEIROBE = CIRLUTE

HT Codes: 7 <0.2m 6 >0.2-0.5m 5 >0.5-1m 4 >1-2m 3 >2-6m 2 >6-25m 1 >25m
CVR Codes: 0 = none 1 0% - 10% 2 10 - 25% 3 25 - 60% 4 > 60%

Stand Composition:	Size Class Analysis:	R	<10	O	10-24	A	25-50	R	>50
	Standing Snags:	N	<10	N	10-24	O	25-50	R	>50
BA:	Deadfall / Logs:	N	<10	N	10-24	A	25-50	R	>50

Abundance Codes: N = None R = Rare O = Occasional A = Abundant

Com. Age: ☐ Pioneer ☐ Young ☒ Mid-Age ☐ Mature ☐ Old Growth

Ecosite:	Cultural	Code:	CU
Vegetation Type:	Cultural woodland	Code:	CUW
Inclusion:	Mineral cultural woodland	Code:	CUW1
Complex:		Code:	

Community Profile Diagram/Comments

25m
20m
0.2m

Notes:

Tree Tally by Species

Prism Factor: 2

Species	Tally 1	Tally 2	Tally 3	Tally 4	Total	Rel. Avg.
Total						100
Basal Area (BA)						
Dead						

- No prism sweep. ~60% cover, relatively open

Soils Ontario and ELC Soils Description

Site Metrics		Pit/Auger #								Summary
	UTM	Zone								
		Easting								Moisture Regime
		Northing								
	Slope	Position								
		Aspect								
		Percent								Drainage
		Slope Length								
Depth to...		Mottles								
		Gley								
		Water Table								Effective Texture (indicate below)
		Carbonates								
		Bedrock								
Soil Horizon Description	1	Depth from zero		% CF		% CF		% CF		% CF
		Texture								
	2	Depth from zero		% CF		% CF		% CF		% CF
		Texture								
	3	Depth from zero		% CF		% CF		% CF		% CF
		Texture								
	4	Depth from zero		% CF		% CF		% CF		% CF
		Texture								
		% Surface Stone/Rock								
		Moisture Regime								
		Drainage								

- Mineral Soil. No Soil Auger Completed

Vascular Plant Species List

Project: Elora Sands

Date: June 14/23

BEACON ENVIRONMENTAL

Species	Abundance/Layer			
	Canopy	Sub-canopy	Understory	Groundlayer
Trees				
POPALBA	D			
POPBALS	D			
TILAMER	A			
SALXFRA	A			
SALNIGR	A			
QUERUBR	R			
BETALLE	O			
TSUCANA	O			
THUOCCI	A			
ACENEGU	A			
SORAUCU	O	O	R	
ULMAMER	R			
POPTREM	D	O		
ACERUBR	R			
Shrubs/Vines				
SAMRACE			A	
CORALTE			A	
RHACATH			O	
PARINSE				A
SOLDULC				O
VITRIPA			R	R

Species	Abundance/Layer			
	Canopy	Sub-canopy	Understory	Groundlayer
Herbaceous Vegetation				
MATSTRU				D
HYDVIRG				A
GERROBE				A
CIRLUTE				O
ECHLOBA				R
TUSFARF				R
ARITRIP				R
ALLPETI				O
VIOSORO				O
TAROFFI				A
RANACRI				A
NEPCATA				R
GEUVEBA				A
FRAVIRG				D
CLEMAJU				R
BOROFFI				R
ARCMINU				O
ARC LAPP.				R
MYOSTRI				O

D = Dominant, A= Abundant, O = Occasional, R = Rare

Polygon: CUWI

Surveyor(s): Alex Haney

Vascular Plant Species List

Project: Elora Sands

Date: June 14/23

BEACON ENVIRONMENTAL

Incidental Wildlife Observations/Comments/General Notes:

- Community relatively open, Middle aged.
- Occurs on property boundary and extends off site to the south.
- Surveyed from subject property and 50 m. off site into the feature.
- Mineral soils, Mesic
- wood debris and farm equipment dumped near property boundary, history of disturbance.
- ostrich fern dominant in lower layers.
- some fallen trees, mostly Manitoba Maple in decline.

D = Dominant, A= Abundant, O = Occasional, R = Rare

Polygon: CUW2

Surveyor(s): Alex Harry

ELC Community Description and Classification

Map #: Elora Sands	Polygon: MAM2-2		
Surveyor(s): Alex Harry	Date: June 14/23	Time start: / finish: /	
UTMZ:	UTMZ:	UTMN:	

(See Figure 2.

Polygon Description

System	Substrate	Topographic Feature	Plant Form	Community
☐ Terrestrial	☐ Organic	☐ Lacustrine	☐ Plankton	☐ Lake
☒ Wetland	☒ Mineral Soil	☒ Riverine	☐ Submerged	☐ Pond
☐ Aquatic	☐ Parent Min.	☐ Bottomland	☐ Floating-LVD.	☐ River
Site	☐ Acidic Bedrk	☐ Terrace	☒ Graminoid	☐ Stream
☐ Open Water	☐ Basic Bedrk	☐ Valley Slope	☒ Forb	☒ Marsh
☐ Shallow Water	☐ Carb. Bedrk	☐ Tableland	☐ Lichen	☐ Swamp
☒ Surficial Dep.		☐ Roll. Upland	☐ Bryophyte	☐ Fen
☐ Bedrock		☐ Cliff	☐ Deciduous	☐ Bog
History		☐ Talus	☐ Coniferous	☐ Barren
☐ Natural		☐ Crevice/Cave	☐ Mixed	☐ Meadow
☒ Cultural		☐ Alvar		☐ Prairie
Cover		☐ Rockland		☐ Thicket
☒ Open		☐ Beach / Bar		☐ Savannah
☐ Shrub		☐ Sand Dune		☐ Woodland
☐ Treed		☐ Bluff		☐ Forest
				☐ Plantation

Stand Description

Layer	HT	CVR	Species In Order of Decreasing Dominance (up to 4 sp) (>> Much Greater Than; > Greater Than; = About Equal To)
1	4	3	VIBOPUL > SALDIS > RHATHAM = ACENEG
2	5	4	PHAARU > ?? INUHEL > LYTSALI = ANECAN
3	7	2	EQUARL = ANECAN
4			

HT Codes: 7 <0.2m 6 >0.2-0.5m 5 >0.5-1m 4 >1-2m 3 >2-6m 2 >6-25m 1 >25m
CVR Codes: 0 = none 1 0% - 10% 2 10 - 25% 3 25 - 60% 4 > 60%

Stand Composition:	Size Class Analysis:	<10	10-24	25-50	>50
	Standing Snags:	N	N	N	N
BA:	Deadfall / Logs:	R	R	N	N

Abundance Codes: N = None R = Rare O = Occasional A = Abundant

- N/A Meadow Marsh

Com. Age: ☐ Pioneer ☐ Young ☐ Mid-Age ☐ Mature ☐ Old Growth

Ecosite:	Marsh	Code:	MA
Vegetation Type:	Meadow Marsh	Code:	MAM
Inclusion:	Mineral Meadow Marsh	Code:	MAM2
Complex:	Reed Canary Grass Meadow Marsh	Code:	MAM2-2

Community Profile Diagram/Comments

Nichol Trail -

2M
1M
0.2M

Notes:

Tree Tally by Species

Prism Factor: 2

Species	Tally 1	Tally 2	Tally 3	Tally 4	Total	Rel. Avg.
			N/A			
Total						100
Basal Area (BA)						
Dead						

N/A Meadow Marsh shrubs and saplings only.

Soils Ontario and ELC Soils Description

			Summary
Site Metrics		Pit/Auger #	
	UTM	Zone	Moisture Regime
		Easting	
		Northing	
	Slope	Position	
		Aspect	Drainage
		Percent	
		Slope Length	
Depth to...		Mottles	
		Gley	
		Water Table	Effective Texture (indicate below)
		Carbonates	
		Bedrock	

Soil Horizon Description									
	1	Depth from zero		% CF		% CF		% CF	% CF
		Texture							
	2	Depth from zero		% CF		% CF		% CF	% CF
		Texture							
	3	Depth from zero		% CF		% CF		% CF	% CF
		Texture							
	4	Depth from zero		% CF		% CF		% CF	% CF
		Texture							
		% Surface Stone/Rock							
	Moisture Regime								
	Drainage								

Mineral soils NO. Soil Auger Completed

Vascular Plant Species List

Project: Elora Sands

Date: June 14/23

BEACON ENVIRONMENTAL

Species	Abundance/Layer			
	Canopy	Sub-canopy	Understory	Groundlayer
Trees				
ACENEGU			R	
Shrubs/Vines				
VITRIPA			O	O
RHACATH			A	
SALDISC			O	
SALERIO			O	
CORSTOL			A	
VIBOPUL			O	

Species	Abundance/Layer			
	Canopy	Sub-canopy	Understory	Groundlayer
Herbaceous Vegetation				
PHAARUN				D
INUHELE				O
VICCRAC				A
ANECANA				A
LYTSALI				A
HESMATR				O
EUPMACU				R
SOLCANA				O
ASTPUNI				O
DIPFULL				R
ARCMINN				R
MATOFFI				O
ASCSYRI				O
CONARVE				O
EQUARVE				A
GALAPAR				O
RANACRI				R
RUMCRIS				R
RUMOBTU				R
EUTMACU				O
IMPCAPE				O

D = Dominant, A= Abundant, O = Occasional, R = Rare

Polygon: MAM 2-2

Surveyor(s): Alex Haney

Vascular Plant Species List

Project: Elora Sands

Date: June 14/23

BEACON ENVIRONMENTAL

Incidental Wildlife Observations/Comments/General Notes:

MAM2-2 follows Nichol Drain east to west through the subject property.

- The MAM extends approximately 3 M on either side of water course
- There was a higher amount of shrubs on the west side of the MAM.
- ofsm PHAARUN and NASOFFI growing directly in water course.

D = Dominant, A= Abundant, O = Occasional, R = Rare

Polygon: MAM2-2

Surveyor(s): Alex Haney

ELC Community Description and Classification

Map #: Figure 2	Polygon: CUT 1-5		
Surveyor(s): AH NP	Date: Nov 28/24	Time start: 9am.	finish: 5pm
UTMZ:	UTMZ:	UTMN:	

Polygon Description

see Figure 2.

System	Substrate	Topographic Feature	Plant Form	Community
☒ Terrestrial	☐ Organic	☐ Lacustrine	☐ Plankton	☐ Lake
☐ Wetland	☒ Mineral Soil	☐ Riverine	☐ Submerged	☐ Pond
☐ Aquatic	☐ Parent Min.	☐ Bottomland	☐ Floating-LVD.	☐ River
Site	☐ Acidic Bedrk	☐ Terrace	☒ Graminoid	☐ Stream
☐ Open Water	☐ Basic Bedrk	☐ Valley Slope	☒ Forb	☐ Marsh
☐ Shallow Water	☐ Carb. Bedrk	☒ Tableland	☐ Lichen	☐ Swamp
☐ Surficial Dep.		☐ Roll. Upland	☐ Bryophyte	☐ Fen
☐ Bedrock		☐ Cliff	☐ Deciduous	☐ Bog
History		☐ Talus	☐ Coniferous	☐ Barren
☐ Natural		☐ Crevice/Cave	☐ Mixed	☐ Meadow
☒ Cultural		☐ Alvar		☐ Prairie
Cover		☐ Rockland		☒ Thicket
☒ Open		☐ Beach / Bar		☐ Savannah
☐ Shrub		☐ Sand Dune		☐ Woodland
☐ Treed		☐ Bluff		☐ Forest
				☐ Plantation

Stand Description

Layer	HT	CVR	Species In Order of Decreasing Dominance (up to 4 sp) (>> Much Greater Than; > Greater Than; = About Equal To)
1	3	1	~~RIBIPAE~~ ?? PRUSERO = ACERPEN = TILAMER
2	5	4	RIBIPAE ?? SOLCANA = ECHLOBI7 = UNTRAPP
3	6	3	CORSERR = ACERNEGI = FRAXNIG
4			

HT Codes: 7 <0.2m 6 >0.2-0.5m 5 >0.5-1m 4 >1-2m 3 >2-6m 2 >6-25m 1 >25m
CVR Codes: 0 = none 1 0% - 10% 2 10 - 25% 3 25 - 60% 4 > 60%

Stand Composition:	Size Class Analysis:	<10	10-24	25-50	>50
	Standing Snags:	<10	10-24	25-50	>50
BA:	Deadfall / Logs:	<10	10-24	25-50	>50

Abundance Codes: N = None R = Rare O = Occasional A = Abundant

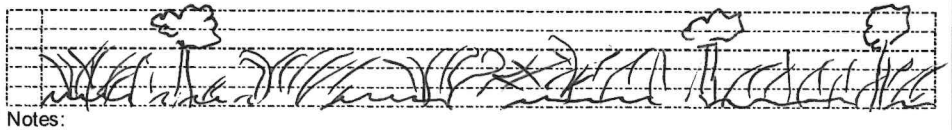
Thicket

Com. Age:	☐ Pioneer	☒ Young	☐ Mid-Age	☐ Mature	☐ Old Growth

Ecosite:	Cultural	Code:	CU
Vegetation Type:	Cultural Thicket	Code:	CUT 1
Inclusion:	Raspberry Cultural Thicket	Code:	CUT 1-5
Complex:		Code:	

Community Profile Diagram/Comments

2m
1m
0-2m



Notes:

Tree Tally by Species

Prism Factor: 2

Species	Tally 1	Tally 2	Tally 3	Tally 4	Total	Rel. Avg.
			N/A			
Total						100
Basal Area (BA)						
Dead						

C-1?

Soils Ontario and ELC Soils Description

							Summary
Site Metrics		Pit/Auger #					
	UTM	Zone					Moisture Regime
		Easting					
		Northing					
	Slope	Position					
		Aspect					Drainage
		Percent					
		Slope Length					
Depth to...		Mottles					
		Gley					
		Water Table					Effective Texture (indicate below)
		Carbonates					
		Bedrock					
Soil Horizon Description	1	Depth from zero	% CF	% CF	% CF	% CF	
		Texture					
	2	Depth from zero	% CF	% CF	% CF	% CF	
		Texture					
	3	Depth from zero	% CF	% CF	% CF	% CF	
		Texture					
	4	Depth from zero	% CF	% CF	% CF	% CF	
		Texture					
		% Surface Stone/Rock					
		Moisture Regime					
		Drainage					

N/A

Vascular Plant Species List

Project: Elora Heating property 221469.
Date: November 28/24

BEACON ENVIRONMENTAL

Species	Abundance/Layer				Species	Abundance/Layer			
	Canopy	Sub-canopy	Understory	Groundlayer		Canopy	Sub-canopy	Understory	Groundlayer
Trees					**Herbaceous Vegetation**				
PRUSERO		12			ECH LOJA				A
ACESAJA		12			ARC MINO				A
TILAMET.		12			SOLCANA			A	A
					GALAPAR				A
					EQU ARVE				O
					RUM CRIS				A
					ALISPEPI				A
Shrubs/Vines									
RIBIDAE			D						
VITRIPA			O						

D = Dominant, A= Abundant, O = Occasional, R = Rare

Polygon: CUT 1-5
Surveyor(s): Nadine Price S.
Alex Hanly

Vascular Plant Species List

Project: Elora Keating Property 221469.

Date: November 28/24

BEACON ENVIRONMENTAL

Incidental Wildlife Observations/Comments/General Notes:
- There is one Raspberry cultural Thicket (CUT1-5) on the Keating Property within the cultural woodland (CUW1)
- This community is disturbed.
- Red Raspberry is dominant, there are scattered trees throughout that include Black Cherry, Basswood, and Sugar Maple.

Polygon: CUT1-5.

D = Dominant, A= Abundant, O = Occasional, R = Rare

Surveyor(s): Nadine Ross, Alex Harvey

ELC Community Description and Classification

Map #: Figure 2.	Polygon: FOD7.	
Surveyor(s): AH NP.	Date: Nov 20/24	Time start: 9am finish: 5pm
UTMZ: /	UTMZ: /	UTMN: /

Polygon Description

(Figure 2.)

System	Substrate	Topographic Feature	Plant Form	Community
☒ Terrestrial	☐ Organic	☐ Lacustrine	☐ Plankton	☐ Lake
☐ Wetland	☒ Mineral Soil	☐ Riverine	☐ Submerged	☐ Pond
☐ Aquatic	☐ Parent Min.	☐ Bottomland	☐ Floating-LVD.	☐ River
Site	☐ Acidic Bedrk	☐ Terrace	☐ Graminoid	☐ Stream
☐ Open Water	☐ Basic Bedrk	☐ Valley Slope	☐ Forb	☐ Marsh
☐ Shallow Water	☐ Carb. Bedrk	☒ Tableland	☐ Lichen	☐ Swamp
☐ Surficial Dep.		☐ Roll. Upland	☐ Bryophyte	☐ Fen
☐ Bedrock		☐ Cliff	☒ Deciduous	☐ Bog
History		☐ Talus	☐ Coniferous	☐ Barren
☒ Natural		☐ Crevice/Cave	☐ Mixed	☐ Meadow
☐ Cultural		☐ Alvar		☐ Prairie
Cover		☐ Rockland		☐ Thicket
☐ Open		☐ Beach / Bar		☐ Savannah
☐ Shrub		☐ Sand Dune		☐ Woodland
☐ Treed		☐ Bluff		☒ Forest
				☐ Plantation

Stand Description

Layer	HT	CVR	Species In Order of Decreasing Dominance (up to 4 sp) (>> Much Greater Than; > Greater Than; = About Equal To)
1	2	4	ACENEGV > PRUSER = THUOCC = FRAPENN
2	3	3	RHACATH > LONXBE
3	5	2	RHACATH > LONXBE
4	6	1	ALLPERI > CORSABE = CARCANA > RHACATH

HT Codes: 7 <0.2m 6 >0.2-0.5m 5 >0.5-1m 4 >1-2m 3 >2-6m 2 >6-25m 1 >25m
CVR Codes: 0 = none 1 0% - 10% 2 10 - 25% 3 25 - 60% 4 > 60%

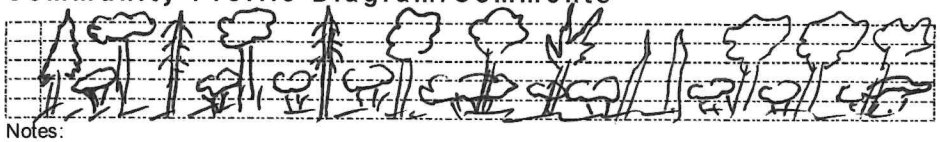
Stand Composition:	Size Class Analysis:	<10	10-24	25-50	>50
	Standing Snags:	O	A	A	N
BA:	Deadfall / Logs:	N	R	A	N

Abundance Codes: N = None R = Rare O = Occasional A = Abundant

Com. Age: ☐ Pioneer ☐ Young ☑ Mid-Age ☐ Mature ☐ Old Growth

Ecosite:	Forest	Code:	F
Vegetation Type:	Deciduous Forest	Code:	FOD.
Inclusion:	Fresh-Moist Lowland Forest	Code:	FOD7
Complex:		Code:	

Community Profile Diagram/Comments



Notes:

Tree Tally by Species

(No Tree Inventory.)

Prism Factor: 2

Species	Tally 1	Tally 2	Tally 3	Tally 4	Total	Rel. Avg.
			N/A			
Total						100
Basal Area (BA)						
Dead						

Soils Ontario and ELC Soils Description

							Summary
Site Metrics		Pit/Auger #					
	UTM	Zone					Moisture Regime
		Easting					
		Northing					
	Slope	Position					
		Aspect					Drainage
		Percent					
		Slope Length					
Depth to...		Mottles					
		Gley					
		Water Table		N/A			Effective Texture (indicate below)
		Carbonates					
		Bedrock					

Soil Horizon Description									
1	Depth from zero		% CF		% CF		% CF		% CF
	Texture								
2	Depth from zero		% CF		% CF		% CF		% CF
	Texture								
3	Depth from zero		% CF		% CF		% CF		% CF
	Texture								
4	Depth from zero		% CF		% CF		% CF		% CF
	Texture								
	% Surface Stone/Rock								
Moisture Regime									
Drainage									

Vascular Plant Species List

Project: Elora Heating 221469
Date: November 28 / 24

BEACON ENVIRONMENTAL

Species	Abundance/Layer				Species	Abundance/Layer			
	Canopy	Sub-canopy	Understory	Groundlayer		Canopy	Sub-canopy	Understory	Groundlayer
Trees					**Herbaceous Vegetation**				
TSUCANA	R				ALFRETI				A
ACENEGU	D				GERIROBE				O
THUOCC	O				CIRCANA				A
FRAPENN	A				~~RUBA~~ GIEMEDE				A
ACESAJA	O				POAPRAT				R
FRAAMER	A				AIRC CAPIP.				R
					ARCMINO				O
					GEUVRIA				R
					VIOSORO				R
Shrubs/Vines									
RHACATH		D	D	A					
LONXXBEL.		A	A						

Polygon: FOD 7
Surveyor(s): Alex Hanson
Nadine Price.

D = Dominant, A= Abundant, O = Occasional, R = Rare

Vascular Plant Species List

Project: Elora Keating 221469
Date: November 28/24

BEACON ENVIRONMENTAL

Incidental Wildlife Observations/Comments/General Notes:
- There is one Fresh- Moist Lowland Deciduous Forest (FOD7) in the south west corner of the Keating property.
- It is dominated by Manitoba Maple.
- There is lots of standing dead and fallen dead trees.
-> The soils are moist, mineral content.

D = Dominant, A= Abundant, O = Occasional, R = Rare

Polygon: FOD 7
Surveyor(s): Alex Hanley
Nadine Price.

ELC
Community Description and Classification

Map #: Figure 2.	Polygon: SWT2-5.		
Surveyor(s): AH NP.	Date: Nov 29/24	Time start: 9am.	finish: 5pm.
UTMZ: /	UTMZ: /	UTMN: /	

Polygon Description

(Figure 2.)

System	Substrate	Topographic Feature	Plant Form	Community
☐ Terrestrial	☐ Organic	☐ Lacustrine	☐ Plankton	☐ Lake
☒ Wetland	☒ Mineral Soil	☐ Riverine	☐ Submerged	☐ Pond
☐ Aquatic	☐ Parent Min.	☒ Bottomland	☐ Floating-LVD.	☐ River
Site	☐ Acidic Bedrk	☐ Terrace	☐ Graminoid	☐ Stream
☐ Open Water	☐ Basic Bedrk	☐ Valley Slope	☐ Forb	☐ Marsh
☐ Shallow Water	☐ Carb. Bedrk	☐ Tableland	☐ Lichen	☒ Swamp
☐ Surficial Dep.		☐ Roll. Upland	☐ Bryophyte	☐ Fen
☐ Bedrock		☐ Cliff	☐ Deciduous	☐ Bog
History		☐ Talus	☐ Coniferous	☐ Barren
☒ Natural		☐ Crevice/Cave	☐ Mixed	☐ Meadow
☐ Cultural		☐ Alvar	☒ Shrub.	☐ Prairie
Cover		☐ Rockland		☒ Thicket
☐ Open		☐ Beach / Bar		☐ Savannah
☒ Shrub		☐ Sand Dune		☐ Woodland
☐ Treed		☐ Bluff		☐ Forest
				☐ Plantation

Stand Description

Layer	HT	CVR	Species In Order of Decreasing Dominance (up to 4 sp) (>> Much Greater Than; > Greater Than; = About Equal To)
1	4	4	Cor stol >> VITRIPA > ACENEGV
2	6	2	Sal pulc LYTSALI ABIA-NI (Immature)
3			
4			

HT Codes: 7 <0.2m 6 >0.2-0.5m 5 >0.5-1m 4 >1-2m 3 >2-6m 2 >6-25m 1 >25m
CVR Codes: 0 = none 1 0% - 10% 2 10 - 25% 3 25 - 60% 4 > 60%

Stand Composition:	Size Class Analysis:	<10	10-24	25-50	>50
	Standing Snags:	<10	N/A	25-50	>50
BA:	Deadfall / Logs:	<10	10-24	25-50	>50

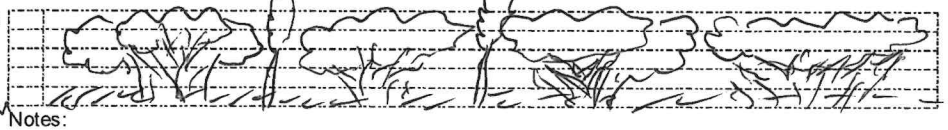
Abundance Codes: N = None R = Rare O = Occasional A = Abundant

Swamp Thicket.

Com. Age:	☐ Pioneer	☑ Young	☐ Mid-Age	☐ Mature	☐ Old Growth

Ecosite:	Swamp.	Code:	S
Vegetation Type:	Thicket Swamp.	Code:	SWT
Inclusion:	Treed Open Mineral Thicket Swamp	Code:	SWT2-5
Complex:		Code:	

Community Profile Diagram/Comments



Notes:

Tree Tally by Species

Prism Factor: 2

Species	Tally 1	Tally 2	Tally 3	Tally 4	Total	Rel. Avg.
				N/A		
Total						100
Basal Area (BA)						
Dead						

Soils Ontario and ELC Soils Description

									Summary
Site Metrics		Pit/Auger #							
	UTM	Zone							Moisture Regime
		Easting							
		Northing							
	Slope	Position							
		Aspect							Drainage
		Percent							
		Slope Length							
Depth to...	Mottles					N/A			Effective Texture (indicate below)
	Gley								
	Water Table								
	Carbonates								
	Bedrock								
Soil Horizon Description	1	Depth from zero		% CF		% CF		% CF	% CF
		Texture							
	2	Depth from zero		% CF		% CF		% CF	% CF
		Texture							
	3	Depth from zero		% CF		% CF		% CF	% CF
		Texture							
	4	Depth from zero		% CF		% CF		% CF	% CF
		Texture							
		% Surface Stone/Rock							
	Moisture Regime								
	Drainage								

Vascular Plant Species List

Project: Keating Property 221469
Date: November 28 / 24

BEACON ENVIRONMENTAL

Species	Abundance/Layer				Species	Abundance/Layer			
	Canopy	Sub-canopy	Understory	Groundlayer		Canopy	Sub-canopy	Understory	Groundlayer
Trees					**Herbaceous Vegetation**				
ACENEGV			O		SOLDULC			A	A
					CYTSTCI				A
					ASTPUNI				A
					TYP-SP.			R	R
					PHRAUST			R	
					SCHTADE			R	
					GLYSTRI			O	O
					IRINCRIS				O
					EQUARLE				O
Shrubs/Vines									
CORSTOL			D						
VITRIPA.			O						

D = Dominant, A= Abundant, O = Occasional, R = Rare

Polygon: SWT 2-5
Surveyor(s): Alex Harvey
Nadine Price.

Vascular Plant Species List

Project: Keating Property
Date: November 28/24.

BEACON ENVIRONMENTAL

Incidental Wildlife Observations/Comments/General Notes:
There are two Red-Osier Mineral Thicket Swamps. (SWT2-5) was located in the southwest corner of the Keating Property.
- There is potentially one as well located off property to the south surrounded by woodland.
- The ~~for~~ ELC SWT2-5 is dominated by red osier dogwood.

Polygon: SWT2-5.
Surveyor(s): Alex Hung
Nadine Rae

D = Dominant, A= Abundant, O = Occasional, R = Rare

ELC
Community Description and Classification

Map #: Figure 2	Polygon: SWT 2-2			
Surveyor(s): AH NP	Date: Nov 28/22	Time start: 10:00am	finish: 3:00pm	
UTMZ: /	UTMZ: /	UTMN: /		

Polygon Description

C Figure 2.

System	Substrate	Topographic Feature	Plant Form	Community
☐ Terrestrial	☐ Organic	☐ Lacustrine	☐ Plankton	☐ Lake
☒ Wetland	☒ Mineral Soil	☐ Riverine	☐ Submerged	☐ Pond
☐ Aquatic	☐ Parent Min.	☒ Bottomland	☐ Floating-LVD.	☐ River
Site	☐ Acidic Bedrk	☐ Terrace	☐ Graminoid	☐ Stream
☐ Open Water	☐ Basic Bedrk	☐ Valley Slope	☐ Forb	☐ Marsh
☒ Shallow Water	☐ Carb. Bedrk	☐ Tableland	☐ Lichen	☒ Swamp
☐ Surficial Dep.		☐ Roll. Upland	☐ Bryophyte	☐ Fen
☐ Bedrock		☐ Cliff	☐ Deciduous	☐ Bog
History		☐ Talus	☐ Coniferous	☐ Barren
☒ Natural		☐ Crevice/Cave	☐ Mixed	☐ Meadow
☐ Cultural		☐ Alvar	☒ Shrub.	☐ Prairie
Cover		☐ Rockland		☒ Thicket
☐ Open		☐ Beach / Bar		☐ Savannah
☒ Shrub		☐ Sand Dune		☐ Woodland
☐ Treed		☐ Bluff		☐ Forest
				☐ Plantation

Stand Description

Layer	HT	CVR	Species In Order of Decreasing Dominance (up to 4 sp) (>> Much Greater Than; > Greater Than; = About Equal To)
1	4	4	SALIPUC > CORSTOC = SPIALB = VIBOPU.
2	6	2	ONOSENS > SOLDULC = GALAPAMAR = GLEECHOBE
3			
4			

HT Codes: 7 <0.2m 6 >0.2-0.5m 5 >0.5-1m 4 >1-2m 3 >2-6m 2 >6-25m 1 >25m
CVR Codes: 0 = none 1 0% - 10% 2 10 - 25% 3 25 - 60% 4 > 60%

Swamp Thicket.

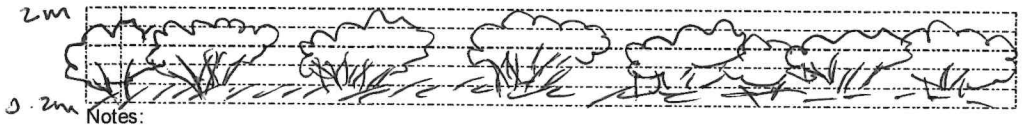
Stand Composition:	Size Class Analysis:	<10	10-24	25-50	>50
	Standing Snags:	<10	10-24	25-50	>50
BA:	Deadfall / Logs:	<10	10-24	25-50	>50

Abundance Codes: N = None R = Rare O = Occasional A = Abundant

Com. Age: ☐ Pioneer ☑ Young ☐ Mid-Age ☐ Mature ☐ Old Growth

Ecosite:	Swamp	Code:	S
Vegetation Type:	Swamp Thicket	Code:	SWT
Inclusion:	Willow Mineral Swamp Thicket	Code:	SWT 2-2
Complex:		Code:	

Community Profile Diagram/Comments



Notes:

Tree Tally by Species

Prism Factor: 2

Species	Tally 1	Tally 2	Tally 3	Tally 4	Total	Rel. Avg.
			N/A			
Total						100
Basal Area (BA)						
Dead						

Soils Ontario and ELC Soils Description

									Summary
Site Metrics		Pit/Auger #							
	UTM	Zone							Moisture Regime
		Easting							
		Northing							
	Slope	Position							
		Aspect							Drainage
		Percent							
		Slope Length				N/A			
Depth to...	Mottles								Effective Texture (indicate below)
	Gley								
	Water Table								
	Carbonates								
	Bedrock								
Soil Horizon Description	1	Depth from zero		% CF		% CF		% CF	% CF
		Texture							
	2	Depth from zero		% CF		% CF		% CF	% CF
		Texture							
	3	Depth from zero		% CF		% CF		% CF	% CF
		Texture							
	4	Depth from zero		% CF		% CF		% CF	% CF
		Texture							
		% Surface Stone/Rock							
	Moisture Regime								
	Drainage								

Vascular Plant Species List

Project: Elora Keating 221469
Date: November 28/24

BEACON ENVIRONMENTAL

Species	Abundance/Layer				Species	Abundance/Layer			
	Canopy	Sub-canopy	Understory	Groundlayer		Canopy	Sub-canopy	Understory	Groundlayer
Trees					**Herbaceous Vegetation**				
ACERUBR	R				ONOSENS.				A
ACENEGU	O				SOLIDULC				O
					GEIROBE				O
					DRYINTE				R
					BIDARIFA.				O
					ASTPUNI				A
					ASTNOVA				O
					ASTLANC				O
					VIBOSIR.				O
Shrubs/Vines									
SALDISC		A	A.						
SALERIO		A	O						
CORSTOL		A	O.						
RHIACANTH		A	A.						
VIBOPUL.		O	O						

D = Dominant, A= Abundant, O = Occasional, R = Rare

Polygon: SWT 2-2.
Surveyor(s): Alex Hong
Nadine Pace

Vascular Plant Species List

Project: Keating Property
Date: November 28/24

BEACON ENVIRONMENTAL

Incidental Wildlife Observations/Comments/General Notes:
- There is one willow Mineral Thicket Swamp (SWT 2-2) located in the southwest corner of the Keating property, bordering SWT 2-5 and FOD 7.
- The swamp thicket is a mix of pussy willow, cottony willow, high bush cranberry, and red osier dogwood.
- It is the largest wetland on the property.
-> There are some fallen trees and wood debris scattered throughout.

Polygon: SWT 2-2
Surveyor(s): Alex Hanley
Nadine Price

D = Dominant, A= Abundant, O = Occasional, R = Rare

ELC Community Description and Classification

Map #: Figure 2.	Polygon: CUW 2.		
Surveyor(s): AH NP.	Date: Nov 28/24	Time start: 10:00am	finish: 5:00pm
UTMZ: 17	UTMZ: 17	UTMN:	

Polygon Description

→ Figure 2

System	Substrate	Topographic Feature	Plant Form	Community
☒ Terrestrial	☐ Organic	☐ Lacustrine	☐ Plankton	☐ Lake
☐ Wetland	☒ Mineral Soil	☐ Riverine	☐ Submerged	☐ Pond
☐ Aquatic	☐ Parent Min.	☐ Bottomland	☐ Floating-LVD.	☐ River
Site	☐ Acidic Bedrk	☐ Terrace	☐ Graminoid	☐ Stream
☐ Open Water	☐ Basic Bedrk	☐ Valley Slope	☐ Forb	☐ Marsh
☐ Shallow Water	☐ Carb. Bedrk	☒ Tableland	☐ Lichen	☐ Swamp
☐ Surficial Dep.		☐ Roll. Upland	☐ Bryophyte	☐ Fen
☐ Bedrock		☐ Cliff	☒ Deciduous	☐ Bog
History		☐ Talus	☐ Coniferous	☐ Barren
☐ Natural		☐ Crevice/Cave	☐ Mixed	☐ Meadow
☒ Cultural		☐ Alvar		☐ Prairie
Cover		☐ Rockland		☐ Thicket
☐ Open		☐ Beach / Bar		☐ Savannah
☐ Shrub		☐ Sand Dune		☒ Woodland
☒ Treed		☐ Bluff		☒ Forest
				☐ Plantation

Stand Description

Layer	HT	CVR	Species In Order of Decreasing Dominance (up to 4 sp) (>> Much Greater Than; > Greater Than; = About Equal To)
1	2	3	BETULE ?? TILIAMER ? ACER-RUB ? TSUGCA
2	3	3	FAGGRAN ? SAMRACE ? SORAUCU ? CORALTE
3	5	2	MATSTRU ? ATHFILG = ECHLOJA = GOOREPE
4	6	4	CIRCANA ? TWISPE = ARISPEC = ATHFILG

HT Codes: 7 <0.2m 6 >0.2-0.5m 5 >0.5-1m 4 >1-2m 3 >2-6m 2 >6-25m 1 >25m
CVR Codes: 0 = none 1 0% - 10% 2 10 - 25% 3 25 - 60% 4 > 60%

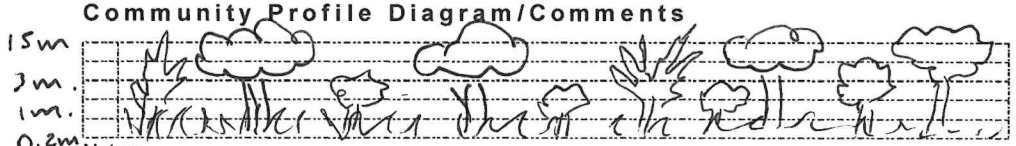
Stand Composition:	Size Class Analysis:	<10	10-24	25-50	>50
	Standing Snags:	N	O	O	N
BA:	Deadfall / Logs:	N	O	O	N

Abundance Codes: N = None R = Rare O = Occasional A = Abundant

Com. Age: ☐ Pioneer ☐ Young ☑ Mid-Age ☐ Mature ☐ Old Growth

Ecosite:	Cultural	Code:	C
Vegetation Type:	Cultural Woodland	Code:	CUW.
Inclusion:	Cultural Woodland	Code:	CUW 1
Complex:		Code:	

Community Profile Diagram/Comments



Notes:

Tree Tally by Species

Prism Factor: 2

Species	Tally 1	Tally 2	Tally 3	Tally 4	Total	Rel. Avg.
				N/A		
Total						100
Basal Area (BA)						
Dead						

Soils Ontario and ELC Soils Description

											Summary
Site Metrics		Pit/Auger #									
	UTM	Zone									
		Easting									Moisture Regime
		Northing									
	Slope	Position									
		Aspect									
		Percent									
		Slope Length									Drainage
Depth to...		Mottles									
		Gley									
		Water Table									Effective Texture (indicate below)
		Carbonates									
		Bedrock									
Soil Horizon Description	1	Depth from zero		% CF		% CF		% CF		% CF	
		Texture									
	2	Depth from zero		% CF		% CF		% CF		% CF	
		Texture									
	3	Depth from zero		% CF		% CF		% CF		% CF	
		Texture									
	4	Depth from zero		% CF		% CF		% CF		% CF	
		Texture									
		% Surface Stone/Rock									
		Moisture Regime									
		Drainage									

N/A (Mineral Soil
No Auger.

Vascular Plant Species List

Project: Keating Property. 221469
Date: November 28/24.

BEACON ENVIRONMENTAL

Species	Abundance/Layer				Species	Abundance/Layer			
	Canopy	Sub-canopy	Understory	Groundlayer		Canopy	Sub-canopy	Understory	Groundlayer
Trees					**Herbaceous Vegetation**				
BETALE	A				HYDVIRG				A
TILAMER.	A				ECHLOJA.				O
ACERUBR	A				GERROBE				A
ACENEGV	A.	O			AÜPETI				A
FRANIGR			R		ARITRIP.				O
FRAX FRAG	O				TUSFARF				O
QUERUBR.	R				VITSORO.				O
POP ALBA.	A.				CIRCANA.				A
THUOCC	A.				ACTRUB				R
ULMAMER.	O.				ARCMINI				O
FRAPENN	O	O	O		CAREDU				O
					ONOSENS.				A
					TARO FFI				A
Shrubs/Vines									
CORALTE			A						
SORAUCU		A	A	A					
RHACATH.			A	O					
SAMRACE			A						
LONXBEL.			A						
PRUVIRG			O.						
VITRIPA.			O	O					

D = Dominant, A= Abundant, O = Occasional, R = Rare

Polygon: Cum 1
Surveyor(s): Alex Henry
Nadine Pace.

Vascular Plant Species List

Project: Keating property 221469
Date: November 28/24

BEACON ENVIRONMENTAL

Incidental Wildlife Observations/Comments/General Notes:
-> Cultural woodland (CUW1) is located in the centre of subject property, in between the Elora sands and Keating property, but majority is on Keating property.
-> The woodland is relatively open, with Dogberry thicket in centre.
-> It is a relatively even mix of BETULE ALLEGH. POPULUS TREMULOIDES ACER SACCH. POPTREM.
- Soil is very moist, possibly because of pocket with table or change from adjacent fields.

D = Dominant, A= Abundant, O = Occasional, R = Rare

Polygon: CUW1
Surveyor(s): Alex Hanes
Nadine Price.

Appendix E

Breeding Bird Species List

Breeding Bird Species List

Common Name	Scientific Name	Status				# Breeding Pairs/Territories
		National Species at Risk COSEWIC[a]	Species at Risk in Ontario Listing[a]	Provincial breeding season SRANK[b]	Area-sensitive (OMNR)[c]	
Canada Goose	*Branta canadensis*			S5		F
Mallard	*Anas platyrhynchos*			S5		F
Turkey Vulture	*Cathartes aura*			S5		F
Killdeer	*Charadrius vociferus*			S5		1
Ring-billed Gull	*Larus delawarensis*			S5		F
Mourning Dove	*Zenaida macroura*			S5		F
Hairy Woodpecker	*Dryobates villosus*			S5	A	1
Northern Flicker	*Colaptes auratus*			S4		1
Eastern Kingbird	*Tyrannus tyrannus*			S4		1
Cliff Swallow	*Petrochelidon pyrrhonota*			S4		F
Barn Swallow	*Hirundo rustica*	SC	SC	S4		6
Blue Jay	*Cyanocitta cristata*			S5		1
American Crow	*Corvus brachyrhynchos*			S5		2
Black-capped Chickadee	*Poecile atricapillus*			S5		1
American Robin	*Turdus migratorius*			S5		3
European Starling	*Sturnus vulgaris*			SE		1
Northern Cardinal	*Cardinalis cardinalis*			S5		1
Indigo Bunting	*Passerina cyanea*			S4		1
Chipping Sparrow	*Spizella passerina*			S5		3
Savannah Sparrow	*Passerculus sandwichensis*			S4	A	6
Song Sparrow	*Melospiza melodia*			S5		3
Bobolink	*Dolichonyx oryzivorus*	THR	THR	S4	A	7
Red-winged Blackbird	*Agelaius phoeniceus*			S4		4
Brown-headed Cowbird	*Molothrus ater*			S4		1
American Goldfinch	*Spinus tristis*			S5		2

Fieldwork Conducted On: May 29 and June 8, 2023
F indicates foraging or flyover (non-breeding) birds
Number of Species: 25 (19 breeding, 6 flyover/foraging)
Number of (provincial and national) Species at Risk: 2 (Bobolink and Barn Swallow)
Number of S1 to S3 Species: 0
Number of Area-sensitive Species: 3 (Hairy Woodpecker, Savannah Sparrow and Bobolink)

KEY
[a] COSEWIC = Committee on the Status of Endangered Wildlife in Canada
[a] Species at Risk in Ontario List (as applies to ESA) as designated by COSSARO (Committee on the Status of Species at Risk in Ontario)
END = Endangered, THR = Threatened, SC = Special Concern

[b] SRANK (from Natural Heritage Information Centre) for breeding status if:
S1 (Critically Imperiled), S2 (Imperiled),S3 (Vulnerable), S4 (Apparently Secure), S5 (Secure)
SNA (Not applicable…'because the species is not a suitable target for conservation activities'; includes non-native species)

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

Breeding Bird Survey Summary Form

Surveyor Name: Jenny Andrews Date (use letters for mos.): 29 May 2023

Project Name: Elora- Clayton EIS Project #: 221469

Time of Survey (start and finish): 6:33 - 7:44

Weather (approx. temp., cloud cover, wind, precipitation): 12°C, 0, 0, None

Additional notes on birds (nests, uncertainties, unusual observations, habitat comments etc.) :

BARS entering barn - likely nesting inside

7 Singing BOBO males counted, plus 2 females

territories cover entire south field. Habitat is tall grass and dandilions. North field just bare soil, nothing detected there.

Incidental Observations

Anything welcome (mammals, herps, fish presence, insects, plants esp. unusual spp. etc.). For herps, rare plants, occurrence of fish, please also mark location on map. For herps, number observed. Thanks!

Nothing, just birds!

RFC Apr 2012

Project: 221469 Elora Clayton EIS
Project Manager: KQ

545000 545100 545200 545300 545400 545500 545600 545700 545800 545900 546000 546100

4839400 4839300 4839200 4839100 4839000 4838900 4838800 4838700 4838600 4838500 4838400 4838300 4838200 4838100 4838000 4837900 4837800 4837700

Gerrie Road

Sideroad 15

Nichol Drain

Woolwich Street East

Irvine Street

Keating Drive

Waser Street

Stanley Crescent

Mathieson Street

Union Street

John Street

DO NOT Survey
this Parcel
Completed in 2022

KILL

INBL BLJA x2 SOSP CHSP BCCH EAK4x2 RWBL BARS x3 AMRO x2 RWBL BARS BOBO SAVS SAVS SAMRO CHSP AMCR EWST BARS VESP NOCA AMCR BOBO PC BOBO Pair BOBO PC BOBO PC AMCR BARS PC BHGO BOBO BOBO PC Pair BOBO BOBO SAVS x3 RWBL x2 PC SOSP RBGL x12 HESP PC SOSP PC AMGO RBGL NB

FO
AMGO
MGDO
RBGU
MALL x2
CANG x20

Legend
Subject Property
Watercourse (MNRF 2021)

0 100 200 m

C:\ODB\OneDrive - Beacon Environmental\GeoSpatial\Geo Projects\2021\221469 Elora Clayton EIS\Q Project Files\2021-12-01_Elora Clayton EIS_221469.qgz

Breeding Bird Survey Summary Form

Surveyor Name: Jenny Andrews Date (use letters for mos.): 8 June 2023

Project Name: Elora-Clayton EIS Project #: 221469

Time of Survey (start and finish): 6:40 - 8:06

Weather (approx. temp., cloud cover, wind, precipitation): 12°C, 70% CC, 1 wind, 0 precip

Additional notes on birds (nests, uncertainties, unusual observations, habitat comments etc.) :

Incidental Observations

Anything welcome (mammals, herps, fish presence, insects, plants esp. unusual spp. etc.). For herps, rare plants, occurrence of fish, please also mark location on map. For herps, number observed. Thanks!

Red Squirrel

Agitated pair of SAVS at PC2

Eastern Cottontail

CSWA SEN in tiny forest patch!

Birds

CHSP

SOSP

AMRO

BOBO

SAVS

RWBL

EUST

NOFL

CSWA

BARS

CLSW

INBU

AMRE

EAKI

AMGO

AMCR

FO

RBGU
RWBL
AMCR
AMGO
MODO
TUVU

Project: 221469 Elora Clayton EIS
Project Manager: KQ

Gerrie Road
Sideroad 15
Nichol Drain
Woolwich Street East
Irvine Street
Keating Drive
Waser Street
Stanley Crescent
Union Street
John Street
Mathieson Street

DO NOT Survey
this Parcel
Completed in 2022

Legend
Subject Property
Watercourse (MNRF 2021)

0 100 200 m

545000 545100 545200 545300 545400 545500 545600 545700 545800 545900 546000 546100

4839400 4839300 4839200 4839100 4839000 4838900 4838800 4838700 4838600 4838500 4838400 4838300 4838200 4838100 4838000 4837900 4837800 4837700

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Appendix F

Amphibian Survey Data

Amphibian Data Form

BEACON ENVIRONMENTAL

Visit Information

Project Name: Elora Clayton EIS	Project #: 2214609
Observer Name: Jenny Andrews	Visit #: 1
Date: 2023/04/14	Cloud Cover (%): 0
Temperature (°C): 19	Beaufort Wind Scale (0-6): 0

Precipitation (check one): ☒ None/Dry ☐ Damp/Haze/Fog ☐ Drizzle ☐ Rain

Call Level Codes

Code 1: Calls not simultaneous, number of individuals can be accurately counted.

Code 2: Some calls simultaneous, number of individuals can be reliably estimated.

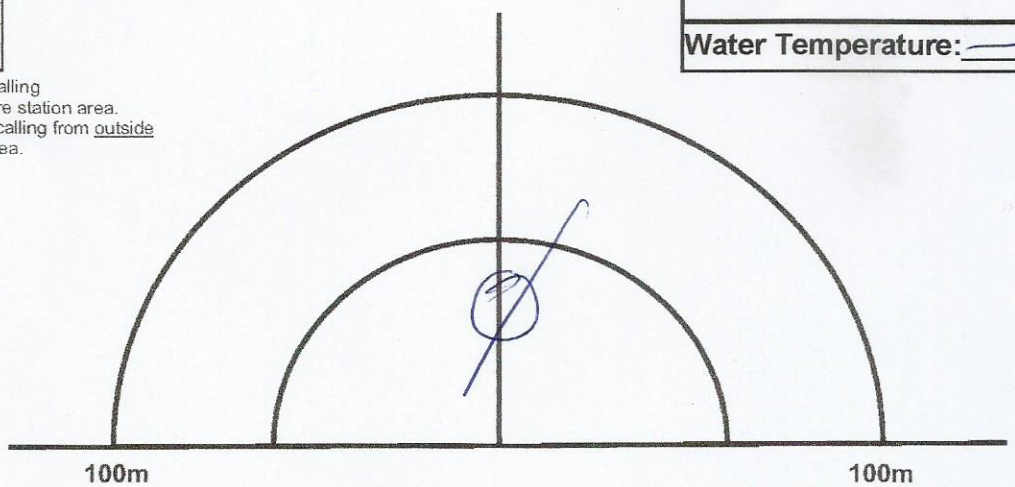
Code 3: Full chorus, call continuous and overlapping, number of individuals cannot be reliably estimated.

Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

* Check if species is calling from inside 100-metre station area.
** Check if species is calling from outside 100-metre station area.

Station 1

Station Start Time (24 hr):	22:02
Background Noise Code (1-4):	1
GPS Coordinates:	43.100651, -80.435415
Water Temperature:	—

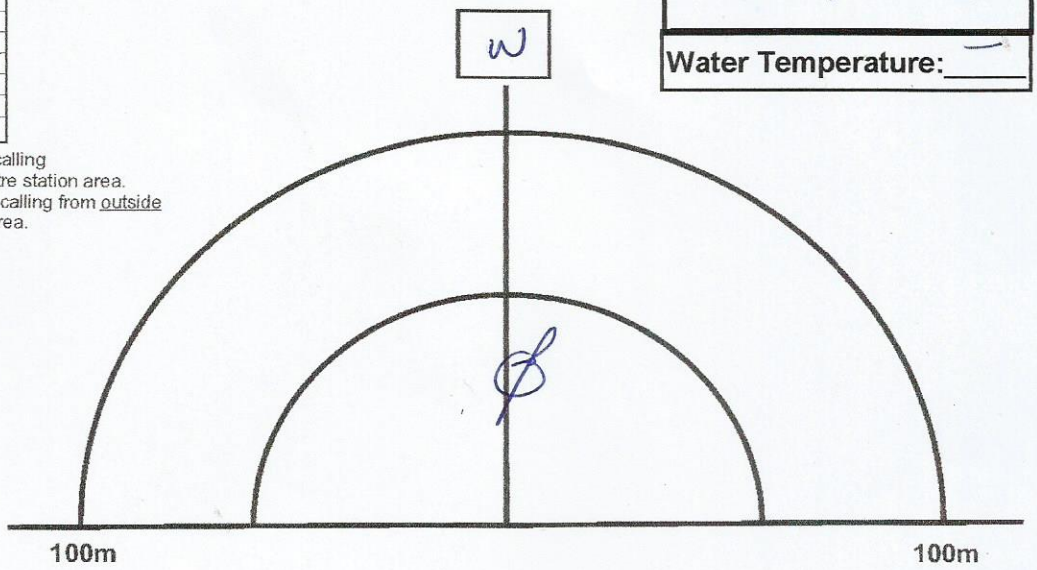


Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

* Check if species is calling from inside 100-metre station area.
** Check if species is calling from outside 100-metre station area.

Station 2

Station Start Time (24 hr):	20:18
Background Noise Code (1-4):	1
GPS Coordinates:	43.100985, -80.431282
Water Temperature:	—



Amphibian Species Codes

Species	Code
American Toad	AMTO
Northern (Blanchard's) Cricket Frog	BCFR
Bullfrog	BULL
Chorus Frog	CHFR
Cope's (Diploid) Gray Treefrog	CGTR
Fowler's Toad	FOTO
Gray (Tetraploid) Treefrog	GRTR
Green Frog	GRFR
Mink Frog	MIFR
Northern Leopard Frog	NLFR
Pickerel Frog	PIFR
Spring Peeper	SPPE
Wood Frog	WOFR

Background Noise Codes

Index	Description
0	No appreciable effect (e.g., owl calling)
1	Slightly affecting sampling (e.g., distant traffic, dog barking, car passing)
2	Moderately affecting sampling (e.g., distant traffic, 2-5 cars passing)
3	Seriously affecting sampling (e.g., continuous traffic nearby, 6-10 cars passing)
4	Profoundly affecting sampling (e.g., continuous traffic passing, construction noise)

24 Hour Time

12 Hour	24 Hour	12 Hour	24 Hour
7:00 PM	1900	10:00 PM	2200
8:00 PM	2000	11:00 PM	2300
9:00 PM	2100	12:00 PM	2400

Beaufort Wind Scale

Number	Wind Speed		Indicators
	Km/h	Mph	
0	0-2	0-1	**Calm**, smoke rises vertically
1	3-5	2-3	**Light air movement**, smoke drifts
2	6-11	4-7	**Slight breeze**, wind felt on face
3	12-19	8-12	**Gentle breeze**, leaves and small twigs in constant motion
4*	20-30	13-18	**Moderate breeze**, small branches are moving, raises dust and loose paper

* Winds over Beaufort 3 are unacceptable for amphibian surveys.

Amphibian Data Form

BEACON ENVIRONMENTAL

Visit Information

Project Name: Elora Clayton	Project #: 221469
Observer Name: J. Seery	Visit #: 2
Date: May 11, 2023	Cloud Cover (%): 0
Temperature (°C): 16	Beaufort Wind Scale (0-6): 1

Precipitation (check one): ☐ None/Dry ☐Damp/Haze/Fog ☐ Drizzle ☐Rain

Call Level Codes

Code 1: Calls not simultaneous, number of individuals can be accurately counted.

Code 2: Some calls simultaneous, number of individuals can be reliably estimated.

Code 3: Full chorus, call continuous and overlapping, number of individuals cannot be reliably estimated.

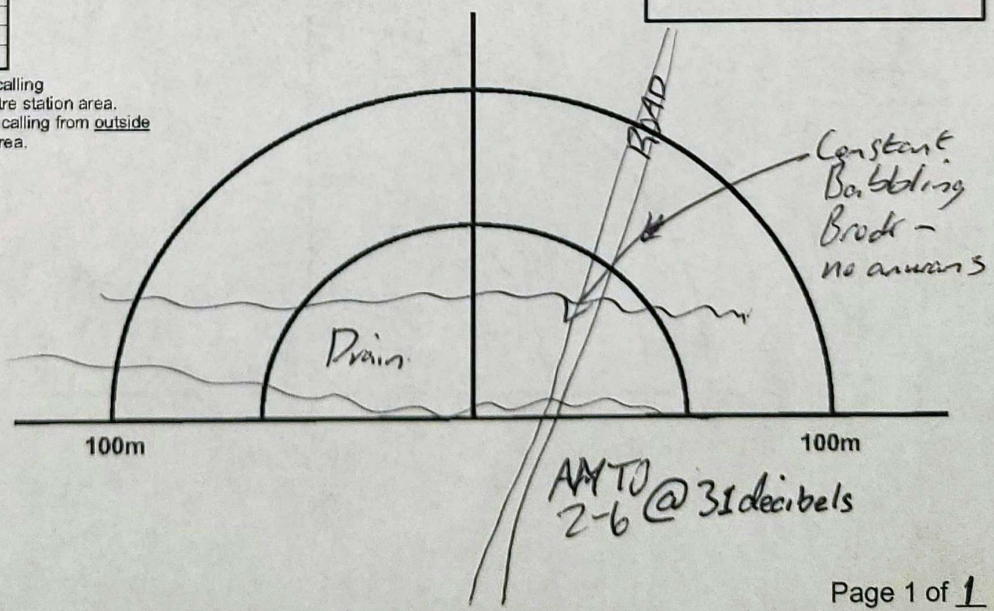
Species	In*	Out**
AMTO		✓
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

* Check if species is calling from inside 100-metre station area.
** Check if species is calling from outside 100-metre station area.

Station 1

S

Station Start Time (24 hr):	2225
Background Noise Code (1-4):	1
GPS Coordinates:	

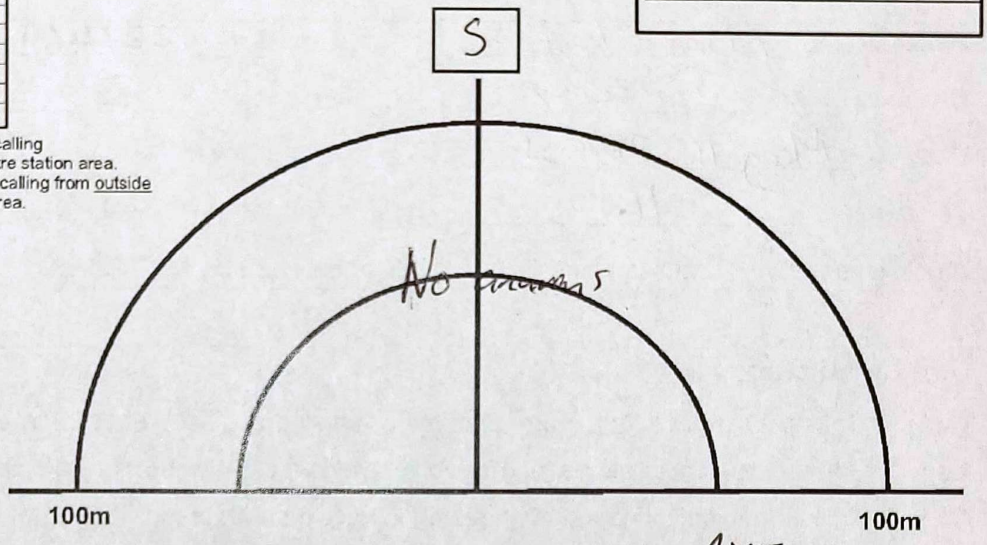


Species	In*	Out**
AMTO		✓
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

* Check if species is calling from inside 100-metre station area.
** Check if species is calling from outside 100-metre station area.

Station 2

Station Start Time (24 hr):	2207
Background Noise Code (1-4):	1
GPS Coordinates:	



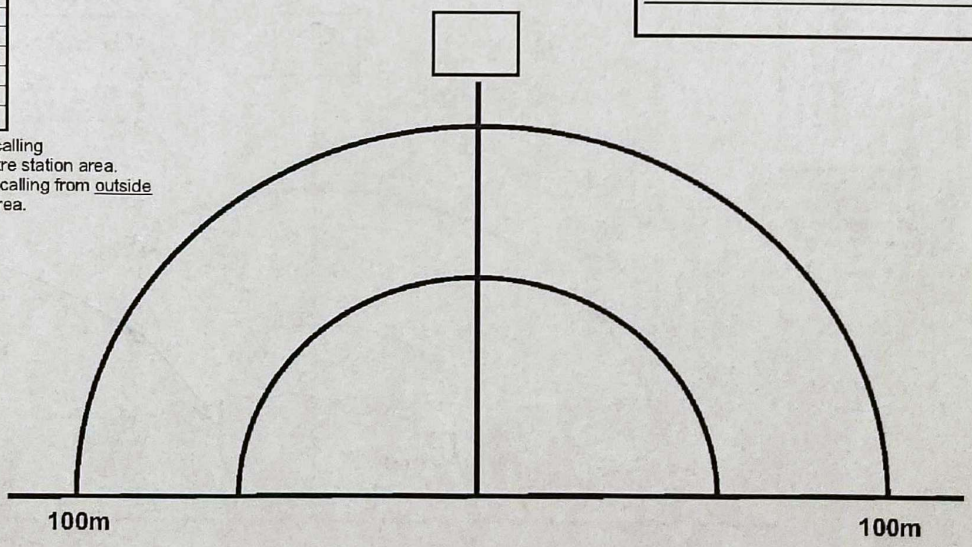
AMTO >100m

Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

* Check if species is calling from inside 100-metre station area.
** Check if species is calling from outside 100-metre station area.

Station ____

Station Start Time (24 hr):	
Background Noise Code (1-4):	
GPS Coordinates:	

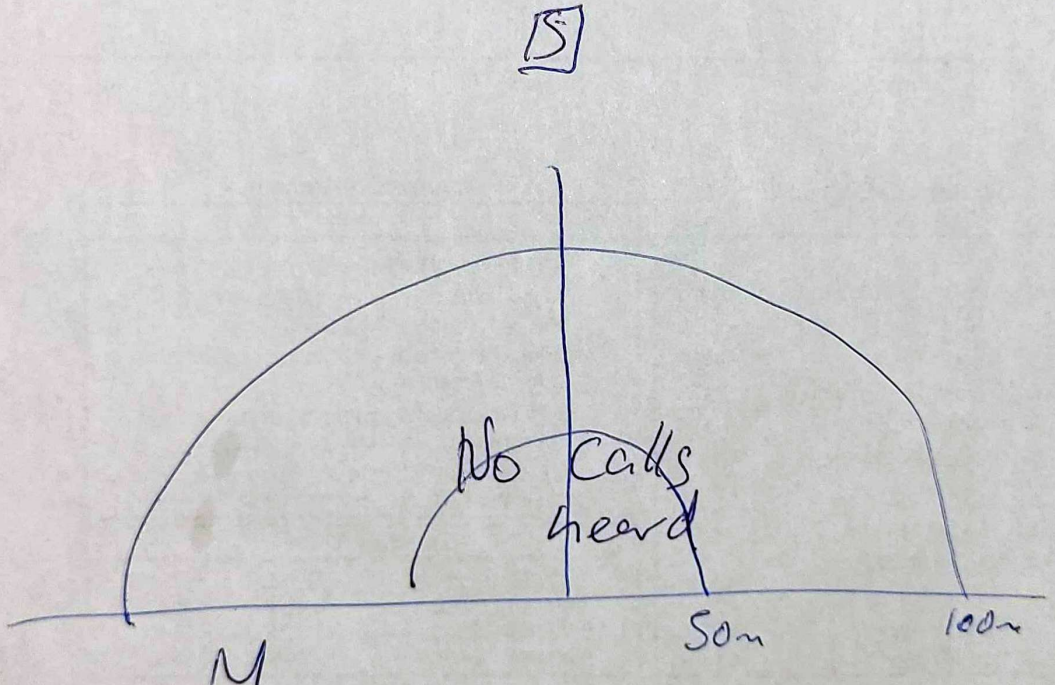


55

Projekt Elora Clayton 221469 Surveyor: J. Seery
Amphibians Round 3
Date June 27, 2023
Cloud cover 100%
Drizzle, Haze (AQ poor) ← wildfire smoke
Beaufort Wind: 2
Temperature 15°C

Station 1

Start time 2254
BG Noise 1-2



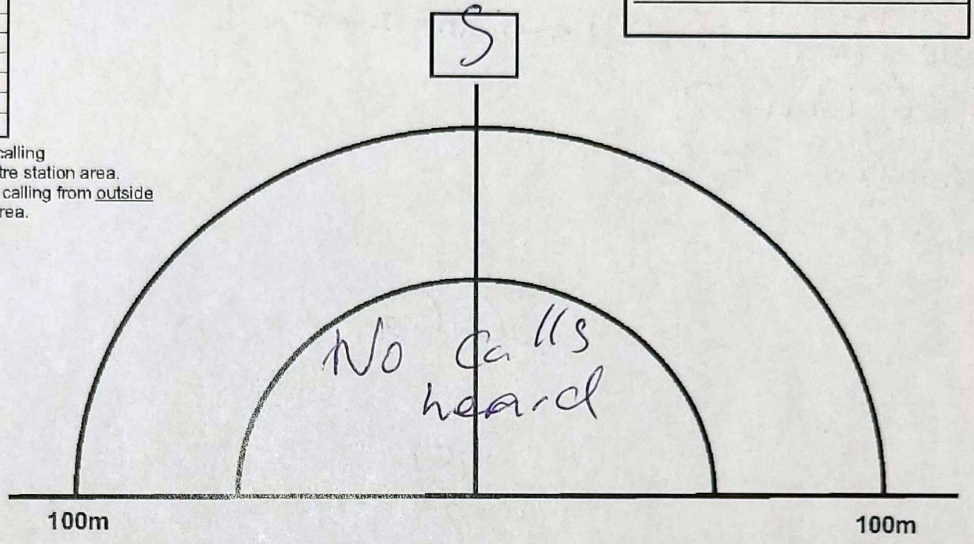
JS

Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

* Check if species is calling from inside 100-metre station area.
** Check if species is calling from outside 100-metre station area.

Station 2

Station Start Time (24 hr):	2307
Background Noise Code (1-4):	1
GPS Coordinates:	



Amphibian Species Codes

Species	Code
American Toad	AMTO
Northern (Blanchard's) Cricket Frog	BCFR
Bullfrog	BULL
Chorus Frog	CHFR
Cope's (Diploid) Gray Treefrog	CGTR
Fowler's Toad	FOTO
Gray (Tetraploid) Treefrog	GRTR
Green Frog	GRFR
Mink Frog	MIFR
Northern Leopard Frog	NLFR
Pickerel Frog	PIFR
Spring Peeper	SPPE
Wood Frog	WOFR

Background Noise Codes

Index	Description
0	No appreciable effect (e.g., owl calling)
1	Slightly affecting sampling (e.g., distant traffic, dog barking, car passing)
2	Moderately affecting sampling (e.g., distant traffic, 2-5 cars passing)
3	Seriously affecting sampling (e.g., continuous traffic nearby, 6-10 cars passing)
4	Profoundly affecting sampling (e.g., continuous traffic passing, construction noise)

24 Hour Time

12 Hour	24 Hour	12 Hour	24 Hour
7:00 PM	1900	10:00 PM	2200
8:00 PM	2000	11:00 PM	2300
9:00 PM	2100	12:00 PM	2400

Beaufort Wind Scale

Number	Wind Speed		Indicators
	Km/h	Mph	
0	0-2	0-1	**Calm**, smoke rises vertically
1	3-5	2-3	**Light air movement**, smoke drifts
2	6-11	4-7	**Slight breeze**, wind felt on face
3	12-19	8-12	**Gentle breeze**, leaves and small twigs in constant motion
4*	20-30	13-18	**Moderate breeze**, small branches are moving, raises dust and loose paper

* Winds over Beaufort 3 are unacceptable for amphibian surveys.

JS

Appendix G

Bat Habitat Assessment Data

Appendix G

Bat Habitat Assessment Data

Table G-1. Candidate Bat Maternity Roost Transect Surveys and Plot Surveys

ELC Community	Tree ID #	Plot #	Species	# of Cavities	DBH (cm)	Approx. Cavity Height (m)	Approx. Tree Height (m)	% Loose Bark	Decay Class	Canopy Cover (%)	# of Leaf Nests	Notes
CUP3-3	1	N/A	Scots Pine	1	48	0-5	10-15	1-25	5	25-50	0	
CUP3-3	2	N/A	Scots Pine	10+	38	0-5	5-10	1-25	5	25-50	0	
CUP3-3	3	N/A	Scots Pine	1	46	0-5,5-10	5-10	1-25	6	50-75	0	
CUP3-3	4	N/A	Scots Pine	1	48	0-5	5-10	1-25	4	50-75	0	
CUP3-3	5	N/A	Scots Pine	2	34	0-5	0-5	1-25	6	25-50	0	
CUW1	6	7	Trembling Aspen	0	35	0-5	0-5	1-25	3	25-50	0	
CUW1	7	10	Basswood	5	60, 50, 18, 11, 11	0-5,5-10	5-10		2	75-100	0	
CUW1	8	10	White Ash	1	28	0-5	5-10		4	< 25	0	
CUW1	9	6	Red Maple	0	44	10-15	10-15		1	75-100	0	Based on DBH
CUW1	10	9	Red Maple	0	29	10-15	10-15		1	75-100	0	Based on DBH
CUW1	11	1	Basswood	5	54, 48, 18, 35	10-15	10-15		1	75-100	1	
CUW1	12	3	Red Maple	1	26, 28, 21	0-5	10-15		1	75-100	0	
CUW1	13	2	Yellow Birch	0	44	10-15	10-15		1	75-100	1	
CUW1	14	2	White Ash	0	29	0-5,5-10	10-15	1-25	4	< 25	0	
CUW1	15	5	Crack Willow	3	58	5-10	10-15		2	75-100	0	
CUW1	16	5	Red Maple	0	28, 20, 8, 16	10-15	10-15		1	75-100	0	Based on DBH

Table G-2. Plot Density Calculations for CUW1

ELC Unit	Polygon Size (ha)	Plot #	# Snag/Cavity Trees ≥25cm DBH	Total Snag Density (# snag or cavity trees/ha)
CUW1	0.05	1	1	20.00
CUW1	0.05	2	2	40.00
CUW1	0.05	3	1	20.00
CUW1	0.05	4	0	0.00
CUW1	0.05	5	2	40.00
CUW1	0.05	6	1	20.00
CUW1	0.05	7	1	20.00
CUW1	0.05	8	0	0.00
CUW1	0.05	9	1	20.00
CUW1	0.05	10	2	40.00

Table G-3. Bat Maternity Roost Density within CUW1

ELC Unit *(Fig 1)*	Number of Sample Plots	Total # of Bat Maternity Roost Trees in Sample Plots	Area of Plot (πr^2)	Number of Sample Plots x Area	Bat Maternity Roost Density
CUW1	10	11	3.14 (12.6 m^2)^2 =500 m^2 or 0.05 ha	10 plots x 0.05 ha =0.5 ha	11 trees / 0.5 ha = 22 trees/ha

Appendix H

Significant Wildlife Habitat Screening

Appendix H

Significant Wildlife Habitat (SWH) Screening for Elora Sands and Keating Lands

Wildlife Habitat Category and Associated Species and Ecological Land Classification (ELC) Communities		Provincial Guidance for SWH in Ecoregion 6E*	Application to the Subject Properties	Candidate SWH On Subject Properties
Seasonal Concentration Areas				
1. Waterfowl Stopover and Staging Areas (Terrestrial)				
American Black Duck Wood Duck Mallard Northern Pintail Gadwall Blue-winged Teal Green-winged Teal American Wigeon Northern Shoveler	CUM1 CUT1 Plus evidence of annual spring flooding from malt water or run-off within these Ecosites.	*Suitable Habitat* • Fields with sheet water during Spring (mid-March to May) *Suggested Criteria* Studies carried out and verified presence of an annual concentration of any listed species	No suitable habitat or associated species present on the Elora Sands subject property. No suitable habitat present on the Keating subject property. Seasonal surveys in 2025 on the Keating property will be conducted and will confirm absence of the listed species.	NO
2. Waterfowl Stopover and Staging Areas (Aquatic)				
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	*Suitable Habitat* • Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration • Sewage treatment ponds and storm water ponds do not qualify as 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) *Suggested Criteria* 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 • Wetland area and shorelines associated with sites identified within the Significant Wildlife Habitat Technical Guide (SWHTG) (MNRF 2000) Appendix K are SWH	No suitable habitat or associated species present on the Elora Sands subject property. No suitable habitat present on the Keating subject property Seasonal surveys in 2025 on the Keating property will be conducted and will confirm absence of the listed species.	NO
3. Shorebird Migratory Stopover Area				
Greater Yellowlegs Lesser Yellowlegs Marbled Godwit Hudsonian Godwit Black-bellied Plover American Golden-Plover Semipalmated Plover Solitary Sandpiper Spotted Sandpiper Semipalmated Sandpiper Pectoral Sandpiper	BBO1 BBO2 BBS1 BBS2 BBT1 BBT2 SDO1 SDS2 SDT1 MAM1 MAM2	*Suitable Habitat* • Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats • Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores, are extremely important for migratory shorebirds in May to mid-June and early July to October. Sewage treatment ponds and storm water ponds do not qualify as a SWH *Suggested Criteria*	No suitable habitat or associated species present on the Elora Sands subject property. No suitable habitat present on the Keating subject property. Seasonal surveys in 2025 on the Keating property will be conducted and will confirm absence of the listed species.	NO

Wildlife Habitat Category and Associated Species and Ecological Land Classification (ELC) Communities		Provincial Guidance for SWH in Ecoregion 6E*	Application to the Subject Properties	Candidate SWH On Subject Properties
White-rumped Sandpiper Baird's Sandpiper Least Sandpiper Purple Sandpiper Stilt Sandpiper Short-billed Dowitcher Red-necked Phalarope Whimbrel Ruddy Turnstone Sanderling Dunlin	MAM3 MAM4 MAM5	• Presence of 3 or more of listed species and > 1000 shorebird use days during spring or fall migration period (shorebird use days are the accumulated number of shorebirds counted per day over the course of the fall or spring migration period) • Whimbrel stop briefly (<24hrs) during spring migration, any site with >100 Whimbrel used for 3 years or more is significant • The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100 m radius area		
4. Raptor Wintering Area				
Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl Short-eared Owl Bald Eagle	<u>Hawks/Owls:</u> 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. <u>Bald Eagle:</u> Forest Community Series: FOD, FOM, FOC, SWD, SWM, or SWC on shoreline areas adjacent to large rivers to adjacent to lakes with open water (hunting area).	*Suitable Habitat* • The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors • Raptor wintering (hawk/owl) sites need to be > 20 ha with a combination of forest and upland *Suggested Criteria* Studies confirm the use of these habitats by: • One or more Short-eared Owls or; One of more Bald Eagles or at least 10 individuals and two listed hawk/owl species • To be significant a site must be used regularly (3 in 5 years) for a minimum of 20 days by the above number of birds The habitat area for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area	No suitable habitat or associated species present on the Elora Sands subject property. No suitable habitat present on the Keating subject property. Seasonal surveys in 2025 on the Keating property will be conducted and will confirm absence of the listed species.	NO
5. Bat Hibernacula				
Big Brown Bat Tri-colored Bat	Bat Hibernacula may be in the Ecosites: CCR1 CCR2 CCA1 CCA2	*Suitable Habitat* • Hibernacula may be found in caves, mine shafts, underground foundations and Karsts *Suggested Criteria* • All sites with confirmed hibernating bats are SWH • The area includes 200m radius around the entrance of the hibernaculum for most development types and for wind farms (Note: buildings are not to be considered SWH)	No suitable habitat present on the subject properties.	NO
6. Bat Maternity Colonies				

Big Brown Bat
Silver-haired Bat
	Maternity Colonies considered for SWH are found in forested Ecosites.
	
	All ELC Ecosites in ELC Community Series:
	FOD
	FOM
	SWD
	SWM
		Suitable Habitat
		• Maternity colonies can be found in tree cavities, vegetation and often in buildings (buildings are not considered to be SWH)
		• Maternity colonies located in mature deciduous or mixed forest stands with >10/ha large diameter (>25cm dbh) wildlife trees
		• Female bats prefer wildlife tree (snags) in early stages of decay, class 1-3 or class 1 or 2
		• Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred
		
		Suggested Criteria
		• 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 the forest stand ELC ecosite or an ecoelement containing the maternity colonies
			No suitable habitat present on the Elora Sands subject property.
			
			No suitable habitat present within the proposed development footprint on the Keating subject property.
				NO

7. Turtle Wintering Areas				

Wildlife Habitat Category and Associated Species and Ecological Land Classification (ELC) Communities		Provincial Guidance for SWH in Ecoregion 6E*	Application to the Subject Properties	Candidate SWH On Subject Properties
Midland Painted Turtle 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 Turtles: Open Water areas such as deeper rivers, or streams and lakes with current can also be used as over-wintering habitat.	*Suitable 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 *Suggested Criteria* • 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	No suitable habitat or associated species present on the Elora Sands subject property. No suitable habitat present on the Keating subject property.	NO
8. Reptile Hibernaculum				
Eastern Gartersnake Northern Water Snake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake Milksnake Eastern Ribbonsnake Five-lined Skink	For all snakes, habitat may be found in any ecosite other than very wet ones. Talus, Rock Barren, Crevice, Cave and Alvar may be directly related to these habitats. Observations or congregations of snakes on sunny warm days in the spring or fall is a good indicator. For Five-lined Skink, ELC Community Series of FOD and FOM and ecosite: FOC1 and FOC3.	*Suitable Habitat* • 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 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 • 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 • For five-lined Skink, Community Series FOD and FOM, and FOC1 and FOC3 should be considered. They prefer mixed forests with rock outcrop openings with cover rock overlaying granite bedrock with fissures *Suggested Criteria* Studies confirming: • Presence of snake hibernacula used by a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. • Congregations of a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. near potential hibernacula (e.g., foundation or rocky slope) on sunny warm days in spring	No suitable habitat or associated species present on the Elora Sands subject property. No suitable habitat present on the Keating subject property.	NO
9. Colonially-Nesting Bird Breeding Habitat (Bank and Cliff)				
Cliff Swallow Northern Rough-winged Swallow (this species is not colonial but can be found in Cliff Swallow colonies)	Eroding banks, sandy hills, steep slopes and sand piles. Cliff faces, bridge abutments, silos and barns. Habitat found in the following ecosites: CUM1 CLO1 CUT1 CLS1 CUS1 CLT1 BLO1 BLS1 BLT1	*Suitable Habitat* • 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 *Suggested Criteria* Studies confirming: • Presence of 1 or more nesting sites with 8 or more cliff swallow pairs or 50 Bank Swallow and/or Rough-winged Swallow pairs during the breeding season A colony identified as SWH will include a 50m radius habitat area from the peripheral nests	No suitable habitat present on the Elora Sands subject property. One Cliff Swallow was recorded foraging over the agricultural field on the Elora Sands subject property, however it was not breeding on the property and therefore does not meet the criteria for SWH. No suitable habitat present on the Keating subject property. Seasonal surveys in 2025 on the Keating property will confirm presence or absence of the listed species.	NO
10. Colonially-Nesting Bird Breeding Habitat (Tree/Shrubs)				
Great Blue Heron Black-crowned Night-Heron Great Egret Green Heron	SWM2 SWM3 SWM5 SWM6 SWD1 SWD2	*Suitable Habitat* • Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used • Most nests in trees are 11 to 15 m from ground, near the top of the tree *Suggested Criteria*	No suitable habitat or associated species present on the Elora Sands subject property. No suitable habitat present on the Keating subject property. Seasonal surveys in 2025 on the Keating property will confirm presence or absence of the listed species.	NO

Wildlife Habitat Category and Associated Species and Ecological Land Classification (ELC) Communities		Provincial Guidance for SWH in Ecoregion 6E*	Application to the Subject Properties	Candidate SWH On Subject Properties
	SWD3 SWD4 SWD5 SWD6 SWD7 FET1	Studies confirming: • Presence of 2 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 <15.0 ha with a colony is the SWH		
11. Colonially-Nesting Bird Breeding Habitat (Ground)				
Herring Gull Great Black-backed Gull Little Gull Ring-billed Gull Common Tern Caspian Tern Brewer's Blackbird	Any rocky island to peninsula (natural or artificial) with a lake or larger river. Close proximity or watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird). MAM1-6 MAS1-3 CUM CUT CUS	*Suitable Habitat* • 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 *Suggested Criteria* 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 • Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant • Presence of 5 or more pairs for Brewer's Blackbird • 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 <3.0ha with a colony is the SWH	No suitable habitat or associated species present on the Elora Sands subject property. No suitable habitat present on the Keating subject property. Seasonal surveys in 2025 on the Keating property will confirm presence or absence of the listed species.	NO
12. Migratory Butterfly Stopover Areas				
Painted Lady Red Admiral Monarch	Combination of ELC Community Series; need to have present one Community Series from each land class: <u>Field:</u> CUM CUT CUS <u>Forest:</u> FOC FOD COM CUP A candidate site will have a history of butterflies being observed.	*Suitable Habitat* • 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 or Lake Erie • 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 *Suggested Criteria* 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 MUD of >5000 or >3000 with the presence of Painted Ladies or Red Admirals is to be considered significant	No suitable habitat or associated species present on the Elora Sands subject property. No suitable habitat present on the Keating subject property. Additionally, both subject properties are greater than 5 km from Lake Ontario or Lake Erie.	NO
13. Landbird Migratory Stopover Areas				
All migratory songbirds	All Ecosites associated with the ELC Community Series; FOC FOM FOD SWC SWM SWD	*Suitable Habitat* • Woodlots >10 ha in size and within 5 km of Lake Ontario and Lake Erie • If multiple woodlands are located along the shoreline those Woodlands <2 km from Lake Erie or 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 *Suggested Criteria* Studies confirm: • Use of the woodlot by >200 birds/day and with >35 species with at least 10 bird spp. recorded on at least 5 different survey dates	No suitable habitat present on the subject properties and distance to Lake Ontario and Lake Erie is farther than 5 km.	NO

Wildlife Habitat Category and Associated Species and Ecological Land Classification (ELC) Communities		Provincial Guidance for SWH in Ecoregion 6E*	Application to the Subject Properties	Candidate SWH On Subject Properties
		This abundance and diversity of migrant bird species is considered above average and significant		
14. Deer Yarding Areas				
White-tailed Deer	*Note: MNRF to determine this habitat.* ELC Community Series providing a thermal cover component for a deer yard would include: FOD, FOC, SWM and SWC. Or ELC Ecosites: CUP2, CUP3, FOD3 and CUT	*Suitable Habitat* • Deer yarding areas or winter concentration areas (yards) are areas deer move to in response to the onset of winter snow and cold. Deer establish traditional use areas with two areas called Stratum I and Stratum II • Stratum II covers entire winter yard and is usually in FOD or FOM (or agricultural lands) where browsing can occur. Deer move here in early winter, and will continue to stay here until snow depths reach about 30 cm. • Stratum I is the core of a deer yard, and is found within the Stratum II, and is critical for deer survival in areas where winter is severe. It is primarily coniferous trees with a canopy cover of at least 60% *Suggested Criteria* Studies confirm: • Snow depth and temperature or the greatest influence on deer use of winter yards. Snow depths of >40 cm for more than 60 days are minimum criteria for a deer yard to be considered as SWH • Deer management is an MNRF responsibility, and they field investigations (by aircraft over a series of winters to establish boundaries of Stratum I and II. Deer yarding areas considered significant will be mapped by MNRF If SWH is determined for deer wintering area or if a proposed development is within Stratum II yard areas, then movement corridors are to be considered	No suitable habitat identified on the subject properties by MNRF.	NO
15. Deer Winter Congregation Areas				
White-tailed Deer	All Forested Ecosites with these ELC Community Series: FOC FOM FOD SWC SWM SWD Conifer Plantations much smaller than 50 ha may also be used.	*Suitable Habitat* • Woodlots >100 ha in size. Woodlots <100 ha may be considered significant based on MNRF studies or assessment • Deer movement during winter in Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands • Large woodlots > 100 ha 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 *Suggested Criteria* Studies confirm: • Deer management is an MNRF responsibility, deer winter congregation areas considered significant will be mapped by MNRF • Use of the woodlot by white-tailed deer will be determined by MNRF, all woodlots exceeding the area criteria are significant, unless determined not to be significant by MNRF If SWH is determined for deer wintering area or if a proposed development is within Stratum II yard areas, then movement corridors are to be considered	No suitable habitat identified on the subject properties by MNRF.	NO
Rare Vegetation Communities				
16. Cliffs and Talus Slopes				
ELC Communities: TAO, TAS, TAT, CLO, CLS, CLT		• A Cliff is vertical to near vertical bedrock >3m in height • A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris • Most cliff and talus slopes occur along the Niagara Escarpment	Does not occur on the subject properties.	NO
17. Sand Barren				
ELC Communities: SBO1, SBS1, BT1		• Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion • Usually located within other types of natural habitat such as forest or savannah • Vegetation can vary from patchy and barren to tree covered but less than 60%	Does not occur on the subject properties.	NO

Wildlife Habitat Category and Associated Species and Ecological Land Classification (ELC) Communities	Provincial Guidance for SWH in Ecoregion 6E*	Application to the Subject Properties	Candidate SWH On Subject Properties
	Suggested Criteria • A sand barren area >0.5ha in size • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics).		
18. Alvar			
Field studies identify four of the five Alvar indicator species within ELC communities: ALO1, ALS, ALT1, FOC1, FOC2, CUM2, CUS2, CUT2-1, CUW2	• 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 • Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animal species • Vegetation cover varies from patchy to barren with a less than 60% tree cover *Suggested Criteria* • An Alvar site > 0.5 ha in size • Five indicator species specific to alvars within Ecoregion 6E: 1) Carex crawei 2) Panicum philadelphicum 3) Eleocharis compressa 4) Scutellaria parvula 5) Trichostema brachiatum • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics) • The Alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses	Does not occur on the subject properties.	NO
19. Old Growth Forest			
ELC Communities: 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 *Suggested Criteria* • Woodland area is >30 ha with at least 10 ha of interior habitat • If dominant trees species of the ecosite are >140 years old, then stand is SWH • The forested area containing the old growth characteristics will have experienced no recognizable forestry activities (cut stumps will not be present) • The area of forest ecosites combined or an eco-element within an ecosite that contain the old growth characteristics is the SWH	Does not occur on the subject properties.	NO
20. Savannah			
ELC Communities: TPS1 TPS2 TPW1 TPW2 CUS2	• A Savannah is a tallgrass prairie habitat that has tree cover between 25 – 60% *Suggested Criteria* • 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 • Field studies confirm one or more of the Prairie indicator species listed in Appendix N should be present. Note: Savannah plant spp. list from Ecoregion 6E should be used • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics)	Does not occur on the subject properties.	NO
21. Tallgrass Prairie			
ELC Communities: TPO1 TPO2	• A Tallgrass Prairie has ground cover dominated by prairie grasses. An open Tallgrass Prairie habitat has < 25% tree cover • In ecoregion 6E, known Tallgrass Prairie and savannah remnants are scattered between Lake Huron and Lake Erie, near Lake St. Clair, north of and along the Lake Erie shoreline, in Brantford and in the Toronto area (north of Lake Ontario) *Suggested Criteria* • 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	Does not occur on the subject properties.	NO

Wildlife Habitat Category and Associated Species and Ecological Land Classification (ELC) Communities		Provincial Guidance for SWH in Ecoregion 6E*	Application to the Subject Properties	Candidate SWH On Subject Properties
		• ELC communities TPO1, TPO2 • Field studies confirm one or more of the Prairie indicator species listed in Appendix N in SWHTG (MNRF 2000) should be present. Prairie plant spp. list from Ecoregion 6E should be used • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics)		
22. Other Rare Vegetation Communities				
		• Provincially Rare S1, S2 and S3 vegetation communities are listed in Appendix M of the SWHTG (MNRF 2000) • Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps • ELC Ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in SWHTG (MNRF 2000) Appendix M • The MNRF/NHIC will have up to date listing for rare vegetation communities	Does not occur on the subject properties.	NO
Specialized Habitat for Species				
23. Waterfowl Nesting Area				
American Black Duck Northern Pintail Northern Shoveler Gadwall Blue-winged Teal Green-winged Teal Wood Duck Hooded Merganser Mallard	All upland habitats located adjacent to these wetland ELC Ecosites are Candidate SWH: MAS1, MAS2, MAS3 SAS1, SAM1, SAF1 MAM1, MAM2, MAM3, MAM4, MAM5, MAM6 SWT1, SWT2, SWD1, SWD2, SWD3, SWD4 Note: Includes adjacency to Provincially Significant Wetlands	*Suitable Habitat* • A waterfowl nesting area extends 120 m from a wetland (> 0.5 ha) or a wetland (>0.5 ha) with small wetlands (<0.5ha) within 120m or a cluster of 3 or more small (<0.5 ha) wetlands within 120 m of each individual wetland where waterfowl nesting is known to occur • Upland areas should be at least 120m wide so that predators such as racoons, skunks, and foxes have difficulty finding nests *Suggested Criteria* Studies confirm: • 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 Wood Ducks and Hooded Mergansers utilize large diameter trees (>40 cm dbh) in woodlands for cavity nest sites	No suitable habitat or associated breeding species present on the Elora Sands subject property. No suitable habitat present on the Keating subject property. Seasonal surveys in 2025 on the Keating property will confirm presence or absence of the listed species.	NO
24. Bald Eagle and Osprey Nesting, Foraging and Perching Habitat				
Osprey Bald Eagle	ELC Forest Community Series: FOD, FOM, FOC, SWD, SWM, SWC directly adjacent to riparian areas - rivers, lakes, ponds and wetlands.	*Suitable Habitat* • 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) *Suggested Criteria Studies confirm the use of these nests by:* • One or more active Osprey or Bald Eagle nests in an area • Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the SWH • For an Osprey, the active nest and a 300 m radius around the nest or the contiguous woodland stand is the SWH ccvii, maintaining undisturbed shorelines with large trees within this area is important • For a Bald Eagle the active nest and a 400-800 m radius around the nest is the SWH. Area of the habitat from 400-800m is dependent on site lines from the nest to the development and inclusion of perching and foraging habitat To be significant a site must be used annually. When found inactive, the site must be known to be inactive for >3 years or suspected of not being used for >5 years before being considered not significant	No suitable habitat or associated species present on the Elora Sands subject property. No suitable habitat present on the Keating subject property. Seasonal surveys in 2025 on the Keating property will confirm presence or absence of the listed species.	NO

Wildlife Habitat Category and Associated Species and Ecological Land Classification (ELC) Communities		Provincial Guidance for SWH in Ecoregion 6E*	Application to the Subject Properties	Candidate SWH On Subject Properties
25. Woodland Raptor Nesting Habitat				
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 CUP3	*Suitable Habitat* • All natural or conifer plantation woodland/forest stands combined >30ha or with >4 ha of interior habitat; interior habitat determined with a 200 m buffer • Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests within tops or crotches of trees. Species such as Coopers hawk nest along forest edges sometimes on peninsulas or small off-shore island • In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest *Suggested Criteria* Studies confirm: • Presence of 1 or more active nests from species list is considered significant • Red-shouldered Hawk and Northern Goshawk – a 400m radius around the nest or 28 ha of suitable habitat is the SWH. (the 28 ha habitat area would be applied where optimal habitat is irregularly shaped around the nest) • Barred Owl – a 200m radius around the nest is the SWH • Broad-winged Hawk and Coopers Hawk,– a 100m radius around the nest is the SWH Sharp-Shinned Hawk – a 50m radius around the nest is the SWH	No suitable habitat or associated species present on the Elora Sands subject property. The CUP3 present on the Elora Sands property is very small and does not fit the criteria for size listed here. No suitable habitat present on the Keating subject property – the FOD7 in the southwestern portion of the property and the off-site woodland to the south do not meet the size criteria listed here. Seasonal surveys in 2025 on the Keating property will confirm presence or absence of the listed species.	NO
26. Turtle Nesting Areas				
Midland Painted Turtle Northern Map Turtle Snapping Turtle	Exposed mineral soil (sand or gravel) areas adjacent (<100 m) to within the following Ecosites: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 BOO1 FEO1	*Suitable Habitat* • 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 • *Suggested Criteria* Studies confirm: • Presence of 5 or more nesting Midland Painted Turtles • One or more Northern Map Turtle or Snapping Turtle nesting • The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100m around the nesting area dependant on slope, riparian vegetation and adjacent land use is the SWH Travel routes from wetland to nesting area are to be considered within the SWH	No suitable habitat or associated species present on the Elora Sands subject property. No suitable habitat present on the Keating subject property.	NO
27. Seeps and Springs				
Wild Turkey Ruffed Grouse Spruce Grouse White-tailed Deer Salamander spp.	Seeps and springs are areas where ground water comes to the surface. Often, they are found within headwater areas within forested habitats. Any forested Ecosite within headwater areas of a stream could have seeps/springs.	*Suitable Habitat* • Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream or river system (could contain a seep or spring - areas where ground water comes to the surface) • Seeps and springs are important feeding and drinking areas especially in the winter will typically support a variety of plant and animal species • The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation the habitat *Suggested Criteria* Studies confirm: • Presence of a site with 2 or more seeps/springs should be considered SWH The area of an ELC forest ecosite containing the seeps/springs is the SWH	No suitable habitat or associated species present on the Elora Sands subject property. No suitable habitat present on the Keating subject property. Seasonal surveys in 2025 on the Keating property will confirm presence or absence of the listed species.	NO

Wildlife Habitat Category and Associated Species and Ecological Land Classification (ELC) Communities		Provincial Guidance for SWH in Ecoregion 6E*	Application to the Subject Properties	Candidate SWH On Subject Properties
28. Amphibian Breeding Habitat (Woodland)				
Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog	All Ecosites associated within these ELC Community Series: FOC, FOM, FOD, SWC, SWM, SWD Breeding pools within the woodland or the shortest distance from the forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians.	*Suitable Habitat* • Presence of a wetland, pond, or woodland pool 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 *Suggested Criteria* Studies confirm: Presence of breeding population of 1 or more of the listed salamander species or 2 or more of the listed frog species with at least 20 individuals (adults, juveniles, eggs/larval masses) or 2 or more of the listed frog species with Call Level Codes of 3	No suitable habitat or associated species present on the Elora Sands subject property. No suitable habitat present on the Keating subject property. Seasonal surveys in 2025 on the Keating property will confirm presence or absence of the listed species.	NO
29. Amphibian Breeding Habitat (Wetland)				
Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	Classes SW, MA, FE, BO, OA and SA. Typically, these wetland Ecosites will be isolated >120 m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (e.g. Bullfrog) may be adjacent to woodland.	*Suitable Habitat* • Wetlands >500 m2 (about 25 m 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 *Suggested Criteria* Studies confirm: • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog or toad species and with at least 20 individuals (adults, juveniles, eggs/larval masses) or 2 or more of the listed frog species with Call Level Codes of 3 The ELC ecosite wetland area and the shoreline are the SWH	No suitable habitat or associated species present on the Elora Sands subject property. The MAM2-2 wetland on the Elora Sands subject property is small (<500 m^2) and is not isolated from a woodland ecosite (it is adjacent to the CUP3-3). No suitable habitat present on the Keating subject property. The SWT ecosites are small (<500 m^2) and not isolated from a woodland ecosite (they are immediately adjacent to the FOD7). Seasonal surveys in 2025 on the Keating property will confirm presence or absence of the listed species.	NO
30. Woodland Area-Sensitive Bird Breeding Habitat				
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 Cerulean Warbler Canada Warbler	All Ecosites associated with these ELC Community Series: FOC FOM FOD SWC SWM SWD	*Suitable Habitat* • Habitats where interior forest breeding birds are breeding • Typically large mature (>60 yrs old) forest stands or woodlots >30 ha • Interior forest habitat is at least 200 m from forest edge habitat *Suggested Criteria* Studies confirm: • Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. Any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH	No suitable habitat or associated species present on the Elora Sands subject property. No suitable habitat present on the Keating subject property. Seasonal surveys in 2025 on the Keating property will confirm presence or absence of the listed species.	NO

Wildlife Habitat Category and Associated Species and Ecological Land Classification (ELC) Communities		Provincial Guidance for SWH in Ecoregion 6E*	Application to the Subject Properties	Candidate SWH On Subject Properties
Habitat for Species of Conservation Concern				
31. Marsh Bird Breeding Habitat				
American Bittern Virginia Rail Sora Common Moorhen American Coot Pied-billed Grebe Marsh Wren Sedge Wren Common Loon Sandhill Crane Green Heron Trumpeter Swan Black Tern Yellow Rail	MAM 1 MAM2 MAM3 MAM4 MAM5 MAM6 SAS1 SAM1 SAF1 FEO1 BOO1 For Green Heron: All SW, MA and CUM1 sites.	*Suitable Habitat* • Nesting occurs in wetlands • All wetland habitat is to be considered as long as there is shallow water with emergent aquatic vegetation present • For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently, it may be found in upland shrubs or forest a considerable distance from water *Suggested Criteria* Studies confirm: • Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or breeding by any combination of 4 or more of the listed species • Note: any wetland with breeding of 1 or more Trumpeter Swans, Black Terns or Yellow Rail is SWH • Area of the ELC ecosite is the SWH	Minimally suitable habitat is present on the Elora Sands and Keating subject properties. No associated species present on the Elora Sands subject property. Seasonal surveys in 2025 on the Keating property will confirm presence or absence of the listed species.	NO
32. Open Country Bird Breeding Habitat				
Upland Sandpiper Grasshopper Sparrow Vesper Sparrow Northern Harrier Savannah Sparrow Short-eared Owl	CUM1 CUM2	*Suitable Habitat* • Large grassland areas (includes natural and cultural fields and meadows) >30 ha • Grasslands not Class 1 or 2 agricultural lands, and not being actively used for farming (i.e. no row cropping or intensive hay or livestock pasturing in the last 5 years) • Grassland sites considered significant should have a history of longevity, either abandoned fields, mature hayfields and pasturelands that are at least 5 years or older • The Indicator bird species are area sensitive requiring larger grassland areas than the common grassland species *Suggested Criteria* Field Studies confirm: • Presence of nesting or breeding of 2 or more of the listed species • A field with 1 or more breeding Short-eared Owls is to be considered SWH. The area of SWH is the contiguous ELC ecosite field areas	No suitable habitat is present on the subject properties. Although six pairs of Savannah Sparrow were recorded breeding on the Elora Sands subject property, they were recorded within the active agricultural fields and the small CUM1 ecosites on the Elora Sands subject property do not meet the size criteria for SWH. Seasonal surveys in 2025 on the Keating property will confirm presence or absence of the listed species.	NO
33. Shrub/Early Successional Bird Breeding Habitat				
<u>Indicator Species</u>: Brown Thrasher Clay-coloured Sparrow <u>Common Species:</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.	*Suitable Habitat* • Large natural field areas succeeding to shrub and thicket habitats >10ha in size. Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (i.e. no row-cropping, haying or live-stock pasturing in the last 5 years) • Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species • Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands *Suggested Criteria* Field Studies confirm: • Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species • A habitat with breeding Yellow-breasted Chat or Golden-winged Warbler is to be considered as Significant Wildlife Habitat The area of the SWH is the contiguous ELC ecosite field/thicket area	No suitable habitat is present on the subject properties. The small CUT1 and CUW1 that overlap between both subject properties do not meet the size criteria for SWH. No associated species present on the Elora Sands subject property. Seasonal surveys in 2025 on the Keating property will confirm presence or absence of the listed species.	NO

Wildlife Habitat Category and Associated Species and Ecological Land Classification (ELC) Communities		Provincial Guidance for SWH in Ecoregion 6E*	Application to the Subject Properties	Candidate SWH On Subject Properties
34. Terrestrial Crayfish				
Chimney or Digger Crayfish (*Fallicambarus fodiens*) Devil Crawfish or Meadow Crayfish (*Cambarus Diogenes*)	MAM1, MAM2, MAM3, MAM4, MAM5, MAM6 MAS1, MAS2, MAS3 SWD, SWT, SWM CUM1 within inclusions of above meadow marsh or swamp ecosites can be used by terrestrial crayfish.	*Suitable Habitat* • 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 *Suggested Criteria* Studies Confirm: • Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable marsh meadow or terrestrial sites Area of ELC Ecosite polygon is the SWH	No evidence of Terrestrial Crayfish was documented during field studies on the Elora Sands property. Seasonal surveys in 2025 on the Keating property will confirm presence or absence of the listed species.	NO
35. Special Concern and Rare Wildlife Species				
		• All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species • When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or provincially rare species • Linking candidate habitat on the site needs to be completed to ELC Ecosites *Suggested Criteria* 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 • Habitat form and function needs to be assessed from the assessment of ELC vegetation types and an area of significant habitat that protects the rare or special concern species identified • The area of the habitat to the finest ELC scale that protects the habitat form and function is the SWH; this must be delineated through detailed field studies • The habitat needs be easily mapped and cover an important life stage component for a species (e.g. specific nesting habitat or foraging habitat)	The following special concern species were identified during the background review: Wood Thrush (*Hylocichla mustelina*) and Snapping Turtle (*Chelydra serpentina*). Neither of these species were recorded during previous field investigations on the Elora Sands property. Seasonal surveys in 2025 on the Keating property will confirm presence or absence of the listed species. Barn Swallow (*Hirundo rustica*), a special concern species, was also identified during the background review. This species was recorded entering and exiting the barn on the Elora Sands property during the 2023 breeding bird surveys. During the November 28, 2024 site visit, the barn on the Elora Sands property was searched and at least 11 Barn Swallow nests were recorded within the barn. As human-made structures are exempt from being designated as SWH in most cases and no thresholds have been provided for SWH by the Township or County, this barn is not considered SWH for Barn Swallow. Seasonal breeding bird surveys in 2025 on the Keating property will confirm presence or absence of Barn Swallow on that property.	NO
Animal Movement Corridors				
36. Amphibian Movement Corridors				
Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog		• Amphibian movement corridors should only be identified as SWH where a confirmed or Candidate SWH has been identified by MNRF or the planning authority • Movement corridors between breeding habitat and summer habitat • Movement corridors must be considered when amphibian breeding habitat is confirmed as SWH • Field Studies must be conducted at the time of year when species are expected to be migrating or entering breeding sites • Corridors should consist of native vegetation, with several layers of vegetation • Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant • Corridors should be at least 15 m of vegetation on both sides of waterway or be up to 200 m wide of woodland habitat and with gaps <20 m • Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat	Amphibian breeding habitat (woodland and wetland) was not a Candidate SWH type found on either of the subject properties.	NO
37. Deer Movement Corridors				
White-tailed Deer		• Deer movement corridors should only be identified as SWH where a confirmed or Candidate SWH has been identified by MNRF or the planning authority • Corridors follow riparian areas, woodlots, areas of physical geography (ravines or ridges) • Field Studies must be conducted at the time of year when species are expected to be migrating or moving to and from winter concentration areas • Corridors that lead deer to wintering habitat should be unbroken by roads or residential areas	No deer movement corridors meeting the SWH criteria have been identified by MNRF to date on either of the subject properties.	NO

Wildlife Habitat Category and Associated Species and Ecological Land Classification (ELC) Communities	Provincial Guidance for SWH in Ecoregion 6E*	Application to the Subject Properties	Candidate SWH On Subject Properties
	• Corridors should be at least 200 m wide with gaps less than 20 m, and if following a riparian area, there must be at least 15 m of vegetation on both sides of the waterway		

* Adapted from the listed species and habitat criteria provided in the Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (MNRF 2015) but updated to reflect any relevant changes in species status. For example, Tri-colored Bat (*Perimyotis subflavus*) is now listed as Endangered so needs to be addressed as a Species at Risk under the Endangered Species Act (2007) and not under SWH.