BEACON ENVIRONMENTAL

GUIDING SOLUTIONS IN THE NATURAL ENVIRONMENT

Scoped Environmental Impact Study Addendum

613 Helena Street

Town of Fort Erie

Prepared For:

Fourwalls Inc.

Prepared By:

Beacon Environmental Limited

Date: *Project:*

November 2022 **220024**

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1. Introduction

Beacon Environmental Limited (Beacon) was retained to prepare a scoped Environmental Impact Study (EIS) Addendum for a draft plan of subdivision for a property located at 613 Helena Street in the Town of Fort Erie. The location of the subject property is illustrated in **Figure 1**.

The subject property is 8 ha in area. Approximately 60% of the subject property is used for agricultural purposes. The remaining area to the west consists of thicket and successional swamp that have regenerated on former agricultural lands. The thicket and swamp features have been designated Environmental Conservation Area (ECA) in the Niagara Region Official Plan. The Kraft Drain Provincially Significant Wetland (PSW) surrounds the subject property and overlaps with the northeast corner of the site. The PSW is designated Environmental Protection Area (EPA) in the Region's Official Plan.

An EIS is required to support applications for development and site alteration within or adjacent to EPA or ECA features. An EIS was previously prepared for the property by Colville Consulting (July 2017) and was submitted to and reviewed by Niagara Region. The Region provided comments on that EIS on January 18, 2019. In February 2020, Beacon was retained to prepare an EIS Addendum to address the Region's outstanding comments.

The requirements for this EIS Addendum were scoped in consultation with the Region. The scope of the EIS is outlined in Terms of Reference which have been appended to this report along with agency correspondence (**Appendix A**).

Key tasks to be completed for to address Regions' comments include:

- Confirmation of natural feature limits through Ecological Land Classification (ELC) and woodland dripline staking;
- An assessment of Significant Wildlife Habitat (SWH);
- An assessment of impacts to the natural heritage features resulting from the proposed development; and
- Mitigation measures to avoid, minimize, or off-set potential impacts, including buffer recommendations and restoration/enhancement opportunities.

In addition to the key tasks noted above, the Region also requested the following additional items be addressed:

- Assessment of existing farm buildings for barn swallow and endangered bats;
- Preparation of a transplanting plan to relocate locally significant or rare plants impacted by the development; and
- A water balance analysis to demonstrate no hydrologic and/or ecological impacts to the surrounding PSW.

Through discussions with Regional staff, it was agreed that these additional items could be addressed through a subsequent addendum letter report at the detailed design stage as a conditions of Draft Plan approval.

2. Policy Context

The following sections provides of summary of the provincial and municipal natural heritage policies for this assessment.

2.1 *Endangered Species Act* (2007)

Ontario's *Endangered Species Act,* (2007, 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). Under the 2008 ESA over 200 species in Ontario are identified as extirpated, endangered, threatened, or of special concern.

The purpose of the ESA is :

- 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.

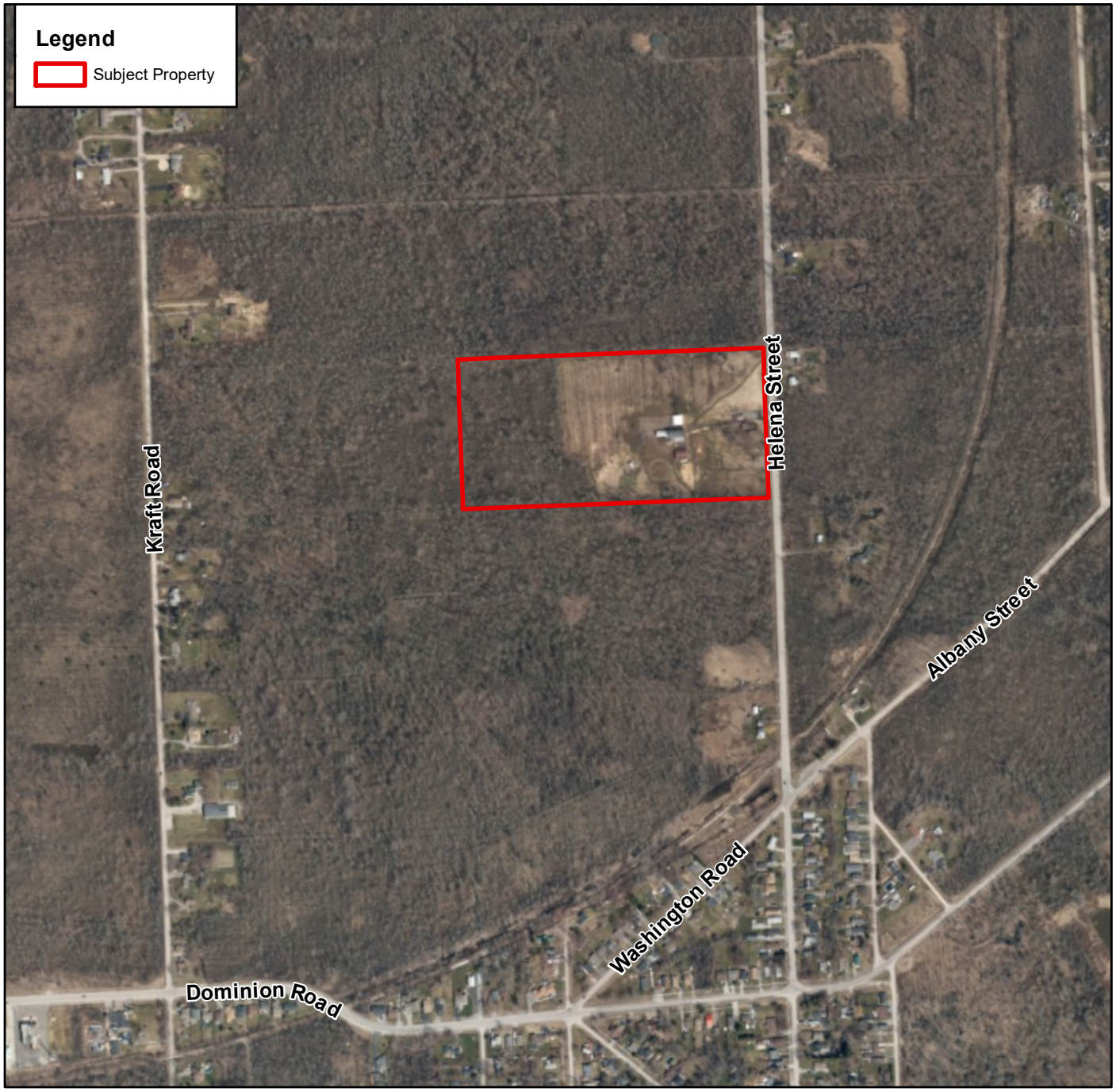
Endangered or threatened species and their habitats receive protection under the regulations of the ESA. Specifically, Section 9 of the ESA prohibits the killing, harming, harassing, possession, collection, buying and selling of extirpated, endangered, and threatened species on the Species at Risk in 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.

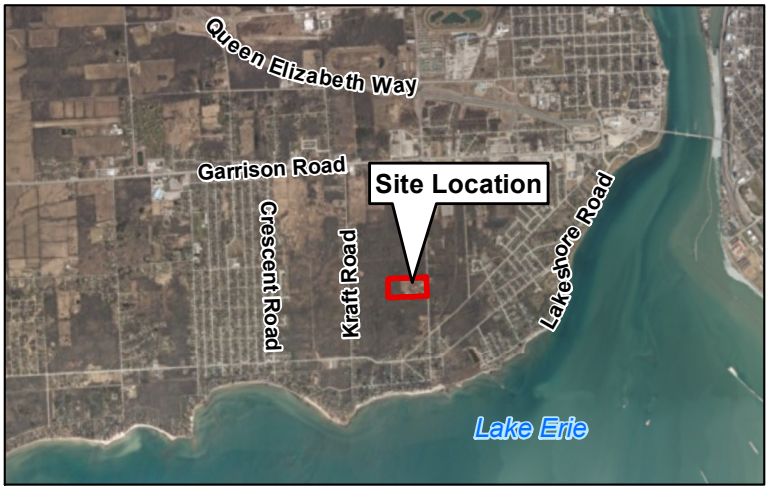
Authorization from MECP is required under the ESA for any works proposed within the habitat of a threatened or endangered species. Searches for these species require seasonal field work and, in some cases, even if the species are found to be present, certain exemptions or a permit process may be available.

2.2 Provincial Policy Statement (2020)

The Provincial Policy Statement (PPS) (MMAH 2020) provides policy direction to municipalities on matters of provincial interest as they relate to land use planning and development. The PPS provides for appropriate land use planning and development while protecting Ontario's natural heritage. Development governed by the *Planning Act* must be consistent with the policy statements issued under the PPS. These are outlined in Section 2.1 - Natural Heritage, Section 2.2 – Water, and Section 3.1 - Natural Hazards of the PPS, and relevant sections from each are provided in the following pages.

The PPS includes policies that speak to the identification and protection of natural heritage systems, as well as levels of protection for the various components that comprise such systems. Some of these features are present in the Study Area and must be assessed in the context of these policies.





Site Location	Figure 1
613 Helena Road, Fort Erie	
BEACON ENVIRONMENTAL	Project: 220024 Last Revised: June 2020
Client: Niagara Region	Prepared by: BD Checked by: DW
N 1:8,000	Inset Map:1:80,000

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The policies specific to natural heritage are found in Section 2.1 of the PPS and are provided in their entirety below:

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

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

2.1.3 Natural heritage systems shall be identified in Ecoregions 6E & 7E, recognizing that natural heritage systems will vary in size and form in settlement areas, rural areas, and prime agricultural areas.

2.1.4. Development and site alteration shall not be permitted in:

- *a. Significant wetlands in Ecoregions 5E, 6E and 7E; and*
- *b. Significant coastal wetlands.*

2.1.5 Development and site alteration shall not be permitted in:

- *a. Significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E;*
- *b. Significant woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);*
- *c. Significant valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);*
- *d. Significant wildlife habitat;*
- *e. Significant areas of natural and scientific interest; and*
- *f. Coastal wetlands in Ecoregions 5E, 6E and 7E that are not subject to policy 2.1.4(b).*

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

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

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

2.1.8 Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 2.1.4, 2.1.5 and 2.1.6 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions.

2.1.9 Nothing in policy 2.1 is intended to limit the ability of agricultural uses to continue.

In terms of implementation, identification of the various natural heritage features noted above is a responsibility shared by the MECP, Ministry of Natural Resources and Forestry (MNRF) and the municipal planning authority. The MECP is responsible for the confirmation of habitat of endangered species and threatened species, and for its regulation (under the Act as described above). The MNRF is responsible for the identification of Provincially Significant Wetlands (PSWs) and Areas of Natural and Scientific Interest (ANSIs). Local and regional planning authorities are responsible for the

identification of Significant Woodlands, Significant Valleylands, and Significant Wildlife Habitat, with support from applicable guidance documents (i.e., Natural Heritage Reference Manual, OMNR 2010; Significant Wildlife Habitat Technical Guidelines, OMNR 2000; Significant Wildlife Habitat Criteria for Ecoregion 6E or 7E, MNRF 2015). Local and regional planning authorities in southern Ontario also typically work with their local conservation authority to identify and confirm non-PSWs that may have significance at the local or regional level. As described in **Section 2.1** above, 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 DFO.

In areas where significant natural heritage features have been identified by the appropriate agency or planning authority, the boundaries of such features can typically be refined through site-specific studies undertaken as part of the planning process, with input from the responsible agency and/or planning authority.

2.3 Niagara Region Official Plan (2014)

Land use policies with respect to natural heritage are provided in *Section 7-Natural Environment* in the Niagara Region Official Plan.

The Core Natural Heritage System

The Core Natural Heritage System contains environmental features and functions of special importance to the character of the Niagara community and to its ecological health and integrity.

According to Policy 7.B.1.1:

> *The Core Natural Heritage System consists of:*
>
> a. *Core Natural Areas, classified as either Environmental Protection Areas or Environmental Conservation Areas;*
> b. *Potential Natural Heritage Corridors connecting the Core Natural Areas;*
> c. *The Greenbelt Natural Heritage and Water Resources Systems; and*
> d. *Fish Habitat.*
>
> *The System generally is shown on Schedule C, which provides an overall indication of provincially and regionally significant natural features and provides the framework for natural heritage planning and development review in Niagara… Natural heritage features may be further defined through future studies…*

Environmental Protection Area (EPA)

Outside of the Greenbelt Natural Heritage System, Environmental Protection Areas include provincially significant wetlands; provincially significant Life Science Areas of Natural and Scientific Interest (ANSIs); and significant habitat of endangered and threatened species (Policy 7.B.1.3).

Policy 7.B.1.10 states that development and site alteration is not permitted within EPA lands, with the exception of a) forest, fish and wildlife management; b) conservation and flood or erosion control projects where it has been demonstrated that they are necessary in the public interest and other alternatives are not available; and c) small scale, passive recreational uses and accessory uses such as trails, boardwalks, footbridges, fences, docks and picnic facilities that will have no significant negative impact on natural features or ecological functions of the Core Natural Heritage System.

Policy 7.B.1.11 states that development and site alteration may be permitted without an amendment to this Plan on adjacent lands to Environmental Protection as set out in Table 7-1 except for those lands within vegetation protection zones associated with Environmental Protection Areas in the Greenbelt Natural Heritage System. The subject property is not located within the Greenbelt area.

If it has been demonstrated that, over the long term, there will be no significant negative impact on the Core Natural Heritage System component or adjacent lands and the proposed development or site alteration is not prohibited by other Policies in this Plan. The proponent shall be required to prepare an Environmental Impact Study (EIS). Development on adjacent lands, for example, within 120 m of a PSW, an ANSI or significant habitat of threatened or endangered species, can be permitted if supported by the findings of an Environmental Impact Study (EIS) that there will be no negative impact on the feature or its ecological function.

Environmental Conservation Area (ECA)

According to Policy 7.B.1.4, Environmental Conservation Areas include, significant woodlands; significant wildlife habitat; significant habitat of species of concern; regionally significant Life Science ANSIs; other evaluated wetlands; significant valleylands; savannahs and tallgrass prairies; and alvars; and publicly owned conservation lands.

Policy 7.B.1.11 states that development and site alteration may be permitted within ECA lands and their adjacent lands if it has been demonstrated that, over the long term, there will be no significant negative impact on the Core Natural Heritage System component or adjacent lands and the proposed development or site alteration is not prohibited by other policies in the Plan. Adjacent lands for an ECA feature such as a Significant Woodland or Significant Wildlife Habitat is 50 m.

Policy 7.B.1.18 states that:

> *Where development or site alteration is approved in or adjacent to the Core Natural Heritage System new lots thus created shall not extend into either the area to be retained in a natural state as part of the Core Natural Heritage System or the buffer zone identified through an Environmental Impact Study.*

Key Hydrologic Features

Policy 7.B.1.6 defines Key Hydrologic Features as permanent and intermittent streams, lakes and their littoral zones, seepage areas, springs and wetlands.

Fish Habitat

Policy 7.B.1.15 states that:

> D*evelopment and site alteration may be permitted within fish habitat and on adjacent lands if it will result in no net loss of the productive capacity of fish habitat as determined by the Department of Fisheries and Oceans. A naturally vegetated buffer zone, a minimum 30 metres in width, measured from the stable top of bank is generally required for lands adjacent to Critical Fish Habitat. A minimum 15 metre buffer from the stable top of bank is required for lands adjacent to Important or Marginal Fish Habitat. A narrower buffer may be considered where the EIS has demonstrated that it will not harm fish or fish habitat, but in no case shall the buffer adjacent to Critical Fish Habitat be less than 15 metres.*

Valleylands

Valleylands are considered natural heritage features but are also addressed through Hazard Land policies. Policy 7.A.6.5 states that for development and site alteration along valleylands, where the valley bank height is equal to or greater than 3 metres, the following provisions apply:

a. *A minimum setback of 7.5 metres from the stable top of the valley slope, as identified by the Conservation Authority, shall be required for all new structures, including swimming pools and subsurface sewage disposal systems, and for site alterations.*
b. *Where the Conservation Authority finds evidence of slope instability or where the angle of the valley slope exceeds 3:1 (Horizontal Distance: Vertical Distance) a geotechnical report prepared by a qualified engineer shall be submitted with an application for new development or site alteration. A setback greater than 7.5 metres may be required where the Conservation Authority has determined, after considering the geotechnical report, that an increased setback is needed to address site specific conditions.*
c. *Within Urban Boundaries the Region supports the maximum use of land for development while avoiding hazardous conditions. A reduced setback may be considered where an existing lot provides insufficient depth to accommodate the required setback provided that a geotechnical report submitted by the applicant and approved by the Conservation Authority finds that the reduced setback, with mitigative measures, will maintain long term bank stability with no adverse environmental impacts, will not create new hazards or increase existing ones, and that no development or site alteration will be permitted below the top of the valley bank.*
d. *Where possible existing vegetation should be maintained within the setbacks required under this policy. Vegetation below the top of the valley slope shall not be disturbed.*
e. *New lots created through plan of subdivision, plan of condominium or consent shall not extend below the top of the valley slope as determined by the Conservation Authority. Lands below the top of the valley slope in plans of subdivision and plans of condominium shall be maintained as one block. The Region shall encourage dedication of these lands for conservation purposes either to the appropriate local municipality or to another public agency where there is a willing recipient.*

Significant Woodland

Policy 7.B.1.5 contains criteria for identification of significant woodlands. In order to be considered significant, the woodland must meet one or more of the following criteria:

a. *Contain threatened or endangered species or species of concern;*
b. *In size, be equal to or greater than:*
    i. *2 hectares, if located within or overlapping Urban Area Boundaries;*
    ii. *4 hectares, if located outside Urban Areas and north of the Niagara Escarpment;*
    iii. *10 hectares, if located outside Urban Areas and south of the Escarpment;*
c. *Contain interior woodland habitat at least 100 metres in from the woodland boundaries;*
d. *Contain older growth forest and be 2 hectares or greater in area;*
e. *Overlap or contain one or more of the other significant natural heritage features listed in Policies 7.B.1.3 or 7.B.1.4; or*
f. *Abut or be crossed by a watercourse or water body and be 2 or more hectares in area*.

2.4 Town of Fort Erie Official Plan

Section 8 of the Town's Official Plan outlines natural heritage protection policies in applicable to the development proposal. Natural Heritage Features are shown on Schedule A as EPA and ECA. EPAs include Provincially Significant Wetland, Areas of Natural and Scientific Interest, the habitat of threatened and endangered Species and species of special concern and natural hazard areas, including dune protection areas. ECAs include, significant natural areas, locally significant wetlands, as well as, other woodlands and meadows. Schedule C depicts the Natural Heritage features in more detail showing Provincially Significant Wetlands, identified Areas of Natural and Scientific Interest, Locally Significant Wetlands, Environmentally Sensitive Areas, Significant Natural Areas, Woodlands >2ha, and Corridors. Schedule C1 identifies Fish Habitat and Stream Corridors and Natural Hazard Areas including Valleylands and Dune Protection Areas.

Policy 8.2(I) states the development is not permitted in EPA, and Policy 8.2(IV) states that an EIS is required in support of proposed development on lands that lie adjacent to EPA. Policy 8.3(III) states that development within an ECA is permitted if supported by the findings of an EIS. Policy 8.3(V) states that upon the submission of a development proposal, the degree of protection and conservation afforded to the natural features and ecological functions of these areas in large part depends on the area's classification.

2.5 Niagara Peninsula Conservation Authority Regulation (2006) and Policies (2018)

The NPCA regulates the shores of lakes and rivers, watercourses, wetlands and valleylands pursuant to *Ontario Regulation 155/06*, *Development, Interference with Wetlands and Alterations to Shorelines and Watercourses (2006)*. For the permitting and enforcement associated with *Ontario Regulation*

155/06 the NPCA Policy Document: Policies for the Administration of Ontario Regulation 155/06 and the *Planning Act* 2018, provides direction. The following policies are relevant to this EIS.

Section 8 provides policies for proposed development within and adjacent to wetlands. For wetlands, the regulated areas include the wetland area and 120 m of the adjacent lands for provincially significant wetlands and wetland areas greater than 2 ha in size, and 30 m for wetland areas less that 2 ha in size. Generally, no new development is permitted with 30 m of a wetland. However, reductions to the setback limit will be considered based on a site-specific assessment to determine whether a reduction is warranted, depending on the scale, nature and proximity of the proposed development.

3. Methodology

3.1 Background Review

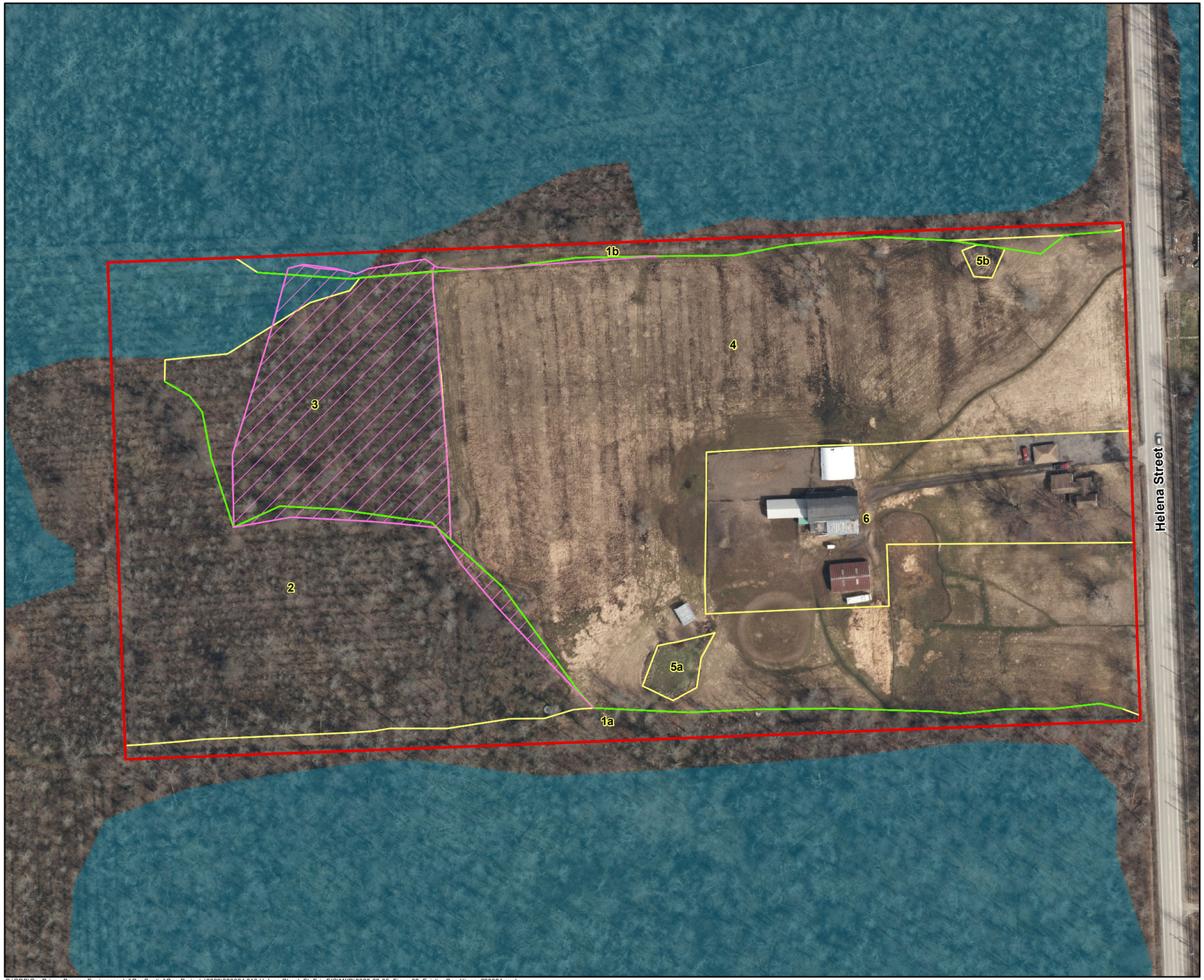
Background information was gathered and reviewed at the outset of the project. This involved consideration of the following documents or information sources relevant to the subject property:

- Provincial Policy Statement;
- Niagara Region Official Plan;
- Town of Fort Erie Official Plan;
- Niagara Peninsula Conservation Authority – Policies for the Administration of Ontario Regulation 155/06 and the *Planning Act* (2018);
- NPCA Watershed Explorer website;
- Natural Heritage Information Centre (NHIC) on-line database;
- Current and historic aerial imagery; and
- EIS prepared by Colville Consulting (2017).

3.2 Field Investigations

Field investigations were conducted by Colville Consulting in 2015, which included Ecological Land Classification (ELC), floristic inventories, breeding bird surveys, and breeding amphibian surveys. As per the Terms of Reference, this EIS Addendum largely relies on the findings of the previous EIS. However, Beacon also completed supplemental field investigations to confirm and refine vegetation community mapping and ELC classifications. Beacon also participated in a site visit with Regional staff on March 24, 2020 to review site conditions and staked the dripline of woodland features.

Site visits were conducted on May 7 and June 15, 2020 to verify the existing conditions on the subject property. Ecological communities were mapped and described based on the Ecological Land Classification system for Southern Ontario (Lee *et al*., 1998), which involves mapping distinct ecological communities on an aerial photograph of the site and recording pertinent information regarding the composition and structure of the vegetation within each community. The mapped communities, which are based in part of staked feature limits, are illustrated in **Figure 2**.



Existing Conditions

Figure 2

613 Helena Road, Fort Erie

Legend

- Subject Property
- Ecological Communities
- Dripline (as staked by Niagara Region on March 24, 2022)
- Limit of Vegetation Removal
- Area of Vegetation Removal
- Provincially Significant Wetland (MNRF 2022)

Unit	Vegetation Type
1	Red Maple Mineral Deciduous Swamp (SWD3-1)
2	Green Ash Mineral Deciduous Swamp (SWD2-2)
3	Cultural Thicekt (CUT1)
4	Cultural Meadow/Agriculture (CUM1/AG)
5	Dug Pond
6	Anthropogenic

BEACON ENVIRONMENTAL

Project: 220024
Last Revised: November, 2022

Client: Niagara Region

Prepared by: BD
Checked by: DW

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ELC Unit 1: Red Maple Mineral Deciduous Swamp (SWD3-1)

This deciduous swamp community is located to the north and south of the subject property. Unit 1a, located to the south, is dominated by mature Red Maple (*Acer rubrum*) and Freeman's Maple (Acer *x freemanii*), in association with Green Ash (*Fraxinus pennsylvanica*), Bur Oak (*Quercus macrocarpa*), and Basswood (*Tilia americana*). The subcanopy consists of Green Ash, White Elm (*Ulmus americana*), and Red Maple. The understory consists of Spicebush (*Lindera benzoin*), Red-osier Dogwood (*Cornus sericea*), Common Buckthorn (*Rhamnus cathartica*), and Multiflora Rose (*Rosa multiflora*). Dominant ground covers are sedges (*Carex* spp.), Spotted Jewelweed (*Impatiens capensis*), Spring Beauty (*Clatyonia virginica*), ferns, and mosses.

ELC Unit 2: Green Ash Mineral Deciduous Swamp (SWD2-2)

This young swamp community is located in the western portion of the property. The overstory canopy is sparse and consists of mature Pin Oak (*Quercus palustris*), Red Maple, Shagbark Hickory (*Carya ovata*), and Green Ash. The subcanopy is dominated by young Green Ash in association with Freeman's Maple and White Elm. The understory consists of Multiflora Rose, Gray Dogwood (*Cornus racemosa*), and Red-osier Dogwood. Dominant ground covers include Fowl Bluegrass (*Poa palustris*), sedges, Spotted Jewelweed, Spring Beauty, Sensitive Fern (*Onoclea sensibilis*), and mosses.

ELC Unit 3: Cultural Thicket (CUT1)

This community is a disturbed former agricultural area dominated by Common Buckthorn (*Rhamnus cathartica*), in association with Gray Dogwood, Tatarian Honeysuckle (*Lonicera tatarica*), hawthorns (*Crataegus* spp.), and Nannyberry (*Viburnum lentago*). Tree cover is sparse (<10%) and consists of a few Pin Oak, Red Maple, Green Ash, and White Elm. Groundcovers are sparse due to the dense shrub cover, but include Fowl Bluegrass, Wild Strawberry (*Fragaria virginiana*), Spotted Jewelweed, Asters *(Symphyotrichum* sp.), Rough-leaved Goldenrod (*Solidago rugosa*), and sedges. The majority of this thicket was removed in 2022 (see **Figure 2**).

ELC Unit 4: Cultural Meadow/Agriculture (CUM1/AG)

This community is a poorly drained agricultural field/meadow dominated by pasture grasses and knapweed (*Centaurea* sp.), with furrows and pockets dominated by sedges and rushes (*Juncus spp*., *Scirpus* spp. This area is managed for agriculture and is periodically mowed and/or grazed.

ELC Units 5a & 5b: Dug Ponds

There are two small dug agricultural ponds on the subject property. Unit 5a, located on the south side of the property supports floating layer of Lesser Duckweed (*Lemna minor*) and a fringe of cattails (*Typha angustifolia*). Unit 5b, located near the northern property limit, has been largely filled in by cattails.

ELC Unit 6: Anthropogenic

This area corresponds with the existing residence and farm buildings and associated driveway and lawn.

4. Constraints Analysis

The purpose of the constraint analysis is to identify natural heritage features that require protection and/or natural hazards that must be considered in the context of future development. The following natural heritage feature have been identified on and/or adjacent to the subject property:

- Habitat for threatened or endangered species;
- Provincially Significant Wetland (PSW);
- Candidate Significant Wildlife Habitat; and
- Significant Woodland.

No valleylands, floodplain, slopes, ANSI, or fish habitat were identified on the subject property.

4.1 Habitat for Threatened or Endangered Species

Colville (2017) identified a small population of White Wood Aster (*Eurybia divaricata*), a threatened species, within the woodland south of the subject property.

In addition, the forest and treed swamp communities on and adjacent to the property represent potential maternity roost habitat for endangered bats as defined by MNRF (2017).

The existing farm buildings on the property are also potential habitat for Barn Swallow (threatened) and endangered bats.

4.2 Provincially Significant Wetland (PSW)

As currently mapped by MNRF, the Kraft Drain PSW surrounds the subject property and overlaps with the northwest corner of the property (**Figure 2**).

Based on Beacon's review, the wetland extends further onto the subject property than the MNRF mapping indicates. ELC units 1a and 1b (SWD3-1) overlap the northern and southern property limits and ELC unit 2 (SWD2-2) extends into the western portion of the property. These areas of contiguous deciduous swamp, though not mapped as PSW, have been treated as such for the purpose of the constraint analysis.

The property also contains two small dug ponds (ELC units 5a and 5b), which are part of site's agricultural use. The ponds have not been maintained recently and currently support some common wetland vegetation such as duckweed and cattails. The southern pond (ELC unit 5a) is approximately

445 m^2 and the northern pond (unit 5b) is only 155 m^2. Neither pond supports any rare vegetation, wildlife or significant ecological functions. The ponds do provide potential habitat for anuran breeding, as do the adjacent wetlands.

Under the Ontario Wetland Evaluation System (OWES 2013), the minimum size of a wetland for evaluating/complexing is 2 ha and the minimum size for mapping individual vegetation communities is 0.5 ha, unless the wetland/community is rare or highly specialized (e.g. fens, bogs). Due to their small size (much less than 0.5 ha), anthropogenic origin, and limited ecological functions, in Beacon's opinion, these ponds do not meet the criteria for complexing with the larger PSW. Furthermore, while the ponds are evident on aerial imagery dating back at least to 2000, MNRF has not complexed these agricultural ponds with the adjacent PSW. Based on a review of PSW mapping throughout the region, Beacon notes many other examples of small anthropogenic ponds not being mapped as PSW by MNRF, despite being in close proximity to identified PSW.

4.3 Significant Woodland

According to the Regional Official Plan, a woodland must meet one or more of the following criteria to be considered a significant woodland:

- Contain threatened or endangered species or species of concern;
- In size, be equal to or greater than:
    - 2 hectares, if located within or overlapping Urban Area Boundaries;
    - 4 hectares, if located outside Urban Areas and north of the Niagara Escarpment;
    - 10 hectares, if located outside Urban Areas and south of the Escarpment; and
- Contain interior woodland habitat at least 100 metres in from the woodland boundaries;
- Contain older growth forest and be 2 hectares or greater in area;
- Overlap or contain one or more of the other significant natural heritage features; and
- Abut or be crossed by a watercourse or water body and be 2 or more hectares in area.

Collectively, the area of contiguous woodland on and adjacent to the subject property is greater than 2 hectares and contains habitat for threatened or endangered species or species of special concern, including Wood Thrush, White Wood Aster, and potential habitat for endangered bats. As such, the woodlands satisfy the criteria for significant woodland.

4.4 Significant Wildlife Habitat

According to the Significant Wildlife Habitat Technical Guidelines (MNR 2000), there are four main categories of Significant Wildlife Habitat (SWH):

- Seasonal Concentration Areas of Animals;
- Rare Vegetation Communities or Specialized Habitat for Wildlife;
- Habitat for Species of Conservation Concern; and
- Animal Movement Corridors.

Within each of these categories, there are multiple types of SWH, each intended to capture a specialized type of habitat that may or may not be captured by other existing feature-based categories (e.g., significant wetlands, significant woodlands).

The Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (MNRF 2015) were used to determine if the subject property or adjacent lands support any candidate SWH.

A full SWH screening table is included in **Appendix B**. Based on the background review and field investigations conducted by Beacon and Colville, the woodlands on and adjacent to the property are candidate SWH for the following:

- Bat Maternity Colonies;
- Amphibian Breeding Habitat (Woodland) – adjacent to property;
- Woodland Area-sensitive breeding bird habitat – adjacent to property; and
- Special concern and rare wildlife species – adjacent to the property.

Candidate SWH associated with the property and adjacent lands corresponds with the woodland and wetland features.

4.5 Buffers

To protect natural heritage features (woodlands and wetlands), a 15 m buffer is recommended to be applied to the greater of a) the staked dripline of the woodlands or b) the limits of the PSW.

The width of ecological buffers is generally established through consideration of the potential risks associated with the proposed development and the relative sensitivity of the natural heritage features and functions proposed for protection (i.e., woodlands, wetlands, wildlife habitat, and habitat for threatened or endangered species). Buffers are intended to mitigate against potential impacts on natural heritage features, such as vegetation removal, drainage alterations, pets, noise, dust, artificial light, and other human related disturbances. NPCA and Regional policies generally require that a 30 m buffer be applied to PSW features; however, lesser buffers may also be considered if supported by an EIS.

Based on a review of ecological buffer guidelines (Beacon 2012), wetland buffer widths of 10-30 m can be effective, but have a moderate risk of not achieving the desired functions of attenuating stormwater water quality and quantity and screening of human disturbances; however, site specific factors can enhance the effectiveness of buffers in mitigating impacts including:

- Small catchment area size relative to protected feature size;
- Minimal slope;
- Dense herbaceous layer; and
- Presence of trees and shrubs, notably coniferous species.

Given the small size of the proposed development (approx. 4 ha) relative to the size of the protected feature (approx. 200 ha), flat topography, and a dense herbaceous layer within the buffer; it is Beacon's opinion that a buffer of 15 m combined with additional mitigation measures outlined in this **Section 6.2** is sufficient to mitigate potential impacts of future residential development of the subject property.

5. Proposed Development

The proposed development for the subject property consists of bungalow and 2-storey townhomes totally 116 units and a stormwater management pond as illustrated in **Figure 3**. Compared to the previous development concept plan presented in the EIS (Colville Consulting 2017), this plan has been modified extensively to protect additional woodland/wetland features that were identified through subsequent consultation and site visits with the Region.

6. Impact Assessment and Proposed Mitigation

6.1 Impact Assessment

The proposed development has been designed to preserve the significant natural heritage features identified on and adjacent to the subject property including significant woodland, significant wetlands, candidate significant wildlife habitat, and habitat for threatened and endangered species associated with the woodlands/wetlands. Additionally, buffers are recommended to avoid or sufficiently minimize impacts to the features as the site is developed.

6.1.1 Terrestrial Vegetation

The proposed development will require the removal of the agricultural field/meadow feature and a small area of buckthorn cultural thicket (ELC unit 3). These successional communities have developed on former agricultural lands and are very common throughout Niagara region. The meadow area is still actively managed for agricultural purposes and is periodically mowed or grazed. The majority of the buckthorn thicket was removed in 2022, at which time there were also some minor encroachments into the edge of the adjacent signficant woodland (see **Figure 2**). The encroachments were limited to the removal of understory shrub vegetation; no mature trees were removed. It is recommended that these areas be restored with site appropriate native species if such species have not already re-established.

The proposed development has the potential to impact on regionally rare species such as Small Flowered Agrimony (*Agrimonia parviflora*) documented by Colville (2017). It was the recommendation of the EIS (Colville 2017) to transplant this regionally rare species. However, the current development proposal protects a much larger woodland area on the property which already supports populations of this regionally rare species; therefore, transplanting is no longer necessary.

No vegetation will be removed from the significant natural heritage features on the property (i.e. wetland, woodland, candidate SWH) as a result of the proposed development.

6.1.2 Wetlands and Hydrology

The wetlands on and adjacent to the subject property will be protected by applying a 15 m buffer to the development as discussed in **Section 4.5**. As discussed in **Section 6.1.1**, clearing of the buckthorn

cultural thicket (ELC unit 3) was undertaken in 2022, at which time removal of some understory shrub vegetation occurred along the edge of the adjacent wetland. Therefore, it is recommended that these areas be restored with site appropriate native species if such species have not already re-established.

As discussed in **Section 3.2**, the property contains two dug agricultural ponds (ELC units 5a and 5b), which currently support some wetland vegetation. ELC unit 5a, is located partially within the buffer to the significant woodland/PSW. A portion of this pond will need to be removed as a result of the proposed development; however, the pond can be reconfigured within the buffer to maintain it size and function. Given that this is an existing dug pond, it is Beacon's opinion that some modification to the feature is appropriate. ELC unit 5b is contained entirely within the buffer, thus will not be impacted by development.

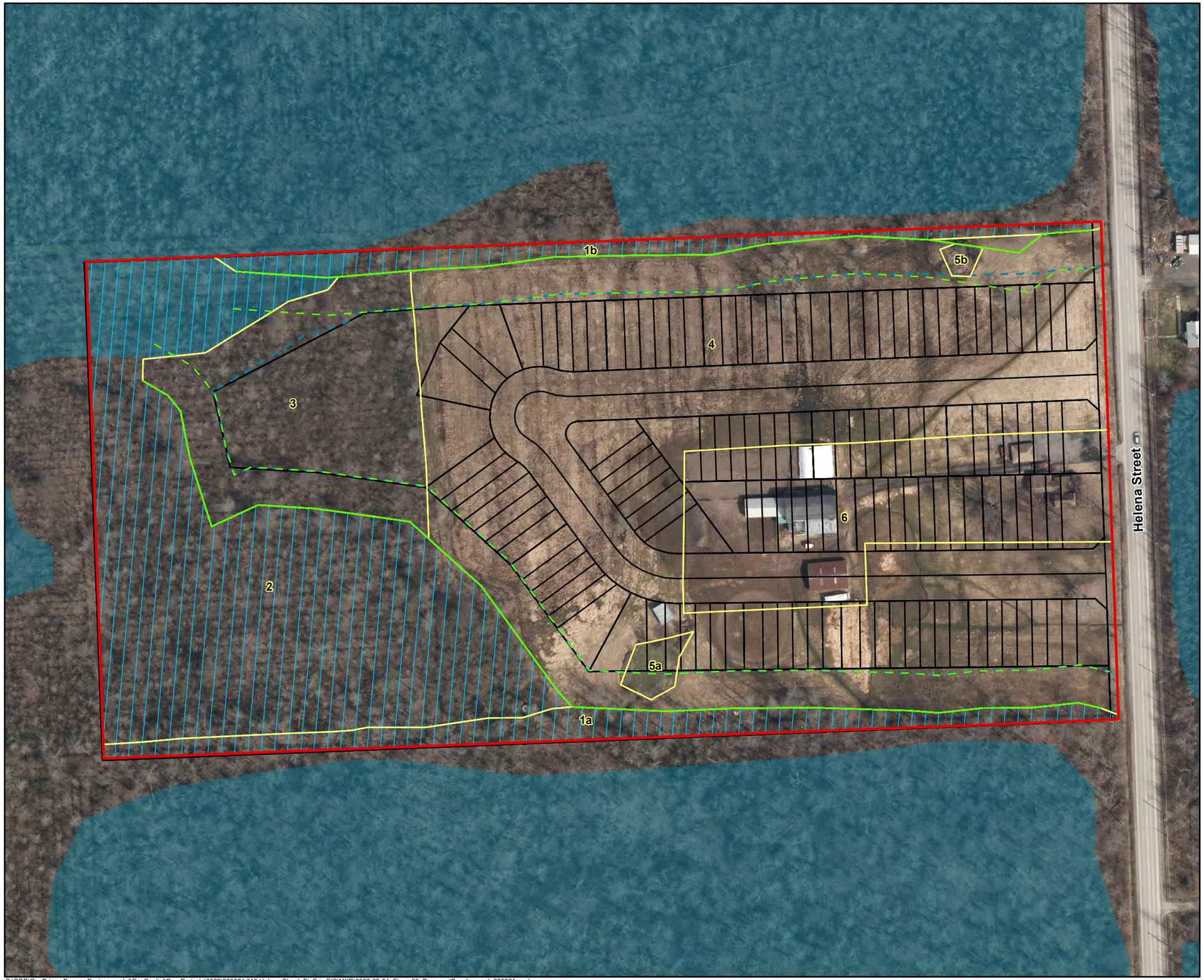
As is typical of new development, the proposed development will result in an increase in impervious surfaces, which increases the amount of stormwater run-off and reduces infiltration. Changes in runoff and infiltration can potentially impact on adjacent wetlands.

Based on the site water balance assessment (HLV2K 2022), without mitigation, post-development, the volume of runoff will increase approximately 26%, from 25,551 m^3/year to 32,287 m^3/year. The post-development infiltration volume is approximately 13,761 m^3/year, an approximately 11% reduction compared to existing (HLV2K 2022). However, mitigation measures such as directing rainwater from rooftops to lawns and other permeable areas will more than off-set the infiltration deficit and will reduce the amount of runoff to 29,279 m^3/year (approximately 15% increase over existing) (HLV2K 2022).

Under existing conditions, runoff from the western half of the subject property generally follows the surface topography, which slopes very gently from the northeast to the southwest. The eastern potion of the property generally drains east to Helena Street with assistance from several constructed farm swales/ditches. Under the proposed development scenario, runoff from the back of lots adjacent to the significant woodland/wetland will flow uncontrolled overland to the natural features. Runoff from a small area on the east side of the development will be treated and released to Helena Street, while runoff from the remainder of the development area will be conveyed to a SWM pond on the west side of the property, which will provide water quality treatment and controlled release to the adjacent wetland.

An existing farm swale/ditch along the southern property line intercepts run-off from the north and conveys it east to Helena Street. As a result, the wetland to the south would likely have received more runoff in the past. The proposed development will help to restore the water balance by reducing the amount of runoff to the Helena Street ditch and conveying more runoff to the wetlands via uncontrolled overland flow from the rear yards and through the SWM pond.

The proposed SWM pond will outlet to the wetland in the southwest corner of the property. The wetland in this area is comprised of a young deciduous swamp that has regenerated on former farmland. While this portion of the wetland will receive more runoff post-development, discharge from the SWM pond will be controlled to pre-development levels; therefore, significant changes to wetland vegetation or hydrology are not expected. The SWM pond outlet will discharge to a flow spreader to dissipate flows and prevent erosion and sedimentation of the wetland. The receiving wetland also contains remnant furrows from past agricultural use. These are generally oriented perpendicular to the flow path and will further disperse flows and promote infiltration. Following heavy rain events, some localized ponding may occur; however, prolonged periods or extensive areas of inundation are unlikely as it would be expected that any excess water would infiltrate or dissipate to the south and west.



Proposed Development	Figure 3

613 Helena Road, Fort Erie

Legend

- Subject Property
- Proposed Development
- Ecological Communities (ELC)
- ELC Wetlands
- Dripline (as staked by Niagara Region on March 24, 2022)
- Dripline + 15 m
- Provincially Significant Wetland (MNRF 2022)
- Wetlands + 15 m

Unit	Vegetation Type
1	Red Maple Mineral Deciduous Swamp (SWD3-1)
2	Green Ash Mineral Deciduous Swamp (SWD2-2)
3	Cultural Thicekt (CUT1)
4	Cultural Meadow/Agriculture (CUM1/AG)
5	Dug Pond
6	Anthropogenic

BEACON ENVIRONMENTAL

Project: 220024
Last Revised: November, 2022

Client: Niagara Region

Prepared by: BD
Checked by: DW

N

1:1,500

0 25 50 m

C:\ODB\OneDrive - Beacon Environmental\GeoSpatial\Geo Projects\2020\220024 613 Helena Street, Ft. Erie EIS\MXD\2020-08-04_Figure03_ProposedDevelopment_220024.mxd

The proposed changes in surface flows are unlikely to have a negative impact on wetland hydrology provided that the water quality and quantity control objectives are achieved, and the infiltration deficit is offset through site appropriate LIDs. Implementing mitigation measures to reduce the infiltration deficit will assist in maintaining the current level of groundwater contribution to the adjacent wetlands; therefore, no negative impact is expected if LID measures are implemented to maintain the groundwater recharge similar to the existing conditions (HLV2K 2022).

6.1.3 Wildlife Habitat

The proposed development will result in removal of thicket and meadow vegetation that supports habitat for breeding birds. The majority of birds identified within the development area by Colville (2017) are common to the region and province. Potential significant wildlife habitat associated with the woodlands and wetland will be protected.

Colville (2017) reported breeding amphibians from the subject property and adjacent lands including Western Chorus Frog, Spring Peeper, American Toad, Northern Leopard Frog, Bullfrog. Beacon also noted incidental observations of Chorus Frog and Green Frog along the northern limit of the property, which were associated with a small dug pond (ELC unit 5b) and adjacent field. Extensive areas of wetland are being preserved both on and adjacent to the subject property, which will continue to provide habitat for breeding amphibians. The small dug pond (ELC unit 5b) will remain in the buffer at the north end of the provide and continue to provide amphibian habitat.

The existing farmhouse and accessory structures on the property represent potential habitat for Barn Swallow (threatened) and endangered bats. These structures must be removed to accommodate the proposed development. Prior to removing the buildings, additional surveys are recommended to ensure conformity with the *Endangered Species Act* as a condition of draft plan approval as discussed further in **Section 6.2**.

6.1.4 Post-development Residential Impacts

Post construction, residential use of the property could potentially impact the adjacent natural areas. Potential impacts include:

- Dumping yard waste and accumulation of debris in natural areas;
- Informal trails and trampling of vegetation;
- Removal of natural vegetation; and
- Storage of materials, placement of structures.

6.2 Mitigation Recommendations and Requirements for Further Study

6.2.1 Mitigation Recommendations

In addition to the recommended buffers discussed in the preceding sections, the following mitigation measures are recommended to avoid or minimize impacts to the natural heritage features when the property is developed:

- Soil erosion from construction sites can result in adverse environmental impacts if sediment-laden stormwater runoff reaches nearby wetlands and woodlands. Therefore, an erosion and sediment control plan should be prepared prior to any site alteration or construction. Measures for erosion and sediment control for the subject property should include installing silt fence at the limit of the buffers;
- To help maintain the integrity of the buffer area, it is recommended that all lot lines be located outside of the buffer area and permanent fencing should be established at the buffer limit to discourage human encroachment into the adjacent natural features;
- Development and site alteration, including grading, should be confined to the established limits of development (outside the recommended 15 m buffer unless approved by the Region and NPCA). All construction materials and equipment should be stored inside the limits of development;
- The federal *Migratory Birds Convention Act* (1994) protects the nests, eggs and young of most bird species from harm or destruction. Environment Canada considers the general nesting period of breeding birds in southern Ontario to be between late March and the end of August. This includes times at the beginning and end of the season when only a few species might be nesting. The broad bird nesting season in southern Ontario is April 1 to August 31. Beacon recommends that during the peak period of bird nesting, no vegetation clearing or disturbance to nesting bird habitat occur – i.e., between May 16 and July 15. In the shoulder seasons of April 1 to May 15, and July 16 to August 31, Beacon suggests that vegetation clearing could occur, but only after an Ecologist with appropriate avian knowledge has surveyed the area to confirm lack of nesting. If nesting activity is detected, then vegetation clearing (in an area around the nest) must wait until nesting has concluded. Between September 1 and March 31, vegetation clearing can occur without nest surveys, but the requirement for nest protection under the Act still holds (i.e., if an active nest is known it should be protected);
- A buffer restoration and enhancement plan should be prepared utilizing native tree and shrub plantings to enhance the ecological functions of the buffer. The plan should include a reconfiguration of ELC unit 5a (southern pond) and restoration of woodland/wetland areas that were subject to vegetation removals in 2022;
- Site appropriate LIDs should be implemented to off-set the infiltration deficit resulting from the addition of impervious surfaces (see HL2VK 2022); and
- A flow spreader is recommended to dissipate flows from the SWM pond outlet to the wetland.

6.2.2 Recommendations for Further Study

Through discussions with Regional staff in establishing the EIS Terms of Reference, it was agreed that the following additional items could be addressed through a subsequent addendum letter report at the detailed design stage as conditions of Draft Plan approval.

- Assessment of existing farm buildings for barn swallow and endangered bats; and
- A water balance analysis to demonstrate no hydrologic and/or ecological impacts to the surrounding PSW.

The Region also requested transplanting plan to relocate locally significant or rare plant locations impacted by the development. As discussed above, the proposed development protects a much larger

woodland area which contains these species; therefore, a transplanting plan is not considered necessary.

6.2.2.1 Water Balance Study/Hydrogeological Investigation

A site water balance analysis was undertaken by HL2VK (2002). This EIS Addendum (**Section 6.1.2**) includes a summary of the results of the water balance and an assessment of hydrological impacts on the PSW.

6.2.2.2 Surveys of Buildings for Barn Swallow and Bats

Prior to removing the existing farm buildings, surveys should be conducted for Barn Swallow and SAR bats in accordance with established protocols and/or through consultation with MECP.

The buildings can be inspected at any time to determine if Barn Swallow nests are present. If Barn Swallow nesting is confirmed, then prior to removing the building, a Notice of Activity must be filed with the MECP that meets the requirements of Ontario Regulation 830/21. There are a number of requirements which must be satisfied as part of the Notice of Activity. Through this process the proponent must:

- Register the work and affected species with the MECP before the habitat is disturbed;
- Minimize the effects of the activity on Barn Swallow by removing habitat outside of the active breeding period for the species and ensuring the compensation habitat is ready prior to the start of the next breeding period. Habitat should be removed between September 1 and March 31 to avoid the active breeding season;
- Create and maintain new habitat for Barn Swallow, specifically;
    - Replacing more habitat than was removed (which in this case means at least four nest cups will be required); and
    - Locating the new habitat within 1 km of the affected habitat and within 200 m of an area that is accessible and suitable for foraging;
- Report sightings of rare species (and update registration documentation, if needed);
- Monitor the habitat created and report on observations for a minimum of three years; and
- Prepare and maintain records that relate to the activity and habitat for a minimum of two years after the monitoring has been completed and provide to the MECP if requested.

Alternatively, there is an option to pay into a new Species Conservation Fund in lieu of creating compensation habitat.

Exit surveys of the buildings are recommended to determine if the buildings are inhabited by endangered bats. This involves evening surveys in June/July to monitor potential entry/exit points in buildings and employing electronic devices that record and identify bats calls. If the buildings are determined to support roosting habitat for endangered bats, then authorization will need to be obtained from MECP prior to removal of buildings or structures supporting habitat for endangered bats.

7. Policy conformity

A summary of provincial and municipal environmental protection and planning policies and regulations applicable to the subject property were discussed in **Section 2**. An evaluation of how the proposed re-development complies with the applicable environmental policies and legislation is summarized below in **Table 1**.

Table 1. Policy Conformity Assessment

Applicable Policy / Legislation	Policy Intent	EIS Findings & Recommendations
Provincial Policy Statement (2020)		
1. Habitat for Threatened and Endangered Species	The PPS does not permit development or site alteration in habitat for threatened and endangered species except in accordance with provincial and federal requirements.	Habitat for White Wood Aster adjacent to the property will be protected. Potential habitat for endangered bats associated with the woodland will also be protected. No impacts to these species or habitats are expected. Additional surveys of the farm buildings are required to determine if they support barn swallow or endangered bats. If barn swallow habitat is confirmed, then a Notice of Activity must be filed with MECP and suitable replacement structure must be constructed and monitored as per the conditions of Ontario Regulation 242/08. If habitat for Endangered bats is confirmed, then authorization from MECP is required prior to removing the buildings.
2. Significant Wetlands	The PPS does not permit development or site alteration in Significant Wetlands, except for conservation, wildlife management and stewardship purposes. The PPS allows for development or site alteration on lands adjacent to Significant Wetlands if it can be demonstrated that such activities will not adversely impact upon the feature and its functions.	No development is proposed within the PSW on the property. A 15 m buffer combined with other mitigation measures including fencing at the buffer limit and restoration plantings is recommended to mitigate potential impacts associated with future development. Potential indirect impacts to the wetland can be mitigated through measures identified in this report. Potential hydrological impacts can be mitigated by utilizing site appropriate LIDs to off-set the infiltration deficit resulting from an increase in impervious surfaces.
3. Significant Woodlands	The PPS does not permit development or site alteration in Significant Woodlands unless it can be demonstrated through an EIS that there will be no negative impacts.	The subject property and adjacent lands support significant woodlands, which generally correspond with the deciduous swamp wetlands. A 15 m buffer combined with other mitigation measures including fencing at the buffer limit and restoration plantings is recommended to mitigate potential impacts associated with future development. Potential indirect impacts to the wetland can be mitigated through measures identified in this report.

Applicable Policy / Legislation	Policy Intent	EIS Findings & Recommendations
4. Significant Valleylands	The PPS allows for development or site alteration in Significant Valleylands if it can be demonstrated through an EIS that there will be no negative impacts.	There are no valleylands on the subject property.
5. Significant Wildlife Habitat	The PPS allows for development or site alteration in SWH if it can be demonstrated through an EIS that there will be no negative impacts.	The woodlands on and adjacent to the property support candidate SWH. A 15 m buffer combined with other mitigation measures including fencing at the buffer limit and restoration plantings is recommended to mitigate potential impacts associated with future development. Potential indirect impacts to the woodlands can be mitigated through measures identified in this report.
6. Significant Areas of Natural and Scientific Interest (ANSI)	The PPS allows for development or site alteration in Significant ANSIs if it can be demonstrated through an EIS that there will be no negative impacts.	There are no ANSIs on or adjacent to the subject property.
7. Fish Habitat	Development and site alteration are not be permitted in fish habitat except in accordance with provincial and federal requirements.	There is no fish habitat on the subject property.
Ontario *Endangered Species Act* (2007)	Provides legal protection to endangered and threatened species and their habitats	Same as 1 above.
Region of Niagara Official Plan	The Core Natural Heritage System of Niagara Region consists of: • Core Natural Areas, classified as either Environmental Protection Areas or Environmental Conservation Areas; • Potential Natural Heritage Corridors connecting the Core Natural Areas; • The Greenbelt Natural Heritage System; and • Fish Habitat. No development is permitted within EPA features. Development may be permitted within ECA lands if it has been demonstrated that, over the long term, there will be no significant negative impact on the Core Natural Heritage System component. Development and site alteration may be permitted within fish habitat and on adjacent lands if it will result in no net loss of the productive capacity of fish habitat as	All development has been directed away from EPA and ECA features, including significant woodlands, significant wetlands, and candidate significant wildlife habitat and appropriate buffers and other mitigation measures have been recommended to sufficiently avoid or minimize impacts on these features. Potential hydrological impacts will be addressed through a water balance study and stormwater management design. If habitat for Barn Swallow or endangered bats is confirmed within the existing farm buildings, then the necessary approvals must be obtained from MECP prior to removing the buildings.

Applicable Policy / Legislation	Policy Intent	EIS Findings & Recommendations
	determined by the Department of Fisheries and Oceans. A 30 m buffer from the top of bank of critical fish habitat is typically required, however, a minimum 15 m buffer may be acceptable if it is demonstrated that there will be no impacts on fish habitat. Where development or site alteration is approved in or adjacent to the Core Natural Heritage System new lots thus created shall not extend into either the area to be retained in a natural state as part of the Core Natural Heritage System or the buffer zone identified through an Environmental Impact Study.	
Town of Fort Erie Official Plan	Polices are consistent with the Region of Niagara Official Plan (see above)	See above.
Niagara Peninsula Conservation Authority Regulations and Wetland Polices	Where development and site alteration are proposed adjacent to a watercourse, the NPCA typically requires the establishment a 15 metre natural buffer for watercourses containing permanent flow, cool water or coldwater systems or specialized aquatic or riparian habitat (such as but not limited to fish spawning areas, habitat of species at risk or species of concern, forested riparian areas or Type 1 Critical Fish Habitat); Lots created through Plan of Subdivision are to maintain a minimum setback of 7.5 metres from the top of valley slope greater than 3 m in height. A 30 m wide buffer is typically required for wetlands, but should be no less than 15 m.	The wetlands on and adjacent to the subject property will be protected and a 15 m buffer has been applied to the feature limits. Potential hydrological impacts should be addressed through a water balance study and stormwater management design.

8. Conclusion

This EIS Addendum has been prepared in support of a proposed development for the property located at 613 Helena Street in the Town of Fort Erie and addressed the Region's outstanding comments and concerns regarding the original EIS (Colville 2017).

The EIS Addendum builds on the former EIS prepared by Colville Consulting (2017). The report identifies the natural heritage features associated with the property and adjacent lands, assesses the potential direct and indirect impacts of the proposed development on these features and functions, and recommends mitigation and enhancement measures to protect and restore the ecological integrity of the core natural heritage system.

The subject property and adjacent lands support significant woodlands, significant wetlands, candidate significant wildlife habitat, and habitat for threatened and endangered species. All significant natural heritage features on and adjacent to the subject property will be protected. A 15 m buffer has been applied to the features; therefore, no direct impacts from development are anticipated. It is Beacon's opinion that a 15 m buffer combined with other mitigation measures in this report is sufficient to mitigate impacts to the natural heritage features.

Surveys of the existing farm buildings are recommended to determine if they support habitat for nesting Barn Swallow or roost habitat for endangered bats as discussed in **Section 6.2.2.2**. If habitat for Barn Swallow or endangered bats is confirmed, then authorization must be obtained from MNRF prior to removal of the buildings.

It is the conclusion of this EIS Addendum that the proposed development will not adversely impact the natural heritage features and ecological functions associated with the Core Natural Heritage System provided the mitigation measures recommended in this report and supporting studies (FSR, Hydrogeological) are implemented.

Prepared by:
Beacon Environmental

Dan Westerhof, B.Sc., M.E.S.
Senior Terrestrial Ecologist,
ISA Certified Arborist (ON-1536A)

Reviewed by:
Beacon Environmental

Ken Ursic, B.Sc., M.Sc.
Principal, Senior Ecologist

9. References

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Appendix A

EIS Terms of Reference

February 10, 2020 BEL 220024

Ms. Jennifer Whittard, B.E.S., PMP
Manager, Environmental Planning
Niagara Region
1815 Sir Isaac Brock Way
Thorold, ON L2V 4T7

Re: Proposed EIS Addendum Terms of Reference – 613 Helena Road, Fort Erie

Dear Ms. Whittard:

Beacon Environmental Limited (Beacon) has been retained by 1891187 Ontario Inc. to prepare an Environmental Impact Study (EIS) Addendum Report in support of a proposed residential subdivision at 613 Helena Road in the Town of Fort Erie (**Figure 1**).

As you are aware, an EIS was previously prepared for the subject property by Colville Consulting (July 2017), which was submitted to the Region. Comments on the EIS were received in a letter dated January 18, 2019.

For various reasons, the applicant has decided to retain Beacon as their environmental consultant moving forward. We have been asked to prepare an EIS Addendum Report that addresses the Region's outstanding concerns.

Based on our review of the Region's comments, we understand that Colville Consulting had not submitted ToR for the previous EIS. We understand that pre-consultation and establishment of EIS ToR are necessary steps in the environmental review process. For this reason, we have prepared the following ToR which describe our proposed approach for completing the EIS Addendum Report.

In preparing these Terms of Reference (ToR), we have reviewed the Colville EIS and conducted a preliminary site visit on February 3, 2020 to review the site conditions. Our review has found the Colville EIS to be fairly comprehensive in scope, including standard surveys for vegetation and wildlife that would typically be required based on the types of habitat on the subject property, including surveys for flora, breeding bird, amphibians, and bat habitat.

A review of the Region's comments has identified some outstanding issues and data gaps. It is proposed that the critical issues and data gaps be addressed through an EIS Addendum Report as opposed to redoing the entire EIS. The primary objective of the EIS Addendum Report will be to establish limits of development in support of Draft Plan approval. For this reason, our proposed approach is to address the key matters relating to establishing development limits and addressing less critical matters through future conditions of draft plan approval.

Presented below is a proposed approach that we believe can also serve as ToR for the EIS Addendum Report.

Issues to be Addressed Through the EIS Addendum

Confirmation of Natural Features Limits

The EIS identifies Significant Woodlands and Provincially Significant Wetlands (PSW) on and/or adjacent to the subject property. The EIS proposes changes to the PSW mapping, including expansions of the wetland in some area and contractions in other areas. It is Beacon's understanding that MNRF has not formally approved of the proposed changes.

Based on the Region's comments, there are outstanding questions regarding the extent of wetland on the subject property. Beacon will review the vegetation communities on the subject property and verify the wetland conditions. Our main objective will be to confirm whether the existing MNRF boundaries to the PSW are appropriate.

Additionally, the Region has indicated that the limit of the woodlands should be staked in the field with agency staff to confirm the change to the ECA designation. Beacon will arrange a site visit with the Region to stake the woodland dripline.

Significant Wildlife Habitat Assessment

The Region requested an SWH screening for the property and adjacent lands. An SWH screening table was subsequently prepared by Colville Consulting, which is appended to this ToR. The results of this screening indicated that no SWH occurs on the property. It is unclear if the SWH screening considered the adjacent lands. Beacon will screen the adjacent lands for candidate SWH; however, opportunities to confirm SWH on the adjacent lands will be limited due to access restrictions.

Notably, the adjacent properties are identified as PSW and will be protected and buffered. The EIS addendum will confirm that any candidate SWH associated with the adjacent lands will be adequately protected, with rationale for the recommended buffer widths.

EIS Addendum Report

Upon completion of the supplementary field investigations and feature staking, Beacon will prepare an EIS Addendum Report with our findings and recommendations. The report will rely on the findings for previous EIS prepared by Colville Consulting as well as the supplemental work conducted by Beacon in 2020. The report will include:

1. A description and mapping of the natural heritage features on the subject property based on background information and field investigations;

2. An evaluation of the significance of the natural features on the property, including an assessment for Significant Wildlife Habitat;
3. A description of the proposed development;
4. An assessment of potential direct or indirect impacts on the natural heritage features resulting from the proposed development;
5. Mitigation recommendations, including appropriate setbacks/buffers to the natural heritage features, to avoid or minimize impacts to the features; and
6. An assessment of conformity to applicable environmental policies and legislation.

Issues to be Addressed Through Draft Plan Conditions

Beacon anticipates that the following issues can be addressed through draft plan conditions and subsequent reports or addenda.

Assessment of Existing Buildings for SAR

The EIS determined that the existing buildings on the property could potentially be used by Barn Sallow and SAR bats. The EIS reported that no Barn Swallow nests were observed in the buildings, but recommended further assessment prior to demolishing the buildings.

Beacon will assess usage of the on-site buildings by Barn Swallow and SAR bats in accordance with established protocols and through consultation with MECP. If necessary, mitigation measures will be implemented, including construction of compensation habitat structures and removing the buildings when wildlife are not actively nesting or roosting. The necessary approvals will be obtained from MECP and relevant correspondence will be provided to the Region.

Locally Significant Species

The Region requested additional details concerning the relocation of locally significant plant species. The locations of locally significant or rare species will be confirmed and a transplanting plan will be prepared to the satisfaction of the Region.

Water Balance Impacts to PSW

The Region noted inconsistencies between the EIS and the Engineering Report with respect to changes in grade and drainage pattern and potential hydrological impacts to the adjacent PSW. A water balance analysis was requested to demonstrate no hydrologic and/or ecological impacts to the surrounding PSW.

A qualified water resources engineer, or hydrogeologist will undertake the water balance analysis. Beacon will review the analysis, evaluate the potential impacts to the wetland, and recommend

mitigation measures (e.g. LID) to incorporate into the SWM design to ensure there are no negative impacts on the wetland hydrology.

Conclusion

We trust that the approach presented this ToR for an EIS Addendum is satisfactory to address the Region's comments and concerns.

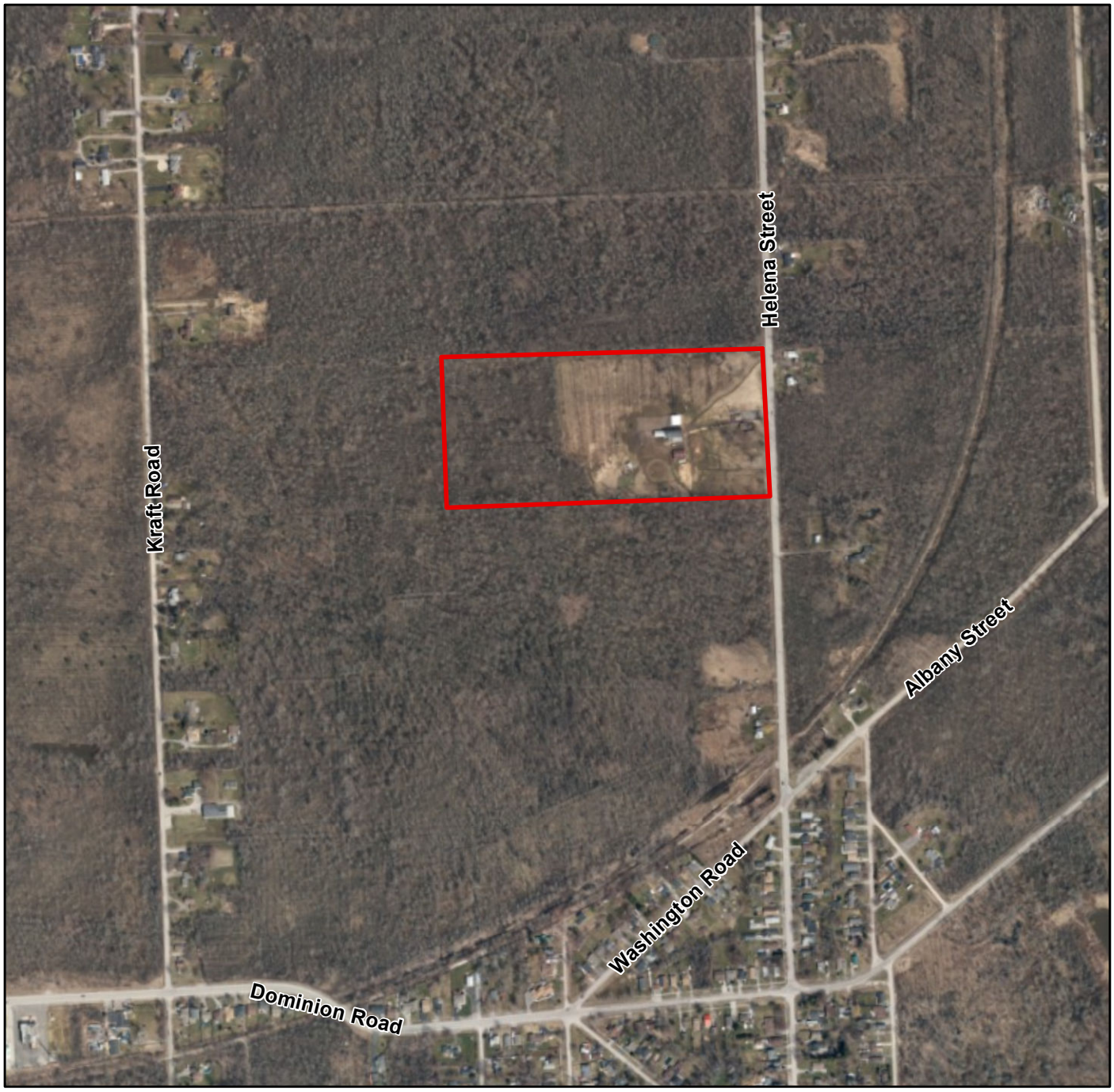
Should have any questions or require clarification, please do not hesitate to contact the undersigned.

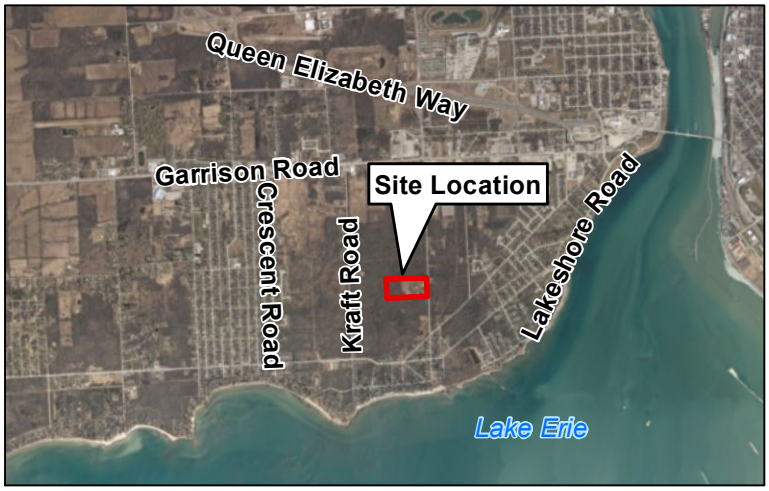
Prepared by:
Beacon Environmental

Dan Westerhof, B.Sc., M.E.S.
Terrestrial Ecologist, ISA Certified Arborist (ON-1536A)

Reviewed by:
Beacon Environmental

Ken Ursic, B.Sc., M.Sc.
Principal, Senior Ecologist





Site Location	Figure 1
613 Helena Road, Fort Erie	
BEACON ENVIRONMENTAL	Project: 220024 Last Revised: February, 2020
Client: Niagara Region	Prepared by: DU Checked by: DW
N 1:8,000	Inset Map:1:80,000

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BEACON ENVIRONMENTAL

Attachment 1

SWH Screening (Colville Consulting)

Table 1. Significant Wildlife Habitat Assessment – 613 Helena Street

Significant Wildlife Habitat (SWH) Type	Known or Candidate SWH present/absent	Rationale
SEASONAL CONCENTRATION AREAS OF ANIMALS		
Waterfowl Stopover and Staging Areas	Absent	Suitable habitat not present on property
Shorebird Migratory Stopover Area	Absent	Suitable habitat not present on property
Raptor Wintering Area	Absent	Suitable habitat not present on property
Bat Hibernacula	Absent	Suitable habitat not present on property
Bat Maternity Colonies	Absent	Suitable habitat not present on property
Turtle Wintering Areas	Absent	Suitable habitat not present on property
Reptile Hibernaculum	Absent	Suitable habitat not present on property
Colonially -Nesting Bird Breeding Habitat (Bank and Cliff)	Absent	Suitable habitat not present on property
Colonially -Nesting Bird Breeding Habitat (Tree/Shrubs)	Absent	Suitable habitat not present on property
Colonially -Nesting Bird Breeding Habitat (Ground)	Absent	Suitable habitat not present on property
Migratory Butterfly Stopover Areas	Absent	Suitable habitat not present on property
Landbird Migratory Stopover Areas	Absent	Suitable habitat not present on property
Deer Winter Congregation Areas	Absent	Observations indicate property is not providing a deer congregation function in the winter
RARE VEGETATION COMMUNITIES		
Cliffs and Talus Slopes	Absent	Habitat type not present on property
Sand Barren	Absent	Habitat type not present on property
Alvar	Absent	Habitat type not present on property
Old Growth Forest	Absent	Habitat type not present on property
Savannah	Absent	Habitat type not present on property
Tallgrass Prairie	Absent	Habitat type not present on property
Other Rare Vegetation Communities	Absent	No rare vegetation communities present on property
SPECIALIZED HABITATS OF WILDLIFE CONSIDERED SWH		

Waterfowl Nesting Area	Absent	Suitable habitat not present on property
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	Absent	Suitable habitat not present on property
Woodland Raptor Nesting Habitat	Absent	Suitable habitat not present on property
Turtle Nesting Areas	Absent	Suitable habitat not present on property
Seeps and Springs	Absent	Suitable habitat not present on property
Amphibian Breeding Habitat (Woodland)	Absent	Suitable habitat not present on property
Amphibian Breeding Habitat (Wetlands)	Absent	Suitable habitat not present on property
Woodland Area-Sensitive Bird Breeding Habitat	Absent	Suitable habitat not present on property
HABITATS OF SPECIES OF CONSERVATION CONCERN CONSIDERED SWH		
Marsh Breeding Bird Habitat	Absent	Suitable habitat not present on property
Open Country Bird Breeding Habitat	Absent	Suitable habitat not present on property
Shrub/Early Successional Bird Breeding Habitat	Absent	Suitable habitat not present on property
Terrestrial Crayfish	Absent	Suitable habitat not present on property
Special Concern and Rare Wildlife Species	Absent	No special concern or rare species documented on property
ANIMAL MOVEMENT CORRIDORS		
Amphibian Movement Corridors	Absent	Suitable habitat not present on property
Bat Migratory Stopover Area	Absent	Suitable habitat not present on property

Please note the above SWH criteria are based on guidance provided by the Significant Wildlife Habitat Criteria Schedules For Ecoregion 7E and modified to be specific for the Subject Property.

Table 1. Significant Wildlife Habitat Assessment – 613 Helena Street

Significant Wildlife Habitat (SWH) Type	Known or Candidate SWH present/absent	Rationale
SEASONAL CONCENTRATION AREAS OF ANIMALS		
Waterfowl Stopover and Staging Areas	Absent	Suitable habitat not present on property
Shorebird Migratory Stopover Area	Absent	Suitable habitat not present on property
Raptor Wintering Area	Absent	Suitable habitat not present on property
Bat Hibernacula	Absent	Suitable habitat not present on property
Bat Maternity Colonies	Absent	Suitable habitat not present on property
Turtle Wintering Areas	Absent	Suitable habitat not present on property
Reptile Hibernaculum	Absent	Suitable habitat not present on property
Colonially -Nesting Bird Breeding Habitat (Bank and Cliff)	Absent	Suitable habitat not present on property
Colonially -Nesting Bird Breeding Habitat (Tree/Shrubs)	Absent	Suitable habitat not present on property
Colonially -Nesting Bird Breeding Habitat (Ground)	Absent	Suitable habitat not present on property
Migratory Butterfly Stopover Areas	Absent	Suitable habitat not present on property
Landbird Migratory Stopover Areas	Absent	Suitable habitat not present on property
Deer Winter Congregation Areas	Absent	Observations indicate property is not providing a deer congregation function in the winter
RARE VEGETATION COMMUNITIES		
Cliffs and Talus Slopes	Absent	Habitat type not present on property
Sand Barren	Absent	Habitat type not present on property
Alvar	Absent	Habitat type not present on property
Old Growth Forest	Absent	Habitat type not present on property
Savannah	Absent	Habitat type not present on property
Tallgrass Prairie	Absent	Habitat type not present on property
Other Rare Vegetation Communities	Absent	No rare vegetation communities present on property
SPECIALIZED HABITATS OF WILDLIFE CONSIDERED SWH		

Waterfowl Nesting Area	Absent	Suitable habitat not present on property
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	Absent	Suitable habitat not present on property
Woodland Raptor Nesting Habitat	Absent	Suitable habitat not present on property
Turtle Nesting Areas	Absent	Suitable habitat not present on property
Seeps and Springs	Absent	Suitable habitat not present on property
Amphibian Breeding Habitat (Woodland)	Absent	Suitable habitat not present on property
Amphibian Breeding Habitat (Wetlands)	Absent	Suitable habitat not present on property
Woodland Area-Sensitive Bird Breeding Habitat	Absent	Suitable habitat not present on property
HABITATS OF SPECIES OF CONSERVATION CONCERN CONSIDERED SWH		
Marsh Breeding Bird Habitat	Absent	Suitable habitat not present on property
Open Country Bird Breeding Habitat	Absent	Suitable habitat not present on property
Shrub/Early Successional Bird Breeding Habitat	Absent	Suitable habitat not present on property
Terrestrial Crayfish	Absent	Suitable habitat not present on property
Special Concern and Rare Wildlife Species	Absent	No special concern or rare species documented on property
ANIMAL MOVEMENT CORRIDORS		
Amphibian Movement Corridors	Absent	Suitable habitat not present on property
Bat Migratory Stopover Area	Absent	Suitable habitat not present on property

Please note the above SWH criteria are based on guidance provided by the Significant Wildlife Habitat Criteria Schedules For Ecoregion 7E and modified to be specific for the Subject Property.

From: Boudens, Adam
To: Dan Westerhof
Cc: Whittard, Jennifer; Karlewicz, Lori; Emberson, Lola; Phil Fisher; "Mario Bevacqua"
Subject: RE: 613 Helena Street Fort Erie
Date: May 1, 2020 3:35:32 PM

Hi Dan,

Environmental Planning staff have reviewed the rationale provided in your email and provide the following comments:

- Bat Surveys – Staff are supportive of excluding bat surveys at this time provided any treed areas on the property are identified as candidate Significant Wildlife Habitat. As you mentioned, in the event that encroachment into the potential habitat of endangered bats is required, staff will require that correspondence with the MECP be included in the EIS.
- Water Balance – Staff are supportive of deferring this requirement to later in the process provided the Applicant is aware that if it is determined that changes to the proposed buffer or lot layout are required, substantial changes to the Draft Plan may be required. The owner shall assume the full risk and responsibility for any changes that may be required.

I think that completion of the ELC Assessment will help to determine whether either of these two items should be addressed sooner than proposed.

Please let me know if you have any questions.

Have a good weekend,
Adam

Adam Boudens
Senior Environmental Planner/Ecologist

Planning and Development Services, Niagara Region
1815 Sir Isaac Brock Way, P.O. Box 1042
Thorold, ON L2V 4T7
Phone: **905-980-6000 ext. 3770** Toll-free: 1-800-263-7215
Adam.Boudens@niagararegion.ca

From: Dan Westerhof <dwesterhof@beaconenviro.com>
Sent: Tuesday, April 28, 2020 4:45 PM
To: Boudens, Adam <Adam.Boudens@niagararegion.ca>
Cc: Whittard, Jennifer <Jennifer.Whittard@niagararegion.ca>; Karlewicz, Lori <Lori.Karlewicz@niagararegion.ca>; Emberson, Lola <Lola.Emberson@niagararegion.ca>; Phil Fisher <pbfassociates1@yahoo.ca>; 'Mario Bevacqua' <mario.bevacqua@sympatico.ca>
Subject: RE: 613 Helena Street Fort Erie

Hi Adam,

Thank you for your comments and feedback on the EIS terms reference. We are in agreement with most of your points, however we do ask that a couple of the requested study tasks be reconsidered. Our rationale for excluding or deferring to later in the process is provided below.

Endangered Bats (Item #5)

Our recent experience on similar development proposals has been that if the proposal does not affect bat habitat then there is no need to initiate studies or consult with MECP. This is consistent with the latest guidance documents provided by MNRF. As there is no development or site alteration proposed within the potential habitat of endangered bats we are of the opinion that no studies or consultation with MECP is required at this time. In the event that the plans change and require encroachment into the potential habitat of endangered bats, we agree that further study and consultation with MECP will be required.

Water Balance

It has been our experience on smaller infill development sites that it is most effective to complete water balance exercises at the detailed design stage once there is more information available on the development form and associated grading and servicing. The site and surrounding landscape is very flat and we expect that redevelopment of the site will raise grades which will provide flexibility in distributing and redirecting runoff to the surrounding wetland as determined necessary by the water balance study. For this reason, we ask that you consider deferring the water balance investigation to detailed design stage as a condition of draft plan approval. Attached is a supporting letter from the project engineer. If, at detailed design, it is determined that changes to the buffers or lot layout are required to achieve a water balance, such changes can be addressed through redline revisions to the Draft Plan and submission of an EIS addendum. There is also the assurance that if the Region is not satisfied with the revised Draft Plan, that it will not proceed to registration.

If you have any further questions or comments, please feel free to call to discuss.

Thanks,

Dan Westerhof, B.Sc, MES
Terrestrial Ecologist, Certified Arborist
BEACON ENVIRONMENTAL
373 Woolwich Street, Guelph, ON N1H 3W4
T) 519.826.0419 x25 C) 519.362.8595
www.beaconenviro.com

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: Boudens, Adam <Adam.Boudens@niagararegion.ca>
Sent: March 25, 2020 1:22 PM
To: Dan Westerhof <dwesterhof@beaconenviro.com>
Cc: Whittard, Jennifer <Jennifer.Whittard@niagararegion.ca>; Karlewicz, Lori <Lori.Karlewicz@niagararegion.ca>; Emberson, Lola <Lola.Emberson@niagararegion.ca>
Subject: RE: 613 Helena Street Fort Erie

Hi Dan,

Thanks for the productive site visit yesterday.

Regional Environmental Planning staff have reviewed the attached Terms of Reference (TOR) for the 613 Helena Street Environmental Impact Study (EIS) Addendum. While the TOR is generally acceptable, we offer the following comments for your consideration:

1) Staff are supportive that the critical issues and data gaps can be addressed through an EIS Addendum, rather than redoing the entire EIS.
2) If Beacon finds that the existing MNRF boundaries to the PSW are inappropriate, changes to the boundaries must be confirmed with MNRF. Please include all correspondence as an appendix.
3) Please complete an updated Ecological Land Classification (ELC) assessment, and append the ELC cards to the EIS to assist in supporting the characterization of ecological communities.
4) Please update the Significant Wildlife Habitat (SWH) screening table based on your observations/assessment, as appropriate. While conducting a site visit on March 24th, staff noted that Chorus frogs were calling on the subject property or lands immediately adjacent. Please review the amphibian surveys completed previously and determine if new surveys are warranted. Results and discussion should be included in the updated EIS.
5) The previous EIS identified the potential for species-at-risk bats on neighbouring properties. Please confirm through correspondence with the MECP, that the level of study undertaken for this project is satisfactory and that the mitigation measures are acceptable.
6) Please include the limit of construction impact and lot fabric, in relation to the proposed buffers, which was not included in the original EIS. The EIS must also provide a defensible rationale for the recommended buffer widths and how they will serve to mitigate potential impacts to natural heritage features.
7) Please include a discussion on restoration/enhancement opportunities.

Staff are supportive of addressing the following comments through Draft Plan conditions: 1) Assessment of existing buildings for SAR; and 2) Transplanting plan for locally significant species. However, staff request that the water balance be part of the EIS Addendum. The water balance is essential to determine setbacks to the

CNHS and in recommending mitigation measures to protect the hydrology of the wetlands, and therefore cannot be delayed to Draft Plan.

The above comments are provided in effort to ensure that the development application will include all information needed to address the Core Natural Heritage System (CNHS) policies of the Region's Official Plan (ROP). Staff will review the completed EIS against the requirements in the proposed TOR and outlined above. Should Beacon Environmental be of the opinion that one or more of the requirements outlined above should not be included within the EIS scope; Regional staff may entertain a reduced scope if sufficient rationale is provided. Should the comments above be acceptable, staff will accept the Beacon Environmental proposed EIS TOR along with this email as the final EIS TOR, with both appended to the EIS.

Please do not hesitate to contact me if you have any questions or require additional information.

Regional Environmental Planning Fees

New for 2020 is a TOR review fee of $400. We are supposed to wait until this payment is received before providing comments. However, given the length of time it's taken us to get to this file, we've provided our comments below and ask that your client submit the payment retroactively. Payment can be made via credit card by calling Planning and Development Services at 905-980-6000 ext. 3313. Alternatively, please send a cheque for $400 payable to Niagara Region at the address below:

> Niagara Region
> Planning and Development Services
> 1815 Sir Issac Brock Way, P.O. Box 1042
> Thorold, ON L2V 4T7

Please include the note "TOR Review" and the property address on the cheque. Typically you could also drop the cheque off in person at the same address (Campbell West, 2nd Floor), but Regional facilities are currently closed to the public.

Note that you will be required to pay an additional $725 once the application is formally circulated to us by NEC (in addition to other Regional review fees, if applicable). This is the difference between our Minor EIS review fee of $1,125 and the $400 TOR fee (i.e., $1,125 minus $400 = $725).

Kind regards,
Adam

Adam Boudens
Senior Environmental Planner/Ecologist

Planning and Development Services, Niagara Region
1815 Sir Isaac Brock Way, P.O. Box 1042
Thorold, ON L2V 4T7

Phone: **905-980-6000 ext. 3770** Toll-free: 1-800-263-7215
Adam.Boudens@niagararegion.ca

From: Dan Westerhof <dwesterhof@beaconenviro.com>
Sent: Monday, February 17, 2020 8:37 AM
To: Whittard, Jennifer <Jennifer.Whittard@niagararegion.ca>
Subject: 613 Helena Street Fort Erie

Hi Jennifer,

Beacon has been retained to prepare an EIS Addendum for 613 Helena Street in the Town of Fort Erie. Attached are proposed Terms of Reference for your review and approval.

Thanks,

Dan Westerhof, B.Sc, MES
Terrestrial Ecologist, Certified Arborist
BEACON ENVIRONMENTAL
373 Woolwich Street, Guelph, ON N1H 3W4
T) 519.826.0419 x25 C) 519.362.8595

Appendix B

Significant Wildlife Habitat Assessment

Appendix B

Significant Wildlife Habitat Assessment

Significant Wildlife Habitat Type	Habitat Description	Habitat Assessment
Seasonal Concentration Areas of Animals		
Waterfowl Stopover and Staging Areas (Terrestrial)	Fields with sheet water or fields utilized by Tundra Swans during Spring (mid March to May). Fields flooding during spring melt and run-off provide important invertebrate foraging habitat for migrating waterfowl. Agricultural fields with waste grains are commonly used by waterfowl, these are not considered SWH unless used by Tundra Swans in the Long Point, Rondeau, Lk. St. Clair, Grand Bend and Pt. Pelee areas.	**No** Suitable habitat was not observed within the subject property
Waterfowl Stopover and Staging Areas (Aquatic)	Ponds, marshes, lakes, bays, costal inlets and watercourses that are used as stopover areas during migration. These habitat typically have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water).	**No** Suitable habitat was not observed within the subject property
Shorebird Migratory Stopover Area	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	**No** Suitable habitat was not observed within the subject property
Raptor Winter Area	A combination of fields and woodlands that provide roosting, foraging and resting habitat for wintering raptors. These sites need to be larger than 20 ha in size, of which at least 15 ha needs to be comprised of idle/fallow or lightly grazed field/meadow.	**No** Suitable habitat was not observed within the subject property
Bat Hibernacula	Hibernacula may be found in caves, mine shafts, underground foundations and karsts.	**No** Suitable habitat was not observed within the subject property

Significant Wildlife Habitat Type	Habitat Description	Habitat Assessment
Bat Maternity Colonies	Maternity colonies can be found in tree cavities, vegetation and buildings. Deciduous and mixed forest communities with greater than 10 ha of large diameter (> 25 cm dbh) wildlife trees.	**Yes** Potentially suitable habitat was identified within the forested swamps on and adjacent to the subject property
Turtle Winter Areas	Over-wintering sites for turtles are typically in the same area as their core habitat. Waterbodies have to be deep enough to not frees and have soft mud substrates.	**No** Suitable habitat was not observed within the subject property
Snake Hibernaculucm	Snakes hibernate in sites located below frost lines in burrows, rock crevices and other natural locations. Rock piles, slopes, stones fences and crumbling foundations can also be used by hibernating snakes. Areas of broken and fissures rocks can also provides access to sites below the frost line.	**No** Suitable habitat was not observed within the subject property
Colonially - Nesting Bird Breeding Habitat (Bank and Cliff)	Any site or areas with exposed soil banks, undisturbed or naturally eroding that is not a licensed/permitted aggregate area.	**No** Suitable habitat not observed within the subject property
Colonially - Nesting Bird Breeding Habitat Breeding Habitat (Tree/Shrubs)	Nests in live or dead standing trees in wetlands, lakes, islands and peninsulas. Shrubs and occasionally emergent vegetation may also be used.	**No** Suitable habitat not observed within the subject property
Colonially - Nesting Bird Breeding Habitat (Ground)	Nesting colonies of gulls and terns occur on rocky islands or peninsulas within a lake or larger river	**No** Suitable habitat was not observed within the subject property
Migratory Butterfly Stopover Areas	Cultural meadow, savannah and thicket communities that are within 5 km of Lake Ontario, at least 10 ha in size and contain a combination of field and forest habitat	**No** Suitable habitat was not observed within the subject property
Landbird Migratory Stopover Areas	Woodlands that are at least 10 ha in size and within 5 km of lake Ontario.	**No** Suitable habitat not observed within the subject property

Significant Wildlife Habitat Type	Habitat Description	Habitat Assessment
Deer Yarding Areas	Deer yarding areas or winter concentration within a mixed or coniferous forest and swamp communities.	**No** Suitable habitat not observed within the subject property
Deer Winter congregation Areas	Deer movement in winter months within eco-region 6E are not constrained by snow depth, however they still congregate in suitable woodlands. These woodlands will typically be larger than 100 ha in size, however woodlands smaller than 100 ha may be considered significant based on MNR assessments.	**No** Suitable habitat was not observed within the subject property
Rare Vegetation Communities		
Cliffs and Talus Slops	A cliff is a vertical to near vertical bedrock that is greater than 3 m in height. A talus slope is rock rubble at the base of a cliff made up of coarse rocky debris.	**No** Cliffs or tallus slopes were not observed within the subject property
Sand Barren	Sand barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. They have little to no soil and the underlying rock protrudes through the surface. Usually located within other types of natural habitat such as forest or savannah.	**No** Sand barren was not observed within the subject property
Alvar	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.	**No** Alvar was not observed within the subject property
Old Growth Forest	Old growth forests are characterized by heavy mortality or turnover of over story trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris. Stands must be 30 ha or greater in size with a minimum of 10 ha of interior habitat (interior habitat determined with a 100 m buffer).	**No** Old growth forest was not observed within the subject property
Savannah	Savannah is a tallgrass prairie habitat that has tree cover between 20 - 60%.	**No** Savannah habitat was not observed within the subject property
Tallgrass Prairie	Tallgrass Prairie has ground cover that is dominated by prairie grasses. An open tallgrass prairie has less than 25% tree cover.	**No** Tallgrass Prairie was not observed within the subject property

Significant Wildlife Habitat Type	Habitat Description	Habitat Assessment
Other Rare Vegetation Communities	Rare vegetation communities may include beaches, fens, forests, marsh, barrens, dunes and swamps, as identified in Appendix M of the Significant Wildlife Habitat Technical Guide.	**No** Rare vegetation communities were not observed within the subject property
Specialized Habitat for Wildlife		
Waterfowl Nesting Area	Waterfowl nesting areas are upland areas adjacent to marsh, shallow aquatic and swamp habitat. In order to be considered significant these features must extend 120 m from of a wetland in order to deter predators	**No** Suitable habitat not observed within the subject property
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	Nests for these species are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands or on structures over water. Osprey nests are usually at the top of a tree, while Bald Eagle nets are typically in super canopy trees.	**No** No Bald Eagle or Osprey nests were observed within the subject property
Woodland Raptor Nesting Habitat	Woodland raptor habitat can be found in all natural or conifer plantation woodland/forest stands that are greater than 30 ha in size with more than 10 ha of interior forest habitat (interior habitat determined with a 200 m buffer).	**No** Suitable habitat was not observed within the subject property
Turtle Nesting Areas	Ideal nesting habitat for turtles are close to water and away from roads and sites that are less prone to loos of eggs by predation. These areas are often associated with exposed mineral soil (sand or gravel) areas within 100 m of a marsh, shallow aquatic, bog or fen habitat.	**No** Suitable habitat was not observed within the subject property
Seeps and Springs	Seeps/springs are areas where ground water comes to the surface. Often they are found within headwater areas within forested habitats.	**No** Seeps/springs were not observed within the subject property
Amphibian Breeding Habitat (Woodland)	This type of habitat is associated with the presence of a wetland, lake or pond that is within or adjacent (within 120m) of a woodland. Woodlands with permanent ponds or those contain water until mid-July are more likely to be used as breeding habitat.	**Yes (adjacent)** Potentially suitable habitat associated with the woodlands adjacent to the subject property

Significant Wildlife Habitat Type	Habitat Description	Habitat Assessment
Amphibian Breeding Habitat (Wetlands)	Wetlands and pools that are greater than 500 m^2 and are isolated from woodlands (greater than 120 m)	**No** Suitable habitat was not observed on the subject property
Habitat for Species of Conservation Concern (Not including Endangered or Threatened Species)		
Marsh Bird Breeding Habitat	This type of habitat occurs in wetlands with shallow water and emergent aquatic vegetation present	**No** Suitable habitat was not observed within the subject property
Woodland Area-Sensitive Bird Breeding Habitat	Habitats where interior forest breeding birds are breeding. These forests are typically larger mature forest stands or woodlands that are greater than 30 ha in size (interior habitat determined with a 200 m buffer).	**Yes (adjacent)** The woodland south of the property provides habitat for area-sensitive species
Open Country Bird Breeding Habitat	This type of habitat occurs in larger grassland areas (including natural and cultural fields and meadows) that are greater than 30 ha in size. Grasslands that are being actively used for farming (i.e. row cropping, intensive hay, livestock pasturing in the last 5 years) typically do not provide ideal habitat for open country bird species.	**No** Suitable habitat was not observed within the subject property
Shrub/Early Successional Bird Breeding Habitat	This type of habitat occurs in large field areas succeeding to shrub and thicket habitats that are greater than 10 ha in size.	**No** Suitable habitat was not observed within the subject property
Terrestrial Crayfish	This type of habitat occurs in meadows and edge of shallow marshes.	**No** Evidence of terrestrial crayfish (e.g. chimneys) were not observed within the subject property

Significant Wildlife Habitat Type	Habitat Description	Habitat Assessment
Special Concern and Rare Wildlife Species	This type of habitat occurs wherever special concern and provincially rare (S1, S2, S3 and SH) plant and animal species occur.	**Yes (adjacent)** Wood Thrush (SC) was recorded from the woodlands south of the property.
Animal Movement Corridors		
Amphibian Movement Corridors	This habitat consists of movement corridors between breeding habitat and summer habitat. Corridors may be found in all ecosystems associated with water.	**No** There are no apparent connections between amphibian breeding habitat and summer habitat

Appendix C

ELC Data Sheet

ELC COMMUNITY DESCRIPTION & CLASSIFICATION	SITE: 613 Helen		POLYGON: a
	SURVEYOR(S): DW	DATE: May 7 & June 15 2014	UTME
	START	END	UTMZ / UTMN

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☐ TERRESTRIAL ☑ WETLAND ☐ AQUATIC	☐ ORGANIC ☑ MINERAL SOIL ☐ PARENT MIN ☐ ACIDIC BEDRK ☐ BASIC BEDRK ☐ CARB. BEDRK	☐ LACUSTRINE ☐ RIVERINE ☐ BOTTOMLAND ☐ TERRACE ☐ VALLEY SLOPE ☐ TABLELAND ☐ ROLL. UPLAND ☐ CLIFF ☐ TALUS ☐ CREVICE / CAVE ☐ ALVAR ☐ ROCKLAND ☐ BEACH / BAR ☐ SAND DUNE ☐ BLUFF	☑ NATURAL ☐ CULTURAL	☐ PLANKTON ☐ SUBMERGED ☐ FLOATING-LVD ☐ GRAMINOID ☐ FORB ☐ LICHEN ☐ BRYOPHYTE ☑ DECIDUOUS ☐ CONIFEROUS ☐ MIXED	☐ LAKE ☐ POND ☐ RIVER ☐ STREAM ☐ MARSH ☑ SWAMP ☐ FEN ☐ BOG ☐ BARREN ☐ MEADOW ☐ PRAIRIE ☐ THICKET ☐ SAVANNAH ☐ WOODLAND ☐ FOREST ☐ PLANTATION

SITE	COVER
☐ OPEN WATER ☐ SHALLOW WATER ☑ SURFICIAL DEP. ☐ BEDROCK	☐ OPEN ☐ SHRUB ☑ TREED

STAND DESCRIPTION:

LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1 CANOPY	2	4	Acerrubr/ Frapenn Que-sp Ulma
2 SUB-CANOPY	3	3	Frapenn Ulmame Acerubr
3 UNDERSTOREY	3	2	linbenz
4 GRD. LAYER	5	4	Carex sp myosotis clayvirg moss onosens/ ferns

HT CODES: 1 = >25 m 2 = 10<HT 25 m 3 = 2<HT 10 m 4 = 1<HT 2 m 5 = 0.5<HT 1 m 6 = 0.2<HT 0.5 m 7 = HT<0.2 m
CVR CODES: 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:								BA:
SIZE CLASS ANALYSIS:	A	< 10	A	10 - 24	A	25 - 50	R	> 50
STANDING SNAGS:	O	< 10	O	10 - 24	O	25 - 50	R	> 50
DEADFALL / LOGS:	A	< 10	O	10 - 24	R	25 - 50	R	> 50

ABUNDANCE CODES: N= NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE		PIONEER		YOUNG		MID-AGE	✓	MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: SCL	DEPTH TO MOTTLES / GLEY	g = 15	G=
MOISTURE: 6	DEPTH OF ORGANICS:	0	(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:	999	(cm)

COMMUNITYCLASSIFICATION:

COMMUNITY CLASS: Swamp	CODE: SW
COMMUNITY SERIES: Deciduous Swamp	CODE: SWD
ECOSITE: Mineral Deciduous Swamp	CODE: SWD3
VEGETATION TYPE: Red Maple Mineral Deciduous Swamp	CODE: SWD3-1
INCLUSION	CODE:
COMPLEX	CODE: FOD6

Notes:

viewed from edge

ELC PLANT SPECIES LIST	SITE:
	POLYGON:
	DATE:
	SURVEYOR(S):

LAYERS: 1 = CANOPY > 10m 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER
ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COLL.	SPECIES CODE	LAYER 1	2	3	4	COLL.
Queemacr						impcape					
Ulmame						thypfi					
Quemubr						bidfrot					
Carovat						Aegpoda					
Frapenn						chegala					
Acerrubr						carex sp					
Frazpenn						frazvirg					
						canbufo					
						germacu					
						linbenz					
						onosens					
						circ					
						vibdent					
						solmyo					
						Cancrata					
						circman					
						rubpubs					
						glystri					
						carlupu					
						ongplec					
						carbrom					
Prunvirg											
Cirstol											
ribstrif											
Bsnuff											

>50% sand, no shine, slightly sticky, short ribbon

ELC COMMUNITY DESCRIPTION & CLASSIFICATION	SITE: G13 Helen		POLYGON: 16	
	SURVEYOR(S): RW	DATE: May 7 2020		UTME
	START	END	UTMZ	UTMN

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☐ TERRESTRIAL ☑ WETLAND ☐ AQUATIC	☐ ORGANIC ☑ MINERAL SOIL ☐ PARENT MIN ☐ ACIDIC BEDRK ☐ BASIC BEDRK ☐ CARB. BEDRK	☐ LACUSTRINE ☐ RIVERINE ☐ BOTTOMLAND ☐ TERRACE ☑ VALLEY SLOPE ☐ TABLELAND ☐ ROLL. UPLAND ☐ CLIFF ☐ TALUS ☐ CREVICE / CAVE ☐ ALVAR ☐ ROCKLAND ☐ BEACH / BAR ☐ SAND DUNE ☐ BLUFF	☑ NATURAL ☐ CULTURAL	☐ PLANKTON ☐ SUBMERGED ☐ FLOATING-LVD ☐ GRAMINOID ☐ FORB ☐ LICHEN ☐ BRYOPHYTE ☑ DECIDUOUS ☐ CONIFEROUS ☐ MIXED	☐ LAKE ☐ POND ☐ RIVER ☐ STREAM ☐ MARSH ☑ SWAMP ☐ FEN ☐ BOG ☐ BARREN ☐ MEADOW ☐ PRAIRIE ☐ THICKET ☐ SAVANNAH ☐ WOODLAND ☐ FOREST ☐ PLANTATION
SITE			**COVER**		
☐ OPEN WATER ☐ SHALLOW WATER ☑ SURFICIAL DEP. ☐ BEDROCK			☐ OPEN ☐ SHRUB ☑ TREED		

STAND DESCRIPTION:

LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1 CANOPY	2	4	Acerubr fraxpenn Quepalu
2 SUB-CANOPY	3	3	fraxpenn
3 UNDERSTOREY	4	3	rosmult rhamcath viblent
4 GRD. LAYER	5	4	car-spp impcap solmega parqu

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m
CVR CODES: 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:				BA:
SIZE CLASS ANALYSIS:	A < 10	A 10 - 24	O 25 - 50	R > 50
STANDING SNAGS:	O < 10	O 10 - 24	O 25 - 50	R > 50
DEADFALL / LOGS:	O < 10	O 10 - 24	R 25 - 50	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE	PIONEER	YOUNG	☑ MID-AGE	MATURE	OLD GROWTH

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:		(cm)

COMMUNITY CLASSIFICATION:

COMMUNITY CLASS: Swamp	CODE: SW
COMMUNITY SERIES: Deciduous Swamp	CODE: SWD
ECOSITE: Mineral Deciduous Swamp	CODE: SWD
VEGETATION TYPE: Red Maple Mineral Deciduous Swamp	CODE: SWD3-1
INCLUSION	CODE:
COMPLEX	CODE:

Notes:

ELC PLANT SPECIES LIST	SITE:
	POLYGON:
	DATE:
	SURVEYOR(S):

LAYERS: 1 = CANOPY > 10m 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER
ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COLL.	SPECIES CODE	LAYER 1	2	3	4	COLL.
Acerrubr						Solmega					
fraxpenn						Car-spp					
Quepalu						[illegible]					
Quemacr						Clatvirg					
						impcap					
						chelaevi					
						parqu					
						~~[illegible]~~					
						[illegible]					
						ranugr					
						[illegible]					
						[illegible]					
						[illegible]					
						lysnumm					
						glypalu					
Cornrace											
rhamcath											
rosmult											

1M vees next to pond

ELC COMMUNITY DESCRIPTION & CLASSIFICATION	SITE: 613 Helena		POLYGON: 2	
	SURVEYOR(S): DW	DATE: May 7 + Jun 19 2020		UTME
	START	END	UTMZ	UTMN

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☐ TERRESTRIAL ☑ WETLAND ☐ AQUATIC	☐ ORGANIC ☑ MINERAL SOIL ☐ PARENT MIN ☐ ACIDIC BEDRK ☐ BASIC BEDRK ☐ CARB. BEDRK	☐ LACUSTRINE ☐ RIVERINE ☐ BOTTOMLAND ☐ TERRACE ☐ VALLEY SLOPE ☑ TABLELAND ☐ ROLL. UPLAND ☐ CLIFF ☐ TALUS ☐ CREVICE / CAVE ☐ ALVAR ☐ ROCKLAND ☐ BEACH / BAR ☐ SAND DUNE ☐ BLUFF	☑ NATURAL ☐ CULTURAL	☐ PLANKTON ☐ SUBMERGED ☐ FLOATING-LVD ☐ GRAMINOID ☐ FORB ☐ LICHEN ☐ BRYOPHYTE ☑ DECIDUOUS ☐ CONIFEROUS ☐ MIXED	☐ LAKE ☐ POND ☐ RIVER ☐ STREAM ☐ MARSH ☑ SWAMP ☐ FEN ☐ BOG ☐ BARREN ☐ MEADOW ☐ PRAIRIE ☐ THICKET ☐ SAVANNAH ☐ WOODLAND ☐ FOREST ☐ PLANTATION
SITE ☐ OPEN WATER ☐ SHALLOW WATER ☑ SURFICIAL DEP. ☐ BEDROCK			**COVER** ☐ OPEN ☐ SHRUB ☑ TREED		

STAND DESCRIPTION:

LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1 CANOPY	2	1	Quepalu Acerubr Frapein
2 SUB-CANOPY	3	4	Frapein Acerubr Uhame Rhucat
3 UNDERSTOREY	4	4	rosmult corhoen cossti
4 GRD. LAYER	5	4	carsp impcape claryving onosens polypalu

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m
CVR CODES: 0 = NONE 1 = 0% < CVR ≤ 10% 2 = 10 < CVR ≤ 25% 3 = 25 < CVR ≤ 60% 4 = CVR > 60%

STAND COMPOSITION:								BA:
SIZE CLASS ANALYSIS:	A	< 10	A	10 - 24	O	25 - 50	R	> 50
STANDING SNAGS:	O	< 10	A	10 - 24	O	25 - 50	N	> 50
DEADFALL / LOGS:	O	< 10	R	10 - 24	R	25 - 50	N	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE		PIONEER	✓	YOUNG		MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: SiC	DEPTH TO MOTTLES / GLEY	g = 15	G =
MOISTURE: 6	DEPTH OF ORGANICS:	∅	(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:	999	(cm)

COMMUNITY CLASSIFICATION:

COMMUNITY CLASS: Swamp	CODE: SW
COMMUNITY SERIES: Deciduous Swamp	CODE: SWD
ECOSITE: Mineral Deciduous Swamp	CODE: SWD2
VEGETATION TYPE: Green Ash Mineral Deciduous Swamp	CODE: SWD2-2
INCLUSION	CODE:
COMPLEX	CODE:

Notes: <50% sand   long ribbons   sticky not   55cm   slightly shiny

ELC PLANT SPECIES LIST	
	SITE:
	POLYGON:
	DATE:
	SURVEYOR(S):

LAYERS: 1 = CANOPY > 10m 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER
ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COLL.	SPECIES CODE	LAYER 1	2	3	4	COLL.
Frapein						onosens					
Quepalu						lygamer					
Carvrst						clayving					
Acerubr						Carex spp					
Uhame						impcape					
						geumacr					
						~~[illegible]~~					
						Solnigr					
						moss					
						Viola					
						carbull					
						antsp					
						antia					
						Vibdent					
						polypett					
						carvulp					
						carcrin					
						~~cagra~~					
						galpalu					
						roxpalu					
						glnaffin					
						cargrac					
cirswan						Polygonum					
lindenz						Phalarab					
Corssti						glyslin					
rosmult						adrpari					
Saldisc						carbrom					

ELC COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: 613 Helbein			POLYGON: 3	
SURVEYOR(S): DW		DATE: May 7 + Jun 15 2020		UTME
START	END		UTMZ	UTMN

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☑ TERRESTRIAL ☐ WETLAND ☐ AQUATIC	☐ ORGANIC ☑ MINERAL SOIL ☐ PARENT MIN ☐ ACIDIC BEDRK ☐ BASIC BEDRK ☐ CARB. BEDRK	☐ LACUSTRINE ☐ RIVERINE ☐ BOTTOMLAND ☐ TERRACE ☐ VALLEY SLOPE ☑ TABLELAND ☐ ROLL. UPLAND ☐ CLIFF ☐ TALUS ☐ CREVICE / CAVE ☐ ALVAR ☐ ROCKLAND ☐ BEACH / BAR ☐ SAND DUNE ☐ BLUFF	☐ NATURAL ☑ CULTURAL	☐ PLANKTON ☐ SUBMERGED ☐ FLOATING-LVD ☐ GRAMINOID ☐ FORB ☐ LICHEN ☐ BRYOPHYTE ☑ DECIDUOUS ☐ CONIFEROUS ☐ MIXED	☐ LAKE ☐ POND ☐ RIVER ☐ STREAM ☐ MARSH ☐ SWAMP ☐ FEN ☐ BOG ☐ BARREN ☐ MEADOW ☐ PRAIRIE ☑ THICKET ☐ SAVANNAH ☐ WOODLAND ☐ FOREST ☐ PLANTATION
SITE ☐ OPEN WATER ☐ SHALLOW WATER ☑ SURFICIAL DEP. ☐ BEDROCK			**COVER** ☐ OPEN ☑ SHRUB ☐ TREED		

STAND DESCRIPTION

LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1 CANOPY	2	1	Quepalu Acerubr
2 SUB-CANOPY	3	2	Fraxpenn Ulmame Acerubr
3 UNDERSTOREY	3	4	Rhamcath Cornrace Crat Lonitata Vibulent
4 GRD. LAYER	4	4	Rosapalu Fraxvirg Crat-spp Solirugo Carexspp

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m
CVR CODES: 0 = NONE 1 = 0% < CVR ≤ 10% 2 = 10 < CVR ≤ 25% 3 = 25 < CVR ≤ 60% 4 = CVR > 60%

STAND COMPOSITION:				BA:
SIZE CLASS ANALYSIS:	A < 10	O 10 - 24	R 25 - 50	N > 50
STANDING SNAGS:	< 10	10 - 24	25 - 50	> 50
DEADFALL / LOGS:	< 10	10 - 24	25 - 50	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE	PIONEER	YOUNG	MID-AGE	MATURE	OLD GROWTH

SOIL ANALYSIS:

TEXTURE: SiC	DEPTH TO MOTTLES / GLEY	g = 15	G=
MOISTURE: 6	DEPTH OF ORGANICS:	Ø	(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:	999	(cm)

COMMUNITY CLASSIFICATION:

COMMUNITY CLASS: Cultural	CODE: CU
COMMUNITY SERIES: Cultural Thicket	CODE: CUT1
ECOSITE: Mineral Cultural Thicket	CODE: CUT1
VEGETATION TYPE: Buckthorn Mineral Cultural Thicket	CODE: CUT1
INCLUSION	CODE:
COMPLEX	CODE:

Notes:

ELC PLANT SPECIES LIST

SITE:
POLYGON:
DATE:
SURVEYOR(S):

LAYERS: 1 = CANOPY > 10m 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER
ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COLL.
Fraxpenn					
Quepalu					
Rhamcath					
Rhustyph					
Crat					
Acerubr					
Rubsidae					
Vitiripa					
Vibulent					
Vibulent					
Cornrace					
Prunvirg					
Lonitata					

SPECIES CODE	LAYER 1	2	3	4	COLL.
Lysinumm					
Carex sp					
Clayvirg					
Fraxvirg					
Onosens					
Impcape					
Rosapalu					
Dryocart					
Cirsarve					
Symplaev					
Polygonum					
Oxalstri					
Aegopodium					
Circlutetiana					

ELC COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: 613 Halam		POLYGON: 4	
SURVEYOR(S): DW	DATE: May 7 + Jun 15 2020		UTME
START	END	UTMZ	UTMN

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☑ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	☐ NATURAL	☐ PLANKTON	☐ LAKE
☐ WETLAND	☑ MINERAL SOIL	☐ RIVERINE	☑ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN	☐ BOTTOMLAND		☐ FLOATING-LVD	☐ RIVER
	☐ ACIDIC BEDRK	☐ TERRACE		☐ GRAMINOID	☐ STREAM
	☐ BASIC BEDRK	☑ VALLEY SLOPE		☐ FORB	☐ MARSH
	☐ CARB. BEDRK	☐ TABLELAND		☐ LICHEN	☐ SWAMP
		☐ ROLL. UPLAND		☐ BRYOPHYTE	☐ FEN
		☐ CLIFF		☐ DECIDUOUS	☐ BOG
		☐ TALUS		☐ CONIFEROUS	☐ BARREN
		☐ CREVICE / CAVE		☐ MIXED	☑ MEADOW
		☐ ALVAR			☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH / BAR			☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☐ FOREST
					☐ PLANTATION

SITE	COVER
☐ OPEN WATER	☑ OPEN
☐ SHALLOW WATER	☐ SHRUB
☑ SURFICIAL DEP.	☐ TREED
☐ BEDROCK	

STAND DESCRIPTION

LAYER		HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	1	Frapenn
2	SUB-CANOPY			
3	UNDERSTOREY	4	1	frapenn
4	GRD. LAYER	5	4	grasses carspp centaurea juncusspp car spp

HT CODES: 1 = >25 m 2 = 10<HT 25 m 3 = 2<HT 10 m 4 = 1<HT 2 m 5 = 0.5<HT 1 m 6 = 0.2<HT 0.5 m 7 = HT<0.2 m
CVR CODES: 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:					BA:
SIZE CLASS ANALYSIS:	< 10	10 - 24	25 - 50	> 50	
STANDING SNAGS:	< 10	10 - 24	25 - 50	> 50	
DEADFALL / LOGS:	< 10	10 - 24	25 - 50	> 50	

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE	PIONEER	YOUNG	MID-AGE	MATURE	OLD GROWTH

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:		(cm)

COMMUNITY CLASSIFICATION:

COMMUNITY CLASS: Cultural	CODE: CU
COMMUNITY SERIES: Cultural Meadow	CODE: CUM
ECOSITE: Mineral Cultural Meadow	CODE: CUM1
VEGETATION TYPE: Dry-Moist Mineral Cultural Meadow	CODE: CUM1-1
INCLUSION	CODE:
COMPLEX	CODE:

Notes: periodically mowed

ELC PLANT SPECIES LIST

SITE:
POLYGON:
DATE:
SURVEYOR(S):

LAYERS: 1 = CANOPY > 10m 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER
ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COLL.
Salbebb					
Frapenn					

SPECIES CODE	LAYER 1	2	3	4	COLL.
pasture grasses					
phraaus					
sciatro					
junefful					
centdume					
barvulg					
agrstol					
carvulp					
cargran					
sismont					
cargrac					
phlprat					
frapenn					
ranacri					
carsspp					

green fuzz in pond