Environmental Impact Study
Caistor Meadows
Proposed Draft Plan of Subdivision
Caistorville Road, Caistorville
Township of West Lincoln

Prepared For:

DeHaan Homes Inc.

Prepared By:

Beacon Environmental Limited

Date:	*Project:*
2025-07-03	**224049**

BEACON ENVIRONMENTAL

GUIDING SOLUTIONS IN THE NATURAL ENVIRONMENT

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Report Versions Issued

Version	Date	Revisions
1.	June 2025	Date of first submission

1. Introduction

Beacon Environmental Limited (Beacon) has been retained by DeHaan Homes Inc. to undertake an Environmental Impact Study (EIS) for a proposed draft plan of subdivision, Caistor Meadows, to be located on lands along west side of Caistroville Road, south of the intersection of South Chippawa Road and York Road in the Hamlet of Caistorville, Township of West Lincoln. The property is a large farm field that lies south of residential homes along Broman Court, herein after referred to as the subject lands (**Figure 1**). The Township's Official Plan under Official Plan Amendment No. 62 (OPA 62 July 2022) added the subject lands into Hamlet of Caistorville urban settlement expansion area for residential development intensification.

This EIS has been prepared following the requirements of the Environmental Impact Guidelines of the Niagara Region (2018) and the Niagara Peninsula Conservation Authority (NPCA 2022). For the subject lands and adjacent lands, a background review, detailed field investigations, and assessment of natural heritage features and functions were undertaken by Beacon in 2024.

1.1 Overview of Study Area

The subject lands lie in a rural landscape that is dominated by agricultural fields. Caistorville Road forms the east boundary and extensive farm field lies to the east of the road. Active farm field is lies adjacent to the south boundary. The community of Caistorville lies directly to the north. A large 100 ha woodlot lies along the west boundary and includes wetland units of the Provincially Significant (PSW) Caistor Canborough Slough Forest Wetland Complex. The development boundary as shown in the attached **Figure 1.** Over 95% of the subject land supports active farm field (**Photographs 1 & 2)**. The Ministry of Natural Resources and Forestry (MNRF) has mapped wetland units of the PSW along the west and south boundaries. The Niagara Peninsula Conservation Authority (NPCA) has identified a number of regulated drainages features to be associated with the farm field of the subject lands. These features represent headwaters of the Welland River which lies one kilometre to the east. A dug pond at the rear of four residential lots associated with Broman Court is located along the north boundary (**Photograph 3**).

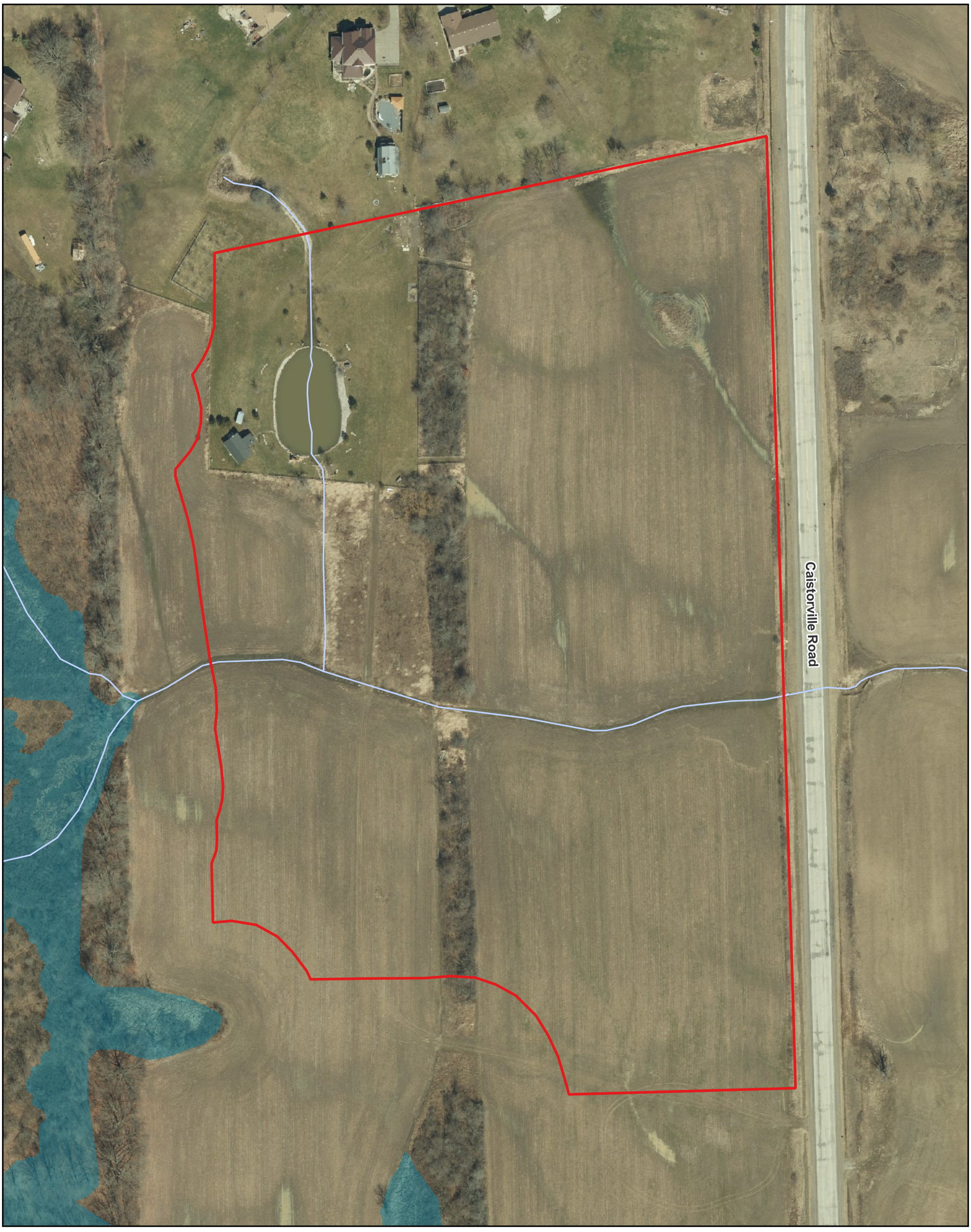
As the area that is to be developed currently represents active farm field, the primary focus of the EIS will be to determine buffer/set back requirements to limit impacts to the Woodlot/PSW.



Photograph 1. Farm Field in the Southern Portion of the Subject Lands, Looking Southwest from Caistorville Road (May 2024)



Photograph 2. Farm Field in the Northern Portion of the Subject Lands, Looking Northwest from Caistorville Road (May 2024)



Legend

- Subject Property (Aproximate)
- Watercourse (MNRF 2023)
- Revised Provincially Significant Wetland

Revised Provincially Significant Wetland	**Figure 1**
Caistorville West Lincoln	
BEACON ENVIRONMENTAL	Project: 224049 Last Revised: July 2024
Client: Dehaan Homes	Prepared by: BD Checked by: RH
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Photograph 3. Dug Pond and Residences Along the Northern Boundary of the Subject Lands, Looking North to Broman Court (March 2024)

2. Planning Context for Natural Heritage Features

The following relevant natural heritage policies and regulations have been reviewed in the context of the proposed development.

2.1 Provincial

The subject lands lie outside of the jurisdiction of the Niagara Escarpment Plan (2017) and Greenbelt Plan (2022a). No natural heritage features of the provincial Growth Plan for the Greater Golden Horseshoe (2022b) are identified within or adjacent to the subject lands. Therefore, the development policies in Section 4.1 Natural Heritage of the Provincial Planning Statement (PPS, 2024) apply.

Section 4.1.4 states that development and site alteration shall not be permitted in:

a) significant wetlands in Ecoregions 5E, 6E and 7E1; and
b) significant coastal wetlands.

Section 4.1. 5 details that development and site alteration shall not be permitted in the following features unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions:

- *significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E1;*
- *significant woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River)1;*
- *significant valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River)1;*
- *significant wildlife habitat;*
- *significant areas of natural and scientific interest; and*
- *coastal wetlands in Ecoregions 5E, 6E and 7E1 that are not subject to policy 2.1.4(b).*

Section 4.1.6 states that development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.

Section 4.1.7 states that development and site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements.

With respect to development on lands that lie adjacent to natural heritage features, Section 4.1.8 states that development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 4.1.4, 4.1.5, and 4.1.6 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions.

2.2 Niagara Region Official Plan (2022)

Pursuant to the Planning Act, as of March 31, 2025, the Niagara Region is an upper-tier municipality without planning responsibilities. The council of an upper-tier municipality, on conditions agreed upon with the council of a local municipality, may provide advice and assistance to lower-tier municipalities in respect of planning matters generally. The Niagara Region will continue to provide planning support and advice to the Township of West Lincoln related to land use compatibility and environmental planning. Through this change to the Planning Act, the Niagara Official Plan, 2022 (NOP) is effectively an official plan of the Township of West Lincoln, which remains in effect until the Township revokes or amends it to provide otherwise. Therefor the Township should be satisfied that the application conforms to the policies of the NOP.

For the subject lands the policies of Section 3.1.9 of the NOP apply, which includes lands in settlement areas (i.e. urban areas and hamlets) and other lands that are outside of a Provincial natural heritage system of the Greenbelt and outside the Niagara Escarpment Plan Area. Section 3.1.9.5.1 states that development and site alteration shall not be permitted Environmental Protection Areas (EPA) including the following natural heritage features and areas: a. provincially significant wetlands; b. significant coastal wetlands; and c. significant woodlands. Section 3.1.9.5.2 states that development and site alteration shall not be permitted Environmenal Conservation Areas (ECA) including the following natural heritage features and areas unless it has been demonstrated through the preparation of an environmental impact study that there will be no negative impacts on the natural features or their ecological functions:

- Other woodlands;
- Significant valleylands;
- Significant wildlife habitat; and
- Areas of natural and scientific interest.

For adjacent lands, Section 3.1.9.7.1 states that a proposal for new development or site alteration outside of a Provincial natural heritage system which is adjacent to a natural heritage feature shall require an environmental impact study and/or hydrological evaluation to determine that there will be no negative impacts on the feature, ecological function, or hydrologic function in accordance with the adjacent lands distances outlined in Table 3.1 Table 3.1 identifies 120 m adjacent lands to a PSW and a Significant Woodland.

With respect to buffer lands to EPA and ECA, Section 3.1.9.9.1 states that within settlement areas, mandatory buffers from natural heritage features and areas are required. The width of an ecologically appropriate buffer would be determined through an environmental impact study and/or hydrological evaluation at the time an application for development or site alteration is made, or through the completion of a subwatershed study in support of a secondary plan or other large-scale development. The width of the buffer would be based on the sensitivity of the ecological functions from the proposed development or site alteration, and the potential for impacts to the feature and ecological functions as a result of the proposed change in land use.

With respect to existing agricultural activities, Section 3.1.9.6 states that nothing in this Plan is intended to limit the ability of existing agricultural uses to continue in areas that are the site of a natural heritage feature or area.

Section 3.1.20.2. states that where the preparation of a subwatershed study or an environmental impact study is required, the study shall demonstrate how enhancements to ecological function, ecological integrity, or biodiversity of the natural environment system can be achieved and will be implemented.

2.3 Township of West Lincoln Official Plan (2018)

The natural heritage development policies are provided in Section 10 of the Township's OP. The Core Natural Heritage System consists of:

i. Core Natural Areas, classified as either Environmental Protection Areas (EPA) or Environmental Conservation Areas (ECA);
ii. Potential Natural Heritage Corridors connecting the Core Natural Areas;
iii. The Greenbelt Natural Heritage and Water Resources Systems; and
iv. Fish Habitat.

The Natural Heritage System is shown on Schedule 'C-1', which provides the framework for natural heritage planning and development review in the Township. Schedule C-1 identifies that no areas within the subject lands represent Natural Heritage System. Schedule C-2 identifies the adjacent woodland along the west boundary and south boundary as EPA, as they represent wetland units of the PSW. Schedule C-3 identifies that no ECA (Significant Woodlands, Other Evaluated Wetlands) are identified to occur within the subject lands. The 100 ha woodlot that lies adjacent to the west boundary does meet the criteria for ECA – Significant Woodland as identified in Policy 10.7.2 (e), a woodland that is $\geq$ 10 hectares, if located outside of an urban area. No wildlife movement corridors or fish habitat are identified on Schedule C-4 to be associated with the subject lands or adjacent lands.

Policy 10.7.2 (K) identifies that residential development is not permitted within areas designated EPA. Policy 10.7.2 (I) states that development and site alteration may be permitted on lands adjacent to EPA (120 m for PSW), or within and adjacent to a ECA (50 m) if support by an EIS that, over the long term, there will be no significant negative impact on the EPA.

Policy 10.7.2 (s) 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 prepared in accordance with Section 10.8. The lands to be retained in a natural state and the adjacent buffer zone shall be maintained as a single block and zoned to protect their natural features and ecological functions.

2.4 Conservation Authorities Act

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

Under Ontario Regulation 41/24 (2024) of the *CA Act*, the NPCA regulates hazard lands including floodplains, watercourses, valleylands, shorelines, and wetlands. NPCA also regulates other areas which include areas within 30 m of a wetland.

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

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

The NPCA may issue a permit with or without conditions

The property is regulated by NPCA due to the presence of the PSW and drainage features.

Any development or site alteration adjacent or within regulated features may trigger the need for a permit.

Niagara Penninsula Conservation Authority Policies (2024)The NPCA April 2024 planning document “Policies for Planning and Development in the Watersheds of the Niagara Peninsula Conservation Authority” provides the principles, objectives, and policies for the administration of the NPCA’s mandate.

2.4.1 Wetlands

Development policies for wetlands are detailed in Section 8 of the policy document. The policy framework within this document recognizes several classes of wetlands: Provincially Significant Wetlands (PSW); b) Non-Provincially Significant Wetlands (non-PSW); and c) Unevaluated wetlands.

For unevaluated wetlands, policy 8.1.2.3 (d) identifies that for unevaluated wetlands where there is no reasonable alternative to avoid development activity within the non-PSW, in accordance with the Protection Hierarchy (avoid/minimize/mitigate first), the NPCA may allow for the reconfiguration and re-creation of the wetland in accordance with NPCA Procedures and subject to the following policies:

i. *The wetland to be reconfigured or re-created is within a Settlement Area;*
ii. *The wetland to be reconfigured or re-created has been evaluated in accordance with the OWES Protocol and is not a PSW;*
iii. *The Protection Hierarchy has been followed and all efforts to protect the feature have been exhausted first;*
iv. *the wetland to be reconfigured or re-created is not protected by any other applicable federal, provincial or municipal requirement(s);*
v. *An EIS is provided for review and approval to demonstrate conformity with Section 8.1.2.3 d);*
vi. *The proposed development activity will not have a negative impact on any species of concern, significant habitat types or species at risk;*
vii. *The proposed development activity will not have a negative impact on the hydrological or ecological function of any remaining portions of the wetland;*
viii. *A restoration plan for the reconfigured or re-created wetland is provided and demonstrates an ecological net gain to the watershed natural system;*
ix. *A multi-year monitoring program is required (minimum five years) to ensure the long-term establishment of the reconfigured or re-created wetland;*
x. *A security deposit in an amount approved by the NPCA is provided to establish the reconfigured or re-created wetland and guarantee its establishment;*
xi. *The applicant is required to enter into a restoration agreement with the NPCA that will be registered on the title of the property containing the reconfigured or re-created wetland that will provide the necessary details to implement the policies of Section 8.1.2.3 d); and*
xii. *Additional information, such as a hydrologic study, restoration plan and or other studies as required depending on site-specific characteristics.*

Policy 8.2.2.1 states that unless exempt by Section 3.5.4, no development activity and/or interference shall be permitted within any wetland. Policy 8.2.2.7 states that site alteration and placement of fill is not permitted within a PSW and any other wetland. Policy 8.2.3 states that unless exempt by Section 3.5.4, development activities or site alteration within 30 metres of a wetland shall not be permitted.

Policy 8.2.3.1 (1) states that where development is proposed adjacent to a wetland, a minimum 30 metre buffer shall be provided. However, Section 8.2.3.1 (2) states that a reduction to a non-PSW buffer can be considered where:

a) There is no other reasonable alternative; and
b) where supported by an EIS in accordance with NPCA Procedural Manual.

2.4.2 Watercourses

NPCA regulate watercourses and development policies for watercourses are detailed in Section 9.

The identification of a regulated watercourse is to be based on the definition of Regulation 41/24 as follows:

- **Watercourse** means a defined channel, having a bed and banks or sides, in which a flow of water regularly or continuously occurs.

Policy 9.2.2 Interference with a Watercourse, states that interference with a watercourse shall not be permitted, except in accordance with other policies.

Section 9.2.3.1 Watercourse Alterations details policies with respect to alterations to a watercourse and states that the NPCA may allow the alteration of a watercourse for the following works:

- Channel realignments;
- Vegetation alteration/spot removal of sediment accumulation;
- Full or partial diversions;
- Retaining walls;
- Revetments;
- Bridges;
- Culverts;
- Docks;
- Erosion control measures;
- Storm sewer outlets; and
- Enclosures greater than 20 metres.

With respect to buffer requirements Section 9.2.5.1 states the following buffer requirements apply to development and site alteration adjacent to a watercourse:

- A 30 metre buffer shall be provided where the watercourse contains 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). Notwithstanding this requirement, the buffer may be reduced where supported by an EIS in accordance with the NPCA Procedural Manual, but in no case shall the buffer be reduced below 15 metres; and
- A 15 metre buffer shall be provided for watercourses containing intermittent flow, warmwater systems or general/impacts aquatic or riparian habitat, or Type 2 Important Fish Habitat or Type 3 Marginal Fish Habitat. Notwithstanding this requirement, the buffer may be reduced where supported by an EIS in accordance with the NPCA Procedural Manual.

2.5 *Endangered Species Act* (2007)

The Ontario's *Endangered Species Act* (ESA, 2007) came into effect on June 30, 2008, and replaced the former 1971 Act.

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 the Ministry of the Environment, Conservation, and Parks (MECP) is required for any activity that could harm a threatened or endangered species or negatively impact their habitat.

3. EIS Scope and Assessment Methodology

3.1 Scope of EIS

In April 2024, Beacon provided the Niagara Region and NPCA with Terms of Reference (TOR) which detailed the scope of work for undertaking the EIS. Following their review the Region provided approval in an e-mail dated April 17, 2024 (**Appendix A**). The scope of the EIS has been undertaken as detailed in the approved TOR and NPCA comments. However, NPCA comments regarding the requirement for a Wetland Water Balance Risk Evaluation is not addressed in this EIS.

3.2 Background Review

For this EIS a background review of the following documents was undertaken:

- Provincial Planning Statement (PPS 2024);
- Provincial Growth Plan for the Greater Golden Horseshoe (2022);
- Township of West Lincoln Official Plan, (2018);
- Niagara Region Official Plan 2022;
- Niagara Region Natural Environment System Online Mapping (2022): https://niagararegion.maps.arcgis.com;
- Niagara Region Environmental Impact Study Guidelines, Version 2, January, 2018;
- NPCA Policy Document: Policies for the Planning and Development in the Watersheds of the Niagara Peninsula (2024);
- NPCA Interim Environmental Impact Study Guideline (2022);
- NPCA Watershed Explorer - https://camaps.maps.arcgis.com/;
- Natural Areas Inventory 2006–2009, Volume 1 and 2. Niagara Peninsula Conservation Authority 2010;
- MNRF List of Species at Risk (SAR) for the Township of West Lincoln;
- Significant Wildlife Habitat (SWH) Criteria Schedules for Ecoregion 7E (MNRF 2015);
- Natural Heritage Information Centre Database https://www.ontario.ca/page/natural-heritage-information-centre 2024;
- Ontario Breeding Bird Atlas https://www.birdsontario.org/;
- Ontario Reptile and Amphibian Atlas https://www.ontarioinsects.org/herp/.
- Ontario Butterfly Atlas https://www.ontarioinsects.org/atlas; and
- Department of Oceans and Fisheries Make a Map Response https://www.dfo-mpo.gc.ca/species-especes/sara-lep/map-carte/index-eng.html.

3.3 Field Surveys

Beacon ecologists undertook seasonal field investigations in 2024. Surveys of the subject lands included headwater drainage features assessment, bat maternity/roosting habitat survey, floral inventory, vegetation community classification, snake surveys, breeding bird and amphibian surveys. Incidental wildlife observations were also noted. Site visits to assess woodland and wetland with staff of the Niagara Region and NPCA were undertaken in July and November 2024. A summary of the seasonal field visits and survey dates is presented in **Table 1.**

More detailed survey descriptions are provided in the subsections that follow. **Appendix F** provides relevant field sheets for the headwater assessment, and bird and amphibian surveys.

Table 1. 2024 Field Survey Dates for the Subject Lands

Field Investigation	Dates 2024
Headwater Features Assessment	March 15th, May 1st, June 2nd, June 16th
Amphibian Breeding Surveys	April 5th, May 1st, July 3rd
Snake Survey	May 1st , June 16th , July 2nd
Breeding Bird Surveys	June 2nd, June 16th, July 2nd
Ecological Land Classification and Flora	April 5th, May 1st, June 5th, July 26th, September 25th, and November 12th
Leaf Off Bat Habitat Assessment	March 15th
Woodlands Assessment with Niagara Region Staff	November 12th
Wetland Assessment with NPCA	July 23rd

3.3.1 Headwater Drainage Features Assessment

For the EIS a foot survey was undertaken and an assessment was made to determine if impacts on regulated watercourses would require a permit from the Conservation Authority pursuant to Section 28.1 of the *Conservation Authorities Act* and *Ontario Regulation 41/24* and determine conformity with the Regions OP Policies 3.1.9.4 and 3.1.10 with respect to a requirement of a Vegetation Protection Zone (VPZ) for watercourses that support a permanent or intermittent flow. The assessment of the drainage features was undertaken in early mid March during the spring freshet following the Headwater Drainage Feature Assessment (HDFA) protocol (TRCA/CVC 2014). An assessment of flow conditions was also undertaken in early May and mid June.

3.3.2 Vegetation

Vegetation communities associated with the subject lands were mapped and described following the protocols of the Ecological Land Classification (ELC) system for Southern Ontario (Lee *et al.* 1998). This involved delineating vegetation communities on aerial photos of the property and recording pertinent information on the community structure and composition.

A three season (spring, summer, fall) floral inventory was undertaken throughout the subject lands and a list of all species observed was complied. It is noted that PSW/Woodland along the west boundary is located on private lands that lie adjacent to the subject lands, therefor inventory for this these areas was visually undertaken by walking the property boundary line.

3.3.3 Wildlife Habitat

3.3.3.1 Amphibian Breeding Surveys

Amphibian surveys were undertaken in early April and May and late June during suitable weather conditions to confirm the presence or absence of breeding frogs and toads. The March survey identified that potential amphibian breeding habitat was only associated with small ephemeral woodland ponds in woodland block associated with the subject lands. **Table 2** summarizes survey start time and weather conditions for the surveys.

Table 2. 2022 Amphibian Breeding Field Survey Dates and Conditions

Date	Start Time (pm)	Temp °C	Wind (Beaufort Scale)	Cloud Cover
April 6th	7:32	12	Light Air (0-1)	3/8
May 1st	8:05	13	Light Air (0-1)	5/8
July 3rd	10:00	20	Light Air (0-1)	8/8

3.3.3.2 Snake Survey

Snake surveys were conducted following the MNRF 2016 Survey Protocol for Ontario's Species at Risk Snakes - Visual Encounter Survey. This included waking transects and the "flipping" of boards and materials that are currently found throughout the subject lands.

3.3.3.3 Breeding Bird Surveys

Three breeding bird surveys were conducted, early June, mid June and early July. **Table 3** summarizes survey start times and weather conditions. Surveys were conducted in the morning on days with low winds (0 to 2 on the Beaufort scale), with temperatures within 5°C of normal and no precipitation. For each survey a foot walk of the subject lands was conducted, and all birds seen or heard were recorded, including birds in the adjacent lands. Point count or transit survey methods were not undertaken, as these survey methods are typically only required for collecting statistically valid data sets for long term studies, or for the survey of large (>100 ha) areas of land.

Table 3. 2022 Breeding Bird Field Survey Dates and Conditions

Date	Start Time (am)	Temp °C	Wind (Beaufort Scale)	Cloud Cover
June 2nd	7:05	21	Light Air (1)	0/8
June 16th	7:13	22	Light Air (0-1)	2/8
July 2nd	9:20	22	Light Air (1-2)	2/8

3.3.3.4 Bat Habitat Assessment

Several bat species are listed as endangered in Ontario: including Eastern Small-footed Myotis (*Myotis leibii*), Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*), and Tri-colored Bat (*Perimyotis subflavus*). These species over-winter in caves and mines. Maternal roosts are often associated with cavity trees and sometimes old buildings (e.g. attics).

A mid March leaf off bat habitat assessment was undertaken along the edge of the adjacent woodland along the western boundary of the subject lands in accordance with the Ministry of the Environment Conservation and Parks (MECP) updated 'Bat Survey Standards' guideline (undated).

As per Step 1 of the protocol (Treed Habitats, Maternity and Day Roosts), any coniferous, deciduous or mixed wooded ecosite that include trees at least 10 cm diameter at breast height (DBH) are considered candidate maternity roost habitat.

Step 1: Complete ELC mapping to determine if any coniferous, deciduous or mixed wooded ecosite, including treed swamps, that includes trees at least 10 cm diameter-at-breast height (dbh) are present. If a suitable habitat is to be impacted by a proposed activity, project proponents should proceed to step 2.

Step 2: Conduct surveys for suitable bat maternity roost trees within the coniferous, deciduous or mixed wooded ecosites. Trees with cavities, loose bark, and/or cracks may support maternity roost habitat for Little Brown Myotis and Northern Myotis (MNRF 2017). In addition, according to the MNRF guidelines (2017), oak trees and, to a lesser extent, maple trees are preferred habitat for Tri-colored Bat and the following trees should be documented:

- Any oak tree >10cm DBH;
- Any maple tree >10cm DBH if the tree includes dead/dying leaf clusters; and
- Any maple tree >25cm DBH.

Step 3: Conduct acoustic surveys within each ELC ecosite determined to be suitable maternity roost habitat in Step 1 to confirm presence/absence of Endangered bat species. The optimal locations of acoustic detectors within the ELC communities are determined based on the data collected in Step 2.

Following Step 2 a field survey was completed during leaf off conditions (**Photograph 4**). Snag trees with characteristics favorable to Myotis species were considered as well as any maple or oak species with a DBH greater than 10 cm was noted to consider habitat for Tri-coloured Bat. As noted above the PSW/Woodland along the west boundary is located on private lands that lie adjacent to the subject lands, therefore inventory for this these areas were visually undertaken by walking the property boundary line. As snag trees were only found to occur in the woodland/PSW block, an area which cannot be developed, acoustic monitoring (Step 3) was not undertaken as per MECP protocol.



Photograph 4. March Leaf Off Conditions for the Woodland Edge Bat Habitat Survey, Looking North Along the Woodland Edge (March 2024)

3.3.3.5 Incidental Wildlife

Incidental observations for the presence of mammals (including direct observation, tracks, scat, and other signs), reptiles and insects were recorded during all other field surveys.

3.3.4 White-tailed Deer Winter Yarding Area

The use of the woodlands adjacent to the subject lands by White-tailed Deer (*Odocoileus virginianus*) as winter shelter habitat was visually assessed in March for evidence of deer tracks, accumulation droppings and deer browsing on shrubs and young trees.

3.3.5 Feature Staking

A site survey was conducted with staff of the NPCA on July 23, 2024, to assess wetland areas. A site survey was conducted with staff of the Niagara Region on November 12, 2024, to assess the dripline edge of the woodland adjacent to the subject lands. The staked dripline was then surveyed by Upper Canada Consultants (UCC).

3.3.6 Assigned Beacon Staff

Project Manager Mr. Ron Huizer, B.Sc.

Principal, Senior Ecologist/EA Specialist

Mr. Ron Huizer conducted all field investigations and is the author of this EIS report. Mr. Huizer is a Senior Ecologist/EA Specialist with over 25 years' experience undertaking field assessment of terrestrial and aquatic environments. His experience includes undertaking detailed bio-inventories of flora and fauna and environmental impact assessments as both project manager and as part of a multi-disciplinary team. He is a recognized wetlands expert in Ontario and has been a technical advisor to the MNRF WETT Committee and been retained by the Ministry of Municipal Affairs and Housing on a number of occasions as an expert witness for wetland-development issues before the Ontario Municipal Board. Ron has completed numerous Environment Impact Studies (EIS) that address protection of Natural Heritage in support of plan of subdivision developments throughout south Ontario.

He has completed Class EAs for a variety of projects following several EA processes, including: the *Canadian Environmental Assessment Act* (CEAA), both screenings and comprehensive studies; Municipal Class EA for Water and Road Projects; and Ministry of Transportation's Provincial Highways Class E for Provincial Transportation Facilities.

Said A. Mohamed, B.Sc.,

Ecologist, Certified Env. Management

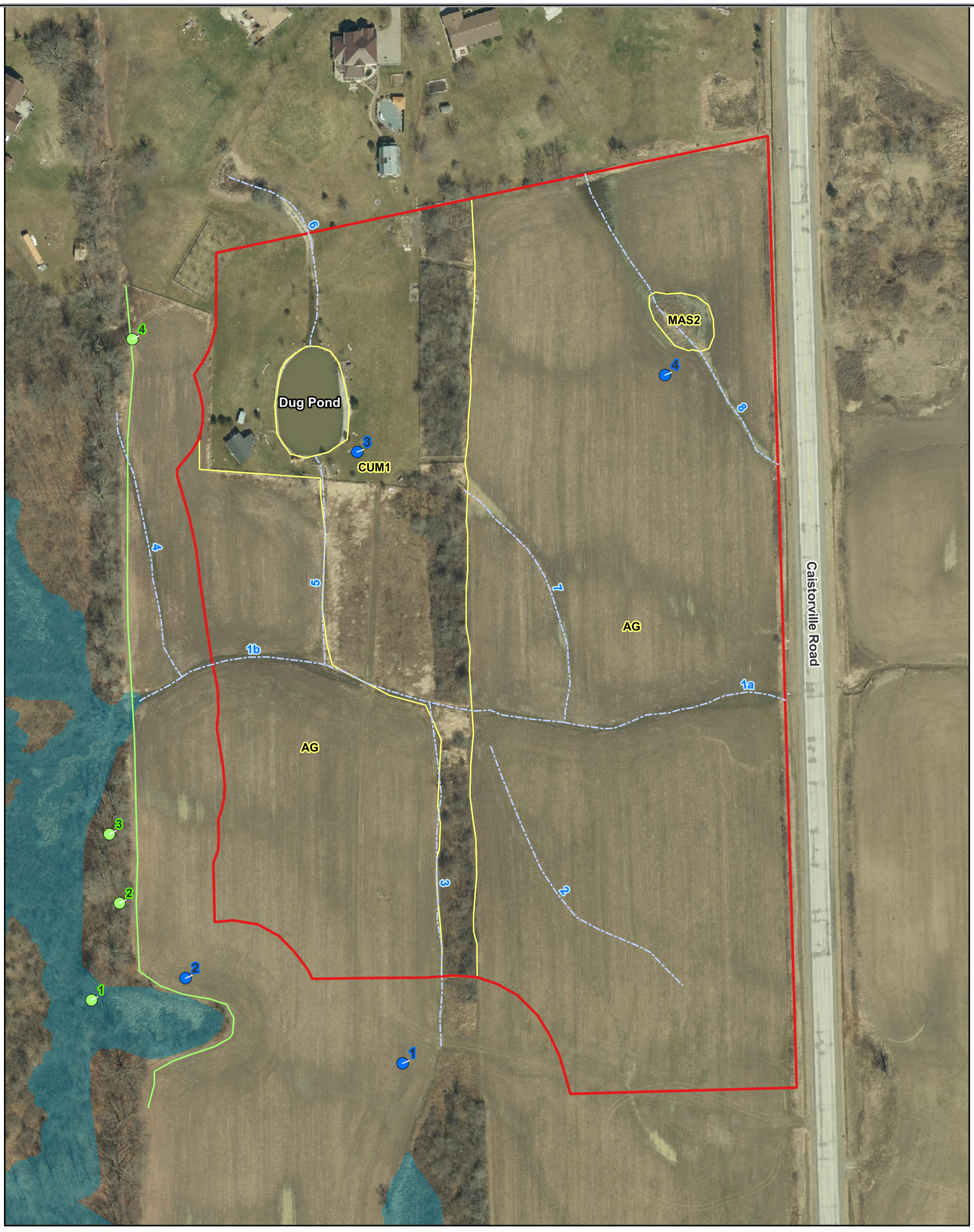
Said has over six years of experience in environmental assessments for residential developments, renewable energy, roads, and mining projects in Ontario conducting baseline studies and interpreting the results. He is experienced in the identification and assessment of natural heritage features, and inventory of flora and fauna, and delineation of woodlands and wetlands. He undertakes field surveys using standard survey protocols such as Ecological Land Classification (ELC) for southern Ontario, Forest Ecosystem Classification (FEC) and the Ontario Wetland Evaluation System (OWES).

4. Description and Assessment of Existing Environment

The following provides a description and assessment of the natural heritage features and functions associated with the subject lands. **Figure 2** presents the features that are detailed in the following sections of the report.

4.1 Headwater Drainage Features

A review of aerial photographs and field survey identified eight headwater drainage features to occur within the subject lands. These features are identified on **Figure 2**. During the March spring freshet surveys were conducted to assess the features following the HDFA (field sheets are provided in **Appendix F)**. Waterflows in these features were again assessed in May and June. The following details the assessment of the drainage features. **Appendix B** provides a photographic record of the drainage features and should be reviewed in association with the following text.



Legend

- Subject Property (Aproximate)
- Ecological Communities
- Drainage Features
- Revised Provincially Significant Wetland
- Dripline
- Amphibian Survey Stations
- Snag Tree Locations

Code	Wetland Communities
MAS2	Mineral Shallow Marsh
	Cultural Communities
CUM1	Mineral Cultural Meadow
	Other Communities
AG	Agricultural Crop

Existing Conditions

Figure 2

Caistorville West Lincoln

BEACON ENVIRONMENTAL

Project: 224049
Last Revised: April 2025

Client: Dehaan Homes

Prepared by: BD
Checked by: RH

N

1:1,450

0 30 60 m

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Orthoimagery Baselayer: FBS Niagara Region (2023)

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Surface water flows across farm field are collected by drainage feature 1 and directed eastward across the subject lands to a culvert crossing at Caistorville Road. Within the subject lands drainage features 1, 2, 4, 7 and 8 are associated with the active farm field, and are regularly ploughed through and maintained by shallow plough furrows. No defined bank or bed is associated with these features. Drainage features 3, and 5 are shallow narrow dug ditches through grass meadow field. For all the drainage features, during the spring freshet flows are very minimal and ponding of water in the farm field is found throughout. Flows are absent by the beginning of May. All features are associated with clay soil, and no silt, gravel or sand substrate is present. Drainage feature 6 is a grass swale with cobble that drains residential lawns southward to a dug pond. Only drainage feature 8 supports wetland, a small 0.04 ha cattail pocket (see section 4.3.1 below).

For all the drainage features no defined banks or bed are present, and they do not represent watercourses as defined by Ontario Regulation 41/24.

4.2 Aquatic Resources and Fish Habitat

No permanent or intermittent watercourse that could support fish habitat occurs within or adjacent to the subject lands.

4.3 Vegetation Communities

4.3.1 Subject Lands

Over 95% of the subject lands support active agricultural field. The following vegetation communities were identified and are presented on **Figure 2**. The ELC groups vegetation communities into two broad categories, naturally occurring communities, and cultural communities. Cultural communities represent vegetated areas that support a plant community that has been strongly influenced by human activities, both past and present, for example the naturalization of a fallowed agricultural field.

Natural Communities

Cattail Shallow Marsh (MAS2)

A small 0.04 ha pocket of cattail shallow marsh is situated in the northeastern portions of the subject property (**Photographs 5 & 6**). This community is dominated by a mix of cattail (*Typha*) and rushes (*Scirpus/Juncus*) with occasional patches of open water. Broadleaf Cattail (*Typha latifolia)* is the most abundant ground layer species in association with Spike Rush (*Elocharis obtusa*) and Soft Rush (*Juncus effusus*). Common Duckweed (*Lemna minor*) was dominant in open water areas in association with Northern Water Plantain. Rare occasions of Common Reed (*Phragmites australis*), Fox Sedge (*Carex vulpinoidea*), and Purple Loosestrife (*Lythrum salicaria*), were noted in the peripheries of the marsh.



Photograph 5. Small 0.04 ha Cattail Marsh Pocket (MAS2) in Ploughed Farm Field in the Northeast of the Subject Lands, Looking North to Broman Court (March 2024)



Photograph 6. Small 0.04 ha Cattail Marsh Pocket (MAS2) in Ploughed Farm Field in the Northeast of the Subject Lands, Looking West (June 2024)

Cultural Anthropogenic Communities

Cultural Meadow (CUM1)

This community is situated in the middle portions of the subject property, extending from the northern to the southern boundaries, representing a total area of 1.5 ha. The community is dominated by herbaceous species with rare occasions of tree and shrub saplings (**Photographs 7 & 8**). Most of these species are those typically found in plant communities that were previously or recently influenced by human activity. During vegetation surveys in late spring and summer of 2024, species such as Queen Ann's Lace (*Daucus carrota*), Redtop (*Agrostis gigantea*), and Reed Canary Grass (*Phalaris arundinacea*) were most notable in the ground layer, but Tall Goldenrod (*Solidago altissima*), Sweet Clover (*Melilotus albus*) and Common Fleabane were also abundant throughout the study area. Shrub species such as Hawthorn (Crataegus sp.), Grey Dogwood, and Silky Dogwood as well as tree species including Siberian Elm (*Ulmus pumila*), Eastern Cottonwood (*Populus deltoides*), and White Ash (*Fraxinua americana*) were present but in rare occasions.

Dug Pond

This 0.1 ha dug pond located at the northwestern portions of the subject property within the grass field cultural meadow (**Photograph 8**). The pond contains mainly algae, but a few patches of Broadleaf Cattail and Fox Sedge occur on its edges. The grass field around the pond is regularly mowed.



Photographs 7. Narrow Strip of Cultural Meadow Community (CUM1) in the Middle Portions of the Subject Lands, Looking North (June 2024).



Photographs 8. Cultural Meadow Community (CUM1) Around Dug Pond in the Northwest Corner of the Subject Lands (June 2024).

Agricultural Field (AG)

As noted over 95% of the subject lands supports active farm field, with rotating crops of corn and soya.

4.3.2 Rare Vegetation Communities

No natural vegetation communities that are considered to be rare for the province (NHIC S1, S2, S3) or the Niagara Region (NPCA 2010) were identified to occur within the subject land.

4.3.3 Adjacent Lands

Woodland and two units of the Provincially Significant Wetland Complex lie adjacent to the west and south boundaries of the development lands. The wetland unit to the south is a narrow wetland "finger" that supports a small cattail marsh and dogwood thicket swamp along its edge **(Photograph 9**). Upland shrub thicket of Common Buckthorn (*Rhamnus cathartica)* and Hawthorn (*Crataegus spp*) is found along the east side of wetland. The wetland along the west has a narrow wetland 'finger" that extends 30 m into the farm field **(Photograph 10**). This wetland area also supports a small cattail marsh surrounded by dogwood thicket swamp.



Photographs 9. Narrow Finger of PSW Located to the South of the Subject Lands, Looking North to the South Boundary (March 2024)



Photographs 10. Narrow Finger of PSW Extending into the Farm Field Along the West Boundary of the Subject Lands, Looking North Along the West Boundary (March 2024)

A PSW forest is mapped along the west boundary of the Subject Lands. The Niagara Region and Township of West Lincoln natural heritage systems also identify the area to support Significant Woodlands. The woodlands located directly along the west boundary line represents trees that once formed a hedgerow along the property line as can be seen in **Figure 2** and **Photographs 4** above and **11, 12 and 13** below. West of the hedgerow, the woodland community is dominated by shrub thicket swamp with scattered young age trees.



Photographs 11. Old Tree Hedgerow Associated with the West Property Line of the Subject Lands, Looking North Along the West Boundary (March 2024)



Photographs 12. Old Tree Hedgerow Associated with the West Property Line of the Subject Lands, Looking North Along the West Boundary (March 2024)



Photographs 13. Old Tree Hedgerow Associated with the West Property Line of the Subject Lands, Looking South Along the West Boundary (June 2024)

4.4 Flora

A list of vascular plants found within the subject lands is provided in **Appendix C**. As most of the subject lands is actively farmed, the area where development will occur supports a low diversity of plants dominated by non-native species that are associated with the cultural meadow community and the edges of the farm field.

Ninety-eight (98) species were recorded. Of the species present, forty-six (46) are non-native species, representing 47% of the plant community. In Niagara Region vegetation communities typically support a floristic composition that is 65% native species and 35% non-native/introduced species (Oldham 1995). For the subject lands the high occurrence of non-native species can be attributed the prolonged farming of the subject lands, which results in an abundance of non-native grasses and field weeds. No species with a Coefficient of Conservatism (CC) of 6 or greater occurs (with a total range of low 0 to a high of 10 - Oldham 1995) within the lands that are to be developed.

4.4.1 Rare Species

No Species at Risk were found occur. None of the species recorded for the subject lands are provincially rare (NHIC S1, S2, S3). No species that is rare for the Niagara Region (Oldham 2010 was found to occur.

4.5 Birds

Thirty-eight (38) bird species were recorded during the field surveys of the subject lands and immediate adjacent land.

The subject lands support bird species of open field, thicket and woodland. The woodland edge long the west boundary of the subject lands did not support typical woodland species, such as Eastern Wood-Pewee (*Contopus virens*), Wood Thrush (*Hylocichla mustelina*), Hairy Woodpecker (*Dryobates villosus*), and Red-eyed Verio (*Vireo olivaceus*). Woodland birds that were recorded included the Great-Crested Flycatcher (*Myiarchus crinitus*), Rose-breasted Grossbeak (*Pheucticus ludovicianus*), Northern Flicker (*Colaptes auratus*), and Baltimore Oriole (*Icterus galbula).* Three species were associated with the dung pond, including Canada Goose (*Branta canadensis*), Mallard (*Anas platyrhynchos*) and Green Heron (*Butorides virescens*). Thicket and open field species are well represented, including Eastern Kingbird (*Tyrannus tyrannus*), Horned Lark (*Eremophila alpestris*), Northern Mockingbird (*Mimus polyglottos*), Northern Cardinal (*Cardinalis cardinalis*), Song Sparrow (*Melospiza melodia*), Vesper Sparrow (*Pooecetes gramineus*), Field Sparrow (*Spizella pusilla*), and Savannah Sparrow (*Passerculus sandwichensis*).

Table 4. Birds Documented for the Adjacent Lands

Common Name	Scientific Name
Mallard	*Anas platyrhynchos*
Canada Goose	*Branta canadensis*
Red-tailed Hawk	*Buteo jamaicensis*
Turkey Vulture	*Cathartes aura*
Green Heron	*Butorides virescens*
Killdeer	*Charadrius vociferus*

Common Name	Scientific Name
Mourning Dove	*Zenaida macroura*
Red-bellied Woodpecker	*Melanerpes carolinus*
Downy Woodpecker	*Picoides pubescens*
Northern Flicker	*Colaptes auratus*
Eastern Kingbird	*Tyrannus tyrannus*
Great Crested Flycatcher	*Myiarchus crinitus*
Horned Lark	*Eremophila alpestris*
Barn Swallow	*Hirundo rustica*
Northern Mockingbird	*Mimus polyglottos*
American Crow	*Corvus brachyrhynchos*
Black-capped Chickadee	*Poecile atricapillus*
Blue Jay	*Cyanocitta cristata*
House Wren	*Troglodytes aedon*
American Robin	*Turdus migratorius*
Grey Catbird	*Dumetella carolinensis*
European Starling	*Sturnus vulgaris*
Yellow Warbler	*Dendroica petechia*
Common Yellowthroat	*Geothlyphis trichas*
Northern Cardinal	*Cardinalis cardinalis*
Rose-breasted Grosbeak	*Pheucticus ludovicianus*
Indigo Bunting	*Passerina cyanea*
Vesper Sparrow	*Pooecetes gramineus*
Savannah Sparrow	*Passerculus sandwichensis*
Song Sparrow	*Melospiza melodia*
Field Sparrow	*Spizella pusilla*
Chipping Sparrow	*Spizella passerina*
Common Grackle	*Quiscalus quiscula*
Red-winged Blackbird	*Agelaius phoeniceus*
Brown-headed Cowbird	*Molothrus ater*
Baltimore Oriole	*Icterus galbula*
American Goldfinch	*Cardeulis tristis*
House Sparrow	*Passer domesticus*

4.5.1 Rare Species

No species recorded within the subject lands are identified as provincially rare (NHIC S1, S2, S3) or listed by the ESA as endangered or threatened were found to occur within the subject lands. One species that is listed as special concern, the Barn Swallow (*Hirundo rustica*), was recorded conducting feeding flights over the farm field. A small wood shred located along the bank of the dug pond (see **Photograph 8** above) could provided breeding habitat; however inspection of the shed did not find nests of the swallow to be present. No other structures that could support a nesting site for Barn Swallow is associated with the subject lands.

No species considered to be rare in the Niagara Region (OBBA 2024) was recorded.

4.6 Amphibians and Reptiles

4.6.1 Amphibians

Amphibian breeding surveys were undertaken in April, May and early July to confirm the presence or absence of breeding frogs and toads. Four areas were identified that could support breeding habitat, two PSW wetland areas along south and west boundary (**Photographs 14 & 15**), the dug pond, and the small cattail pocket in the northeast corner of the subject lands (**Photographs 5 & 6** above). Survey stations were established to monitor these four sites and are presented on **Figure 2.** Field survey sheets are provided in **Appendix F**. **Table 5** provides a summary of the three surveys undertaken at the sites. The highest calling code recorded for each species is presented in the Table.



Photograph 14. Survey Station 1 Amphibian Breeding Pond Along the South Boundary (May 2024)



Photograph 15. Survey Station 2 Amphibian Breeding Site Along the West Boundary of the Subject Lands (April 2024)

Table 5. Amphibian Breeding Survey

Survey Sation	Highest Calling Code Recorded for Species	
1	Chorus Frog	3
	Spring Peeper	2
2	Chorus Frog	2
	Spring Peeper	2
	American Toad	1
	Northern Leopard Frog	1
	Green Frog	1
	Gary Tree Frog	1
3	Chorus Frog	2
	Spring Peeper	2
	American Toad	1
	Northern Leopard Frog	2
	Green Frog	2
4	Chorus Frog	1

Surveys recorded six species, with survey station 2 supporting the most species. Typical of the Niagara Region, Western Chorus Frog (*Pseudacris triseriata*) was the most abundant species, followed by Spring Peeper (*Hyla crucifer*). More aquatic species, the Northern Leopard Frog (*Lithobates pipiens*) and Green Frog (*Lithobates clamitans*), were recorded for survey stations 2 and 3. Survey station 3 which represents a dug pond supported a calling code of 2 for these two species. Low numbers of American Toad (*Anaxyrus americanus*) were also recorded at these two sites.

Survey station 2 recorded low numbers of Gray Tree Frog (*Dryophytes versicolor*). This species was heard calling from a wetland area located further to the west of the property boundary. The small cattail marsh pocket at survey station 4 recorded only one species, with low numbers of Chorus Frog during the April survey. No calls were heard a station 4 for any species during the May and July surveys as no standing water was present.

Based on the survey results, the wetland areas along the west boundary support quality amphibian breeding habitat. As expected, the dug pod supports the more aquatic species, but in low numbers. The small cattail pocket in the northeast of the farm field represents very poor amphibian breeding habitat, and is most likely is a population sink for Chorus Frog due to the short hydro period.

4.6.2 Reptiles

Following the MNRF snake visual survey method, during site visits the fields around dug pond were cris-crossed to look for snakes. In addition, the numerous cover boards that occur within the fields were flipped to look for the presence of snakes (**Photographs 16, 17, & 18)**. During March and April surveys, the site was specifically surveyed for concentrations of snake that would indicate the potential for snake hibernacula.

Two species of snake was observed, the Common Garter Snake (*Thamnophis sirtalis*) and Dekay's Brownsnake (*Storeria dekayi*). Both species are common to the Niagara Region (Yagi et al 2009). Though potential habitat occurs for the special concern Eastern Ribbon Snake (*Thamnophis sauritus*), transect surveys and flipping of cover boards did not record the species. Spring surveys did not find snake numbers that would indicate the presence of hibernacula for snakes.

Though the dug pond could provide aquatic habitat to support turtles no turtles were observed during any of the site surveys.



Photograph 16. Snake Cover Boards Found Throughout the Cultural Meadow Around the Dug Pond (Early May 2024)



Photograph 17. Snake Cover Boards Found Throughout the Cultural Meadow Around the Dug Pond (Early May 2024)



Photograph 18. Snake Cover Boards Flipped During Snake Surveys (Early May 2024)

4.7 Mammals

Surveys targeting mammals were not undertaken as part of this study. However, several common mammal species were observed incidentally during field surveys, either directly or by other sign (e.g., tracks, scat, etc.). These included: Eastern Cottontail Rabbit (Sylvilagus floridanus), Eastern Grey Squirrel (*Sciurus carolinensis*), Northern Raccoon (*Procyon lotor*), Red Fox (*Vulpes vulpes*), Coyote (*Canis latrans*), and White-tailed Deer (*Odocoileus virginianus*). As the subject lands support active farm field, habitat for these species is limited to the woodlot associated with the surrounding adjacent lands. All species are common to the urban/rural areas of Niagara.

The use of the woodlands adjacent to the west boundary of the subject lands by White-tailed Deer (*Odocoileus virginianus*) as winter shelter habitat was visually assessed in March for evidence of deer tracks, accumulation of droppings and deer browsing on shrubs and young trees. No evidence of deer concentrations was observed.

4.7.1 Endangered Species of Bats

In Niagara four species of bats occur that are listed as provincially endangered and receive species and general habitat protection under the *Endangered Species Act* (ESA 2007), the Little Brown Myotis, Northern Myotis, Eastern Small-footed Myotis and Tri-colored Bat. For these species summer roost and maternity sites are associated with snag trees that support cracks, crevices, holes and cavities, as well as loose bark and clusters of old leaves, including squirrel nests. To determine the potential for the trees to provide maternity or roosting habitat, the MECP bat habitat survey protocol was undertaken along the woodland edge of the subject lands in March for snag trees that could provide roosting/maternity habitat for bats.

This survey identified only four (4) trees that could provide habitat for woodland bats, three of which were leaf nests (**Photographs 19 & 20).** The location of the individual trees is provided on **Figure 2** and the field assessment information for the trees in provided in **Appendix F**.

As no development will occur in potential habitat for SAR bats associated with EPA woodlot, Step 3 of the Protocol, acoustic monitoring, was not undertaken.



Photograph 19. Leaf Nest in Edge Tree That Could Provide Woodland Bat Roosting/Maternity Habitat (March 2024)



Photograph 20. Leaf Nest in Edge Tree That Could Provide Woodland Bat Roosting/Maternity Habitat (March 2024)

4.8 Provincially Significant Wetlands or ANSIs

The MNRF has identified wetland units of the Provincially Significant (PSW) Caistor Canborough Slough Forest Wetland Complex along the west and south boundary of the subject lands.

No Areas of Natural Scientific Interest (ANSI) at the provincial or regional level are identified by the MNRF to occur within or adjacent to the subject lands.

4.9 Township of West Lincoln EPA and ECA

Schedule C-2 identifies that no EPA occur with the subject lands. The adjacent woodland along the west boundary and south boundary is identified as EPA, as they represent wetland units of the PSW. Schedule C-3 identifies that no ECA (Significant Woodlands, Other Evaluated Wetlands) are identified to occur within the subject lands. The 100 ha woodlot that lies adjacent to the west boundary does meet the criteria for ECA – Significant Woodland

4.10 Species at Risk (SAR)

Appendix D provides an assessment for the potential of species listed as endangered or threatened. No species were observed during field surveys.

As identified above, one special concern bird species, the Barn Swallow was observed feeding of over the subject lands. However, no nesting activity was observed. The ESA regulations for the protection of habitat does not apply to species of special concern.

4.11 Significant Wildlife Habitat

Under the PPS the identification of Significant Wildlife Habitat (SWH) is the responsibility of Regional and local planning authorities. The Region supports the MNRF SWH criteria for Ecoregion 7E (MNRF 2015/2000). According to the Ontario 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 Special Concern; and
- Animal Movement Corridors.

The active farm fields that dominated the subject lands do not support SWH. **Appendix D** provides an assessment for the potential SWH for the woodlot associated with the west boundary of the subject lands. The following SWH was identified to occur:

- Amphibian Woodland Breeding Habitat.

The following SWH was identified to potential occur:

- Potential bat maternity habitat; and
- Habitat for Woodland Area-Sensitive Bird Breeding.

4.12 Significant Woodland

The woodlot located along the west boundary of the subject lands supports the Niagara Region and Township of West Lincoln's criteria for a significant woodland designation.

4.13 Significant Valleylands

Generally Significant Valleylands are defined as distinctive landforms that have a degree of naturalness, importance of ecological functions, potential for restoration, or historical and cultural values. No valleylands are associated with subject lands or the adjacent lands.

5. Draft Plan of Subdivision

The proposed draft plan is presented in **Appendix E** and should be reviewed in conjunction with the following text. The proposed development footprint is approximately 7.3 hectares in size, fronting Caistorville Road. The residential development includes 14 large (0.4 ha) single-family lots. Road access to the subdivision will be via a circular street that will have two intersections with Caistorville Road.

As no sanitary sewer or watermain exists in proximity to the site, each residence will be constructed with associated individual private septic and cistern water system. A Stormwater Management Plan completed by Upper Canada Consultants (UCC 2024) determined that stormwater quantity controls are not considered necessary. Stormwater quality control is to be provided to Normal Protection 70% TSS removal levels. For this quality level the stormwater management plan will include the grading of lots for a combination of split and rear to front drainage with all lots draining to the interior road ditch/swale drainage system. Grassed swales will be employed to achieve water quality objectives for discharge of stormwater runoff to the receiving tributary watercourse to Welland River. Additional stormwater management practices that will be implemented include flatter lot grades, roof water leaders discharging to the surface and grassed rear yard swales.

5.1 Retained Natural Heritage Features and Buffers

Based on an assessment of environmental conditions and the applicable natural heritage development polices of the Province, Niagara Region and Township of West Lincoln there are no EPA or ECA features present within the development footprint which require retention.

Environmental Protection Block 15 provides a 30 m + wide corridor in which drainage feature 1 will be retained to convey surface water and stormwater flows eastward to the culvert at Caistorville Road. This corridor will provide a 15 m buffer to the drainage feature 1 along the rear of the lots and the street.

Outside of the plan of development addition lands of the owner are identified along the west property boundary which provides a 30 m + setback from the east boundary of the plan of subdivision to the boundary of the off-site PSW and dripline edge of the Significant Woodland. As part of the draft plan approval process these additional lands that are not included within the draft plan will be zoned Environmental Protection.

A point of PSW is located on additional lands of the owner south of the rear of Lot 4. Most of the rear lot lines are located 30 m from the boundary of the PSW, with only a 15 m section of the lot line occurring within 18 m of the point of the PSW. A protective cultural thicket surrounds the wetland point (see Figure 2) and only grass lawn will occur along the lot line. Therefore, this very localized reduction to the 30 m buffer is not considered to be significant with respect to potential impacts to the PWS unit.

6. Environmental Impact Assessment and Mitigation

The subject land where development is proposed is currently 95% active farm field. The development will require the removal of cultural meadow (CUM 1), a dug pond, a small 0.04 ha pocket of cattail wetland (MAS2) and six drainage features. Drainage features 1 and 3 will be retained. The following provides further potential impact assessment of the proposed development to the natural heritage features and function. Mitigation measures are identified that will reduce the potential impacts.

6.1 Direct Impact

6.1.1 Cultural Meadow (CUM1)

Cultural meadow, representing a total area of 1.5 ha, is associated with the dug pond at north boundary and extends southward as a narrow band through active farm field to the south boundary. The community is comprised of field weeds and grasses, many of which are non-native. No significant wildlife features or function are associated with the community. Based on the existing condition, no direct mitigation to off set its removal is required.

However, the lands that are located within EP Blocks 15 and the additional lands of the owner located directly to the west currently support active farm field and these areas will be seeded with a native grass and forb mix to create 3.9 ha of meadow habitat. The creation of this meadow habitat within EP Block 15 and the additional lands of the owner to the west that will be zoned EP should be identified as a condition of draft plan approval.

6.1.2 Cattail Pocket and Dug Pond

The development of Lot 11 will result in the removal of a 0.04 ha cattail pocket. This small wetland which is surrounded by active farm field provides few ecological functions, however, field survey did record limited amphibian breeding. This unevaluated small wetland pocket will be regulated by the NPCA pursuant to Ontario Regulation 41/24. In addition, the development of Lot 7 will result in the removal of a 0.1 ha dug pond. Though not a natural feature, and not regulated by the NPCA, field survey also identified that the pond supports amphibian breeding.

For unevaluated wetlands, NPCA policy 8.1.2.3 (d) identifies that where there is no reasonable alternative to avoid development activity within wetland, in accordance with the Protection Hierarchy (avoid/minimize/mitigate first), the NPCA may allow for the reconfiguration and re-creation of the wetland. A protection hierarchy has been applied, which is Avoid, Minimize, and Mitigate with compensation as the last consideration.

Avoid

The small wetland pocket is outside of the natural heritage system within an agricultural area and is located centrally within the development area and retention of the feature, including maintaining surface water flows to wetland, would result in a significant constraint to the development. In addition, if the wetland area is retained, buffer lands to the wetland would need to be identified, which would exceed the size of the small, isolated feature, resulting in a greater development constraint. The proposed development has a small footprint (7.3 ha), and retention of to the wetland and required buffer lands would significantly impact the developable area. Avoidance is therefore not considered to be a reasonable option.

Minimizing Impact on Wetland

The wetland is a small 0.04 ha pocket and retention of part of the wetland area to minimize impacts to the feature is not a reasonable option as it would result in the retention of a small, remanent wetland surrounded by development with very limited ecological function.

Mitigate with Compensation

For the development of the subject lands, as detailed above, retention or all or part to the small wetland pocket is not a reasonable option in the context of the proposed development given the small size and limited function outside the natural heritage system. Therefore, the proposed draft plan will result in the removal of the entire feature. Assessment of the wetland has identified that it supports a simple cattail marsh wetland community and has low ecological function, therefore compensation for the removal of the wetland area is a reasonable option. NPCA Policy 8.1.2.3 (d) allows for consideration for the removal of a non-PSW wetland area provided the removal is mitigated by the re-creation of a wetland area. NPCA Policy 8.1.2.3 (d) identifies criteria for supporting the removal of an unevaluated wetland area with compensation. **Table 6** provides an assessment of the criteria for the removal of the wetland within the subject lands. Based on the assessment criteria, the removal of the wetland area with the recreation of a new wetland area is supported.

Table 6. NPCA Criteria for Supporting the Removal of Wetland Areas

Criteria	Subject Lands Wetland
The wetland to be reconfigured or re-created is within a Settlement Area.	The wetland is located on lands that that represents a recent expansion to the Caistorville Rural Settlement Area boundary.
The wetland to be reconfigured or re-created has been evaluated in accordance with the OWES Protocol and is not a PSW.	Based on the very small size of the wetland, lack of complexity, and absence significant features or function applying the OWES would not identify the wetland as Provincially Significant Wetland (PSW).

Criteria	Subject Lands Wetland
The Protection Hierarchy has been followed and all efforts to protect the feature have been exhausted first.	A protection hierarchy has been untaken and identified that a development plan that avoids or minimizes impacts to the wetland area is not a reasonable option for good planning.
The wetland to be reconfigured or re-created is not protected by any other applicable federal, provincial or municipal requirement(s).	No other protection policies at the federal, provincial or municipal level of government apply to the wetland area.
An EIS is provided for review and approval to demonstrate conformity with Section 8.1.2.3 d).	This EIS assessment of the natural heritage features provides support for the removal and re-creation of the wetland area.
The proposed development activity will not have a negative impact on any species of concern, significant habitat types or species at risk.	Assessment of the wetland area has established that there are no species at risk and no significant wildlife habitat as defined by the MNRF for eco-region E7 is present.

To mitigate the loss of the wetland and dug pond amphibian breeding habitat, a pond will be dug in the additional lands of the owner to the west that will be zoned EP. The new pond will be located at the location were drainage feature 1 enters the property. In addition to the open water pond, wetland plants and shrubs will be planted along the pond margins to re-create a mash wetland pocket. The creation of this pond and wetland habitat should be identified as a condition of draft plan approval. Note that removal of the wetland will require a Pemit from the NPCA.

6.1.3 Headwater Drainage Features

Field survey identified eight headwater drainage features to occur within the subject lands. These features were assessed following the HDFG. All the drainage features support ephemeral flows. Drainage features 1, 2, 4 ,7 and 8 and are regularly ploughed through in active farm field. Drainage features 3 and 5 are narrow, shallow, dug ditches that run along the west edge of a narrow band of cultural meadow. Drainage feature 3 conveys ephemeral flows from the PSW located to the south northward to drainage feature 1. Drainage feature 5 conveys the out flow from the dug pond southward to drainage feature 1. Drainage feature 6 is a grass swale lined with cobble that drains residential lawns southward to a dug pond. These drainage features do not present a defined bed, or banks, or sides and therefore do not represent a watercourse as defined by *Ontario Regulation 41/24* and therefore they are not regulated watercourses that would require a permit from the NPCA pursuant to Section 28.1 of the *Conservation Authorities Act*.

As per the HDFG **Table 7** provides a summary of the functional classification and management assessment for the eight drainage features that were identified. For the assessment criteria all the drainage features support ephemeral flows and no fish habitat is present. Riparian habitat is limited to cultural meadow for drainage features 3, 5 and 6. Based on the HDFG Figure 2 flow chart providing direction on management options, the assessment determined that no management protection or mitigation is required for the removal of drainage features 1, 2, 4, 7 and 8.

Table 7. HDFG Functional Classification and Management Assessment

Drainage Feature	Step 1		Step 2	Step 3	Step 4	HDF Management Assessment
	Hydrology	Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	
Drainage Features 1,2,4,7,8 As Identified on Figure 2.	Ephemeral **Contributing Functions**	Ploughed Through in Active Farm Field	Dominated by cropped land **Limited Functions**	No Fish Habitat within the subject lands or adjacent lands. **No Functions**	No terrestrial habitat present **No Functions**	No Management Required
Drainage Feature 3	Ephemeral **Contributing Functions**	Narrow shallow dug ditch	Band of meadow habitat along one side **Valued/Contributing Functions**	No Fish Habitat within the subject lands or adjacent lands. **No Functions**	Limited meadow riparian habitat that connects Dug Pond to other drainage features located in active farm field downstream **Limited Functions**	Maintain/Replicate Terrestrial Linkage
eDrainage Feature 5	Ephemeral **Contributing Functions**	Narrow shallow dug ditch	Band of meadow habitat along one side **Valued/Contributing Functions**	No Fish Habitat within the subject lands or adjacent lands. **No Functions**	Limited meadow riparian habitat that connects Dug Pond to other drainage features located in active farm field downstream **Limited Functions**	Maintain/Replicate Terrestrial Linkage
Drainage Feature 6	Ephemeral **Contributing Functions**	Grass swale lined with cobble	Lawn/meadow habitat along both sides **Valued/Contributing Functions**	No Fish Habitat within the subject lands or adjacent lands. **No Functions**	Limited meadow riparian habitat that connects to a dug pond downstream **Contributing Functions**	Maintain/Replicate Terrestrial Linkage

The management for drainage features 3, 5 and 6 is to maintain or replicate linkage functions. Drainage feature 3 will be maintained in the same location in a constructed grass swale between lots 3 and 4 and will continue to direct flows to drainage feature 1 and provide linkage from the PSW to the naturalized 30 m + corridor that will be established along drainage feature 1. Drainage features 5 and 6 will be removed. These features provide limited terrestrial linkage, and the creation of the naturalized corridor for drainage feature 1 and retention of drainage feature 3 will compensate the loss of linkage by providing linkage to the PSW units to the west and south. As noted above, the 30 m + corridor that will be naturalized to create meadow habitat along drainage feature 1 will significantly increase the ecological function of drainage feature 1 which is currently ploughed through in active farm field.

Based on the existing conditions and the proposed development plan mitigation/compensation measures, the ecological functions of the eight drainage features will be maintained and enhanced.

6.2 Assessment of Potential Indirect Impacts and Mitigation

Based on the proposed development and site conditions potential indirect impacts are limited to buffer lands along woodland/PSW and the retained drainage feature 1.

The following indirect impacts have the potential to occur:

- Alterations in post development surface water flows to drainage feature 1 and PSW;
- Sediment transport into drainage feature 1; and
- Post development removal/damage of vegetation and composting and dumping of yard waste into buffer lands along drainage feature 1 and Woodland/PSW.

6.2.1 Design Mitigation Measures

The following design mitigation measures are identified to address potential indirect impacts.

Surface Water Flows

The stormwater management plan (UCC 2024) identifies that grading works and swales/ditching associated with the residential lots and street will direct flows to drainage feature 1 which is the current condition for surface water flows. Therefore, the downstream flows east of Caistorville Road will be maintained. For the PSW along the west boundary of the subject lands, the stormwater management plan identifies that surface water flows within and along the boundary of the wetland are eastward. Therefore, the post development water balance of the PSW will not be impacted by the development.

Landscape Plan for EP Block 15 and EP Additional Lands of the Owner

The lands currently associated with EP Block 15 and additional lands of the owner to the west that will be zoned EP represent active farmed field with sediment transport from the farm field into drainage feature 1. To eliminate sediment transport in the retained drainage feature 1, as detailed above, the bare ground farm field that is currently found in along the drainage feature corridor will be naturalized to created meadow habitat.

Permanent Fencing

To prevent post development impacts on EP Block 15, and the EP Additional Lands of the Owner, along the rear of lots associated with EP Block 15 and lots 4 through 7 a 1.5 m high chain link fence should be constructed. In addition, “a no gate” condition should be identified by the Township.

6.2.2 Construction Mitigation Measures

Potential indirect impacts during the construction phase can be mitigated by standard construction mitigation measures which are detailed below.

Construction Exclusion Filter Fabric and Paige Wire Fencing

To help ensure that site clearing and grading, or movement of heavy equipment does not impose on the woodland/PSW along west boundary, for the duration of the construction phases paige wire fencing with filter fabric for the first 1 m should be installed. Fencing should be installed by prior to the start of any construction works and maintained during the entire development process. The fencing should be removed only when development work is completed.

Sediment and Erosion Control

For the protection against erosion and sediment transport into drainage feature 1 an Erosion and Sediment Control Plan is required which is to be approved by the NPCA. The plan should be developed based on the Erosion & Sediment Control Guidelines for Urban Construction (2006) for the Greater Golden Horseshoe Area Conservation Authorities.

Material Storage and Fueling

Storage of equipment and materials and the fueling of equipment should not be permitted within 30 m of drainage feature 1 or the boundary of the PSW. Ontario Provincial Standard Specification 180 is to be followed for the management of excess materials.

Timing of Site Clearing

For the protection of nesting migratory birds as required by the federal *Migratory Bird Convention Act* and other wildlife the clearing of cultural meadow habitat should not be undertaken from April 1st through to August 31st.

The dug pond that will be removed may be used by frogs for winter hibernation, therefore draining and removal of the pond should not be undertaken from October 1st to Apil 1st of any year.

6.3 Assessment of Residual Impacts to Natural Heritage

The subject land currently supports active farm field. The proposed development will result in the removal of 1.5 ha of cultural meadow, a small 0.04 cattail marsh pocket and six headwater drainage

features. Currently the meadow habitat and cattail pocket do not support significant or sensitive natural heritage features of functions. The development plan will create 3.9 ha of meadow habitat that will be located in EP Block 15 and the additional lands of the owner to the west. The removal of the cattail pocket will be mitigated by creating a dug pond and wetland within the additional lands of the owner along the west boundary of the development lands. The development plan will ensure that existing water flows to drainage feature 1 will be maintained. In addition, the retention of drainage feature 3 and the establishment of a 30+ naturalized buffer along drainage feature 1 will maintain and enhance the ecological functions of the headwater drainage features that are currently associated with the development lands. With respect to indirect impacts, the additional lands of the owner to the west that will be zoned EP located along the boundary of the PSW/Significant Woodland will be seeded to create cultural meadow, providing protection and enhancement of the adjacent lands functions. Based on the proposed EP areas and compensation and mitigation measures no significant residual impact is identified.

6.4 Cumulative Impacts

The assessment of the cumulative impacts of past, current and future development on the natural heritage within the Township of West Lincoln is beyond the scope of this EIS. For environmental impact assessments, the assessment of cumulative impacts is to be ***assessed on the proposed project***. In addition, the key to cumulative impact assessment is that a reasonable approach should be taken to ensure that the cumulative effects assessment is undertaken at an appropriate level of effort that supports defensible conclusions.

With respect to past developments on local lands, as noted the subject lands and surrounding lands are dominated by active farm fields. One must assume that the subject lands and surrounding lands supported forest habitat prior to pre-settlement that have been extensively cleared and farmed up to the present, therefore it is reasonable to conclude that past cumulative impacts on the local areas natural heritage have been catastrophic.

At the local level with respect to the subject lands, only one small area (1.5 ha) of cultural meadow and a 0.04 ha cattail wetland pocket will be removed. Cultural meadow is abundant within the local area and the Township, and the removal will be compensated by the creation of 3.9 ha of cultural meadow. The small cattail pocket that will be removed will be compensated by the creation of wetland pocket in lands to the west that will be zone EP. Therefore, the proposed development will not contribute to post development cumulative impacts to the existing natural heritage features and functions of the subject lands.

With respect to future development cumulative impacts, the proposed development will not result in the construction of new municipal services (water – sanitary) that would promote future extensive residential/commercial development in the local area. The development is located within lands that represent a recent expansion to the Caistorville Rural Settlement Area boundary. The development will occupy all of the expansion lands, so further development in the expansion lands will not occur. It is possible that the development will result in the Township considering additional expansion of the settlement area boundary, however, this is a hypothetical potential impact and can not be assessed by this EIS.

In summary, the approval of the proposed development will not result local cumulative impacts on natural heritage of the subject lands or adjacent lands.

7. Policy Conformity

7.1 Provincial Planning Statement

The development policies of the current Official Plans of the Niagara Region and Township of West of Fort Erie are in conformity with Section 4.1 Natural Heritage of the Provincial Planning Statement (PPS, 2024), which is directed at a province wide protection and management of natural heritage resources. Therefore, conformity with the Official Plans of the Region and Township ensures conformity with the PPS.

7.2 Niagara Region Natural Heritage Policies

Recently the Province of Ontario has removed planning authority from regional, upper tier, municipalities and downloaded it to local municipalities. Therefore the Township of West Lincoln approval of the development does not require a review of conformity with the natural heritage polices of the Region. Nevertheless, the following Region natural heritage policies have been provided.

No development will occur in areas identified by the Region as EPA or ECA, therefore the development is in conformity with Section 3.1.9.5.1 and Section 3.1.9.5.2.

The proposed development has identified a 30m+ buffer (EP Block 16) to the EPA-PSW and ECA-Significant Woodland located along the west boundary of the development lands that will be protective of the ecological features and functions of these features. Therefore, the development is in conformity with the Region's adjacent lands policies.

The NPCA has been on site to review conditions, and the assessment of drainage features and wetland has been undertaken following NPCA policy requirements as discussed below in Section 7.4. The NPCA will be provided with the EIS to provide comment and approval.

In accordance with Section 3.1.20.2. the EIS has identified how enhancements to ecological function, ecological integrity, or biodiversity of the natural environment system can be achieved and will be implemented. The lands that will be developed currently supports active farm field. Drainage 1, 220 m in length, is ploughed through farm field and the proposed development will create a 30 m + wide meadow habitat corridor along its entire length (EP Blocks 15 and 16), which will significantly increase the riparian and movement corridor function. The removal of a low functioning 0.04 ha cattail marsh will be compensated by the creation of a high function open water marsh habitat within EP Block 16. In addition, active farmland lies directly adjacent to the PSW- Significant Woodland that lies along the west boundary of the development. These adjacent lands will be within the EP Block 16 and naturized providing a 30 m + of meadow habitat that will significantly increase the adjacent lands functions to the PSW.

7.3 Township of West Lincoln Natural Heritage Policies

The development will occur on lands adjacent land to the off-site EPA – PSW located along the west and south boundary of the development lands. The development plan provides for 30 m + buffer lands to these features and this EIS has determined that no significant impact will occur to the PSW, therefore

the development is in conformity with Policy 10.7.2 (I) with respect to development of lands adjacent to EPA. The Township OP does not have specific development policies with respect to un-evaluated wetlands of drainage features, which are regulated by the NPCA (see below). The development plan is in conformity with Policy 10.7.2 (s) that states that for a development plan new lots are not to be extend into the adjacent EPA or identified environmental buffer lands.

7.4 Niagara Peninsula Conservation Authority

7.4.1 Wetlands

The proposed draft development plan will result in the removal of a small 0.04 ha cattail marsh wetland that is regulated by the NPCA. For wetlands NPCA development policy 8.1.2.3 (d) identifies that for unevaluated wetlands where there is no reasonable alternative to avoid development activity within the wetland, that following protection hierarch assessment and criteria for the removal of a wetland, the NPCA may allow for the re-creation of the wetland. This EIS has completed the required assessment and the removal of the wetland with re-creation of a wetland area in EP Block 16 is supported. Therefore, to ensure conformity with NPCA wetland development policies a permit application in accordance with Ontario Regulation 155/06 should be submitted to the NPCA to obtain the require work permit.

With respect buffer requirements to a PSW, Policy 8.2.3.1 (1) identifies where development is proposed that a 30 m buffer to the boundary of a PSW is required. EP Block 16 provides a 30 m + buffer to the boundary of the PSW along the west boundary of the subject lands. As noted a point of PSW is located on additional lands of the owner south of the rear of Lot 4. Most of the rear lot lines along the south boundary of the development plan are located 30 m from the boundary of the PSW. A protective cultural thicket surrounds the wetland point (see Figure 2) and only grass lawn will occur along the lot line. Therefore, this very localized reduction to the 30 m buffer is not considered to be significant with respect to potential impacts to the PWS unit.

7.4.2 Watercourses

No NPCA regulated watercourse as defined by of Regulation 41/24 occurs within or adjacent to the subject lands, therefore the development is in conformity with the watercourse development policies of the NPCA.

8. Recommendation

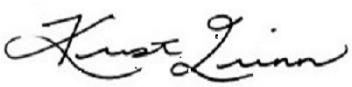
This EIS concludes that with the implementation of the recommended design and construction mitigation measures the proposed plan of subdivision is supported with respect to maintaining the natural heritage system of the Township of West Lincoln, the Niagara Region and the Province.

Prepared by:
Beacon Environmental Ltd.



Ron Huizer, B. Sc.
Senior Ecologist

Reviewed by:
Beacon Environmental Ltd.



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

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BEACON ENVIRONMENTAL

Appendix A



Agency Consultation

Ron Huizer

From: Boudens, Adam <Adam.Boudens@niagararegion.ca>
Sent: Friday, April 19, 2024 1:34 PM
To: Ron Huizer
Cc: Craig Rohe; Lampman, Cara; Scholten, Yves; Wilson, Connor
Subject: RE: EIS Terms of Reference - Caistorville West Lincoln
Attachments: 2024-04-10 224049 Caistorville West Lincoln EIS TOR.pdf

Hi Ron,

Regional environmental planning staff have reviewed the attached Terms of Reference (TOR) for the Environmental Impact Study (EIS) required for the subject lands located on Caistorville Road, south of York Street, in the Municipality of West Lincoln. While the TOR is generally acceptable, we offer the following comments for your consideration:

1) Staff note that the *Study Area* includes all lands within 120m or 240m from the Subject Lands; Study Area distance is informed by the policy area in which the proposed activity is to occur. The Study Area may include some primary data collection, where appropriate (e.g., contiguous woodland, wetland or other feature which extends beyond the Subject Lands or has an increased potential of being impacted by the proposed development or site alteration). Limitations in site access may affect what / how surveys may be completed (e.g., roadside only). Secondary sources of information (e.g., satellite imagery, eBird, G.B.I.F., N.H.I.C.) are to be used to inform characterization of the Study Area. Please ensure that field investigations consider the entirety of the Study Area.
2) As it relates to Amphibian Breeding Surveys, the TOR indicates that two night surveys will be undertaken. Staff note that the Marsh Monitoring Protocol requires three sampling events within the optimal period and weather. Please ensure that the survey protocol is followed. Further, salamander surveys should be conducted if potential habitat is identified.
3) As it relates to Snake and Turtle Surveys, the TOR indicates that cover boards will not be utilized. However, the SWH and SAR tables identify potential habitat for snakes. As such, incidental snake observations would not typically be acceptable due to their reclusive nature. Please ensure that an appropriate survey protocol is utilized to confirm presence/absence, and that a specific section is included in the Final Report justifying the approach taken.
4) As it relates to Breeding Bird surveys, the EIS indicates that two early morning visits will be scheduled for June, and that visits will be a minimum of seven days apart. Please ensure that the Final Report indicates what survey protocol was utilized. Staff note that the Breeding Bird Protocol requires 2 surveys, conducted 10 days apart, between May 24-July 10, which differs from what is being proposed.
5) The EIS notes that a fall botanical survey is not proposed as part of the work program. Please note that a fall botanical inventory should be considered if the habitat of White Wood Aster (threatened/SAR) is present on the subject lands.
6) As it relates to Maternity Habitat for Endangered Species of Bats, if potential roost trees are identified, then acoustic surveys should be completed in the month of June. Please refer to the protocol provided by the MECP.
7) Consistent with NOP policy 3.1.20.2, the EIS shall demonstrate how enhancements to ecological function, ecological integrity, or biodiversity of the natural environment system can be achieved. Examples include:
    a. Increases in the spatial extent of a feature or features;

b. Increases in biological and habitat diversity;
c. Enhancement of ecological system function;
d. Enhancement of wildlife habitat;
e. Enhancement or creation of wetlands, water systems or woodlands;
f. Enhancement of ecological services;
g. Enhancement of groundwater recharge areas; and
h. Establishment or enhancement of linkages or connectivity between key natural heritage features, and/or natural heritage features and areas.

Please ensure that the Final Report includes a specific section detailing consideration of the above.

8) Consistent with NOP policies, please ensure *supporting features and areas* are considered, including but not limited to grasslands, thickets, meadows, etc., that support the ecological functions of adjacent features and wildlife habitat that is not considered to be significant wildlife habitat.
9) Please contact a member of the Region's environmental planning team to schedule a date/time to complete the woodland/wetland staking exercise.
10) As always, please include all field survey data sheets as an appendix in the EIS.

Please note that the Niagara Peninsula Conservation Authority (NPCA) continues to be responsible for the review and comment on planning applications related to hazard lands and their regulated features. As such, the NPCA should be consulted with respect to the EIS TOR and their comments read in conjunction.

The above comments are provided in effort to ensure that the development application will include all information needed to address the Natural Environment System (NES) policies of the NOP. 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.

There is no need to submit a revised TOR. Please just include all relevant agency correspondence as an appendix in the EIS.

Thanks,

Adam

Adam Boudens, MSc
Senior Environmental Planner / Ecologist
Niagara Region, 1815 Sir Isaac Brock Way, Thorold, ON, L2V 4T7
P: (905) 980-6000 ext. 3770

Ron Huizer

From: Theresa Bukovics <tbukovics@npca.ca>
Sent: Wednesday, July 31, 2024 9:05 AM
To: Ron Huizer
Cc: Ethan Laman; Sarah Mastroianni; Amy Parks
Subject: RE: Caistorville, West Lincoln
Attachments: Caisterville Rd. West Lincoln_NPCA PSW Boundary Refinement.jpg; 20240730_ Figure01 _RevisedProvinciallySignificantWetland_224049.pdf; Revised PSW Boundary 20240729 - SITE Copy.pdf

Good Morning Ron,

It was good seeing you on site last week.

Thank you for providing the revised wetland boundary for PSW, Caistor Canborough Slough Forest Wetland Complex on subject lands ARN: 260201000310501 so quickly. Planning Ecology agrees with what you have provided in general. However, to capture our on-site discussion/linework illustrated on the SITE Copy (July 23, 2024), NPCA Planning Ecology has made slight modifications to the wetland boundary that you have provided on Figure 1 Revised Provincially Significant Wetland dated July 2024. Please see attached NPCA PSW Boundary Refinement Figure.

I've CCed Sarah Mastroianni to keep NPCA Planning in the loop.

Once these changes have been made, please provide the NPCA with a revised Figure with the noted changes along with a GIS shapefile. This will enable us to forward the boundary refinement to our GIS department for mapping updates.

Additionally, more fulsome comments will be provided to you after NPCA Planning and Technical Staff has had the opportunity to discuss internally regarding findings of the site visit and the concept design plan.

Thank you,
Theresa

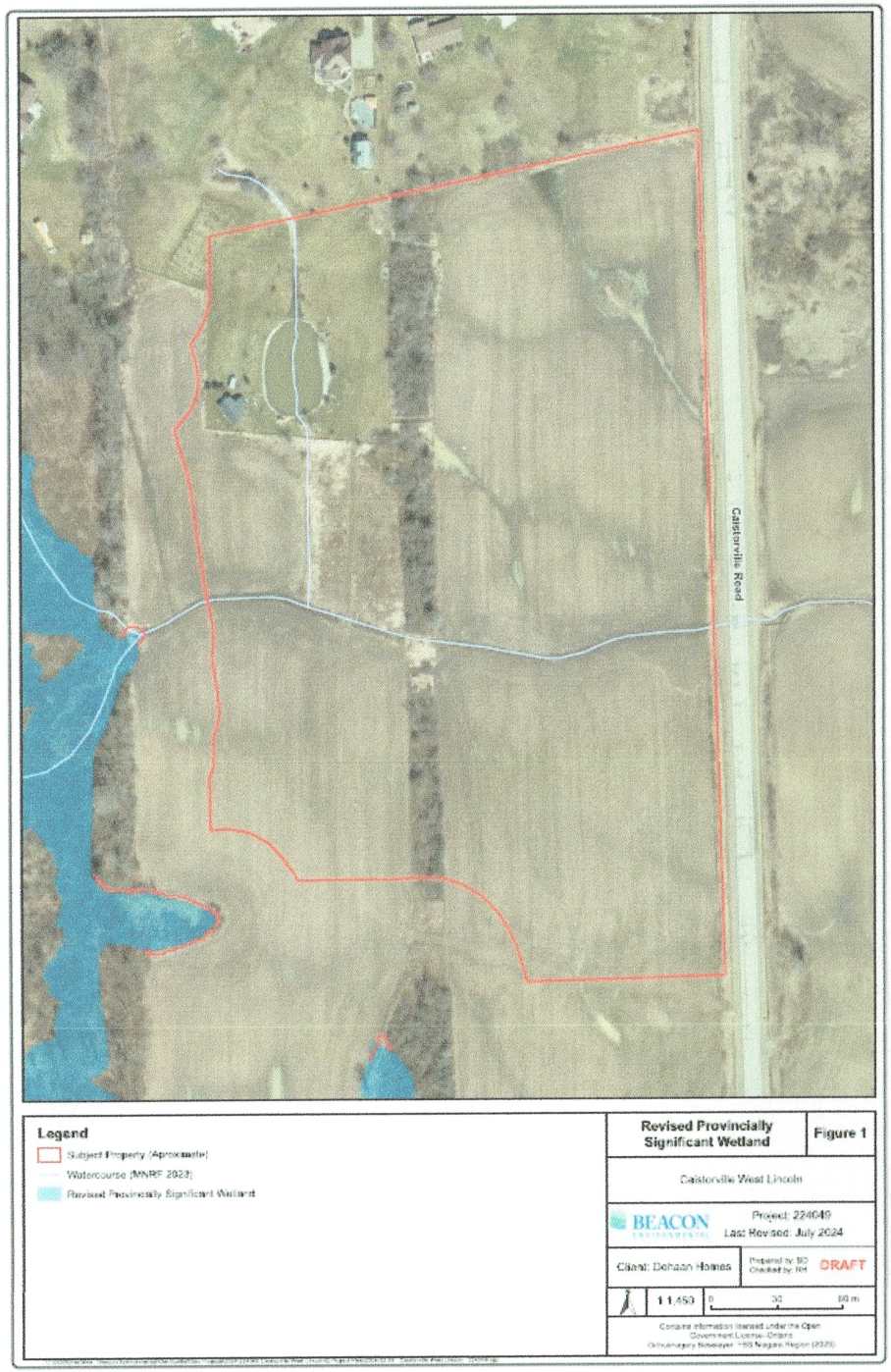
From: Ron Huizer
Sent: Tuesday, July 30, 2024 10:28 AM
To: Theresa Bukovics
Cc: Ethan Laman
Subject: FW: Caistorville

Attached is a revised PSW boundary as per our site visit last week.

Ron

Ron Huizer, B.Sc. (Hons.) / Senior Ecologist
BEACON ENVIRONMENTAL
C) 416.729.0544

From: Brian Donaldson <bdonaldson@beaconenviro.com>
Sent: Tuesday, July 30, 2024 10:16 AM


Caistorville Road
Legend
Subject Property (Approximate)
Watercourse (MNRF 2023)
Revised Provincially Significant Wetland
Revised Provincially Significant Wetland
Figure 1
Caistorville West Lincoln
BEACON
Project: 224049
Last Revised: July 2024
Client: Dohaan Homes
Prepared by: BD
Checked by: RH
DRAFT
1:1,450
0
30
60 m
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www.westlincoln.ca

Pre-Consultation Meeting Form

Persons intending to make an application for a proposed development are required to consult with Township Staff prior to submitting an application. A pre-consultation meeting will identify what is required to be submitted for a complete application and will provide the opportunity to discuss:

- the nature of the application;
- development and planning issues;
- fees;
- the need for information and/or reports to be submitted with the application;
- the planning approval process;
- other matters, as determined.

Individuals who make written submissions with respect to a Planning Act application should be aware that their submission and any personal information in their correspondence will become part of the public record and made available to the Applicant, Committee and Council.

Pre-Consultation Meeting Date: Thursday January 16, 2025

Site Address: Caistorville Hamlet

Approximate Land Area (metric): 35.74 ha (Entire Parcel)
9.216 ha (Located in Hamlet)
7.165 ha (Developable)

Site Legal Description: PT LOT 20, CON 1

Owner Contact Information:

Name of Owner: Dehaan Homes Inc.

Phone Number: 905-892-6518 Email: arie@dehaanhomes.ca

Principal Contact: Ethan Laman (UCC)

Phone Number: 289-228-5879 Email: ethan@ucc.com

Application Type:

- ☐ Official Plan Amendment (OPA)
- ■ Zoning Bylaw Amendment (ZBA)
- ☐ Combined OPA/ZBA
- ☐ Consent – Severance to Create New Lot ☐ Boundary Adjustment ☐ Consent- Easement ☐
- ☐ Minor Variance
- ☐ Development Agreement
- ☐ Site Plan
- ■ Draft Plan of Subdivision
- ☐ Draft Plan of Condominium | Standard ☐ Vacant Land ☐ Common Element ☐
- ☐ Other

Local Municipal Contact: Susan Smyth Phone: 905-957-3346 x 5133 Email: ssmyth@westlincoln.ca

1. Brief description of proposed development: Proposed draft plan of subdivision for 13 rural residential lots, 18 metre road, 3 blocks (Blocks 14-16) for conservation area (watercourse), 1 block for EP (Block 17)
2. Check All Applicable: Brownfield ☐ Greenfield ☐ Built-up ■ Greenbelt ☐ Local CIP Area ☐
3. Development Charges: Regional ■ Local ■
4. Existing Regional Policy Plan Designation: Rural Settlements

   Conformity with Regional Policy Plan land use designations and policies? : **Yes** ■ **No** ☐
   If 'No', what is the nature of the amendment needed? _____

5. Existing Local Official Plan Designation: Hamel Settlement Area (Caistorville)

Conformity with Official Plan land use designations and policies? : **Yes** ■ **No** ☐

If 'No', what is the nature of the amendment needed?

6. Existing Zoning: Agricultural – A and Environmental Protection – EP

Conformity with existing zoning? : **Yes** ☐ **No** ■

If 'No', what is the proposed zoning?

Change portion of the A Zone in the Hamlet to Low Density Residential – R1A and keep EP Zone

7. Urban Design Guideline Applicable? **Yes** ☐ **No** ■

8. Is Site Plan approval required? **Yes** ☐ **No** ■

9. Open House Required? **Yes** ☐ **No** ■

10. Fees Required at time of Submission of the Application **(2025 Fees)**

Application	**Township Planning Department**	**Region of Niagara**	**Niagara Peninsula Conservation Authority**	**Other Fees**
Regional Policy Plan Amendment				
Local Official Plan Amendment				
Local Zoning By-law Amendment	$10,619			
Minor Variance				
Plan of Subdivision *(**Process Application to Obtain Approval)*	$23,594 (base fee for Draft Plan Approval up to 10 hectares)			
Plan of Subdivision Final Approval and Street Naming	$3,969 Final approval including clearing conditions $2,029 Street Naming			
Plan of Condominium				
Consent				
Site Plan Approval				
Development Agreement				
Other –Parkland Dedication				
Other (Block Plan Application Approval)				
Final Certification				
TOTAL	**$33,713** for ZBA and Draft Plan ***$500 deduction from pre-consultation* $5,998 provided later at the time of clearing conditions and street naming	**Refer to comments**	**Refer to comments**	

Notes on Fees:

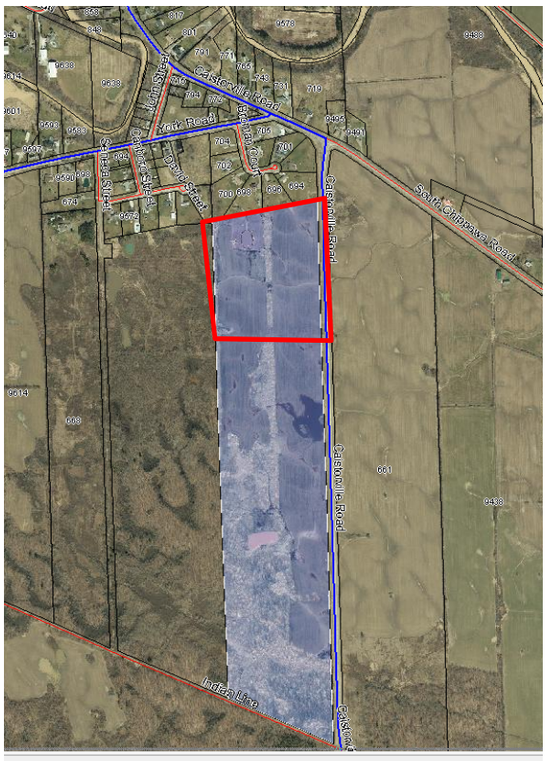
- Notwithstanding the fees noted above, all fees are payable based upon the rate in the fee schedule by-law in effect on the date the application is received.
- Further fees may be required at a later date as per the fee schedule by-law.
- Separate cheques shall be made payable to the appropriate agency.
- In addition to all application fees set out above, the applicant shall pay to the Township prior to final approval, all peer review fees, engineering review costs and legal fees incurred by the Township in reviewing the application.
- Pre-consultation fees will be deducted from other planning fees if complete application is received within 1 year of meeting date.

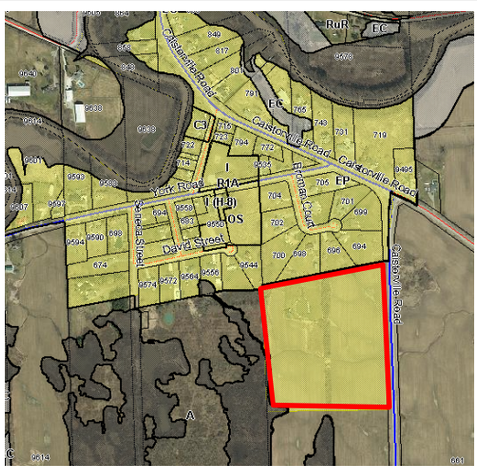
11. Additional Agencies to be contacted:

Hydro ☐ Pipelines ☐ ☐ Railway

12. Additional Comments:

TOWNSHIP PLANNING





The subject lands are located on the west side of Caistorville Road south of the intersection of South Chippawa Road and York Road in the Hamlet of Caistorville.

The Townships' Official Plan under the Amendment No. 62 added a portion of the subject lands, approximately 9.216 hectares into the urban settlement area for residential development intensification. Section 7.2.3 policies for Hamlet Areas, provide the minimum to be required and to be provided with any proposed subdivision development application:
7.2.3 (e) minimum lot area is 1 hectare per lot to satisfy the Township Building Department and Part 8 of the Ontario Building Code for long term operation of a waste disposal system, unless a hydrological assessment determines that a smaller lot size will be adequate to accommodate private water and sewage treatment; (f) prepare a hydrogeological study in support of the proposed development. Public water and municipal sewerage facilities are not intended to be provided in the Hamlets; (h) comply with Minimum Distance Separation requirements. Refer to Section 7.2.3 for all of the related policies for infill development. Furthermore, Section 18.13.5 (a) and (b) policies are applicable and the remnant piece of land outside of the Hamlet boundaries are subject to be rezoned to Agricultural Purposes Only (APO). Staff understand that the owner/applicant has applied for a building permit for a single detached dwelling on the portion of the property that falls outside of the Hamlet limits and notes that the house should be constructed prior to this application for development being submitted and remain as Agricultural (A) zone of which permits one single detached dwelling and maintain the EP zone on the balance of that section of the property.

Staff noted the blocks dedicated to the watercourse for EC zone was assumed to be dedicated to the Township and this is not preferred. If wanted to pursue with a draft plan of subdivision, consideration for the Lot 3 to also include Block 15 with the watercourse ditch and remain under one ownership and Lot 5 to assume Block 16 with the watercourse ditch under one ownership. In these situations, the dual zoning can be applied whereby the developable land area be R1A and the area protecting the watercourse be zoned EC or EP to prohibit the landowners from development. An alternative to a draft plan of subdivision is consideration of a condominium of which would provide for opportunities to modify the design and road allowances and all lands would be tied to the condominium corporation and not the Township.

The Township would like to ask the NPCA if Block 14 could be located within the Street A right-of-way and we will require NPCA to provide further confirmation. The setback to the features will need to be confirmed the appropriateness and no negative impacts through an EIS.

The current zoning of the subject lands is Agricultural – A zone and Environmental Protection – EP zone in the lower section of the Hamlet limits. Staff will require the zoning by-law amendment to change the A to a low density residential – R1A zone and maintain the EP zone to prohibit any development within the environmental features and buffers.

Staff noted that the zoning by-law amendment and draft plan of subdivision can occur simultaneously.

REGION OF NIAGARA

Refer to Region comments provided separately.

NPCA

Refer to NPCA comments provided separately.

TOWNSHIP PUBLIC WORKS

The Draft Plan of Subdivision proposes a local road with a right-of-way of 18m. All Township owned local roads shall have a minimum right-of-way of 20m, the subdivision layout is to be revisited to meet this standard. Where the required road width cannot be provided, a reduced right-of-way may be considered if justification can be provided to show how the proposal meets policy 6.11.7.4.4.h) in the Township's Official Plan.

The Draft Plan of Subdivision proposes Blocks 14, 15, 16 and 17, identified as Environmental Lands and Watercourse, be dedicated to the Township. Staff are opposed to assuming those lands as they are unusable and would require maintenance. Further consideration of the subdivision layout and perhaps discussion with the NPCA to determine what options may be available for those lands.

Public Works staff request confirmation be obtained from the Township Fire Department if a fire cistern will be required for the development.

A stormwater management report will be required for the development.

TOWNSHIP BUILDING AND FIRE DEPARTMENT

Building Department has no issues at this time.
Fire Department to provide information on fire cistern.

13. Site Visit: No

14. Incentive Programs: Not applicable.

15. Required Information and Studies to be submitted with the Application(s). Studies identified with an asterisk* will likely require a peer review at the cost of the developer.

Local	Region	NPCA	**Reports, Studies, Plans** (*See Notes for additional details*)	**No. of Copies**		**Notes: 2 hard copies of all documents**
				Digital	**Paper**	
X	**X**		Planning Justification Report	**X**	**X**	Planning Justification Brief
			Conceptual Site Plan showing building envelope			
X	**X**	**X**	Survey	**X**	**X**	Revised Draft Plan
			Draft Regional Policy Plan Amendment			
			Draft Local Official Plan Amendment			
X			Draft Zoning By-law Amendment	**X**	**X**	
			Land Use/Market Needs*			
			Urban Design / Landscape Plans			
X	**X**		Archaeology Assessment	**X**	**X**	
			Cultural Heritage Impact Assessment*			
X	**X**	**X**	Environmental Impact Study	**X**	**X**	
			Environmental Planning Study/ Sub-Watershed Study			
			Tree Inventory Preservation Plan			
			Floodplain and Hazard Lands Boundary Plan			
			Geotechnical			
			Environmental Site Assessment			
			Air Quality/Noise & Vibration Study*			
			Agricultural Impact Assessment			
			Farm Operation and Ownership			
X			Minimum Distance Separation I & II	**X**	**X**	Provide policy reference to MDS in the Planning Justification Brief
			Mineral Aggregate Resources			
			Municipal Servicing Study			
			Phasing Plan			
			Sensitive Land Use Report			
			Slope Stability Report			
X	**X**	**X**	Stormwater Management Plan	**X**	**X**	
			Transportation Impact Study/Parking Impact Analysis			
X	**X**	**X**	Hydrogeological Study and Private Servicing Plans*			Hydrogeological report to confirm smaller lots sizes less than 1 ha can adequately accommodate septic system.
			Soil report			
			Financial Impact Assessment*			
			Shadow Analysis			
			Risk Management Study			
			Gas Well Study/Gas Migration Study			
			Wind Study*			
			Cistern for Fire Purposes under OBC			
			Other*			

Notes:

1. The purpose of this document is to identify the information required to commence processing and evaluating an application as set out in the Planning Act. This pre-consultation process is designed to proceed based on the mutual agreement of the parties as shown by the signatures below.

2. Pre-consultation does not imply or suggest any decision whatsoever on behalf of staff or the municipality to either support or refuse the application.

3. The applicant should be aware that the information provided is accurate as of the date of the pre-consultation meeting. Should an application not be submitted in the near future, and should other policies, by-laws or procedures be approved by the Province, Municipality, Region or other agencies prior to the submission of a formal application, the applicant will be subject to any new policies, by-laws or procedures that are in effect at the time of the submission of a formal application. If an application is not submitted within 1 year, it is advisable that the applicant confirm with the municipality the directives of the original pre-consultation meeting.

4. Any application submitted without the information identified in this Pre-consultation Document will be deemed incomplete and not processed. Alternately, staff may recommend refusal of the application based upon insufficient information to properly evaluate the application.

5. The applicant acknowledges that the Municipality and Region considers the application forms and all supporting materials including studies and drawings, filed with any application to be public information and to form part of the public record. With the filing of an application, the applicant consents and hereby confirms that the consent of the authors of all supporting reports have been obtained, to permit the Municipality and Region to release the application and any supporting materials either for its own use in processing the application, or at the request of a third party, without further notification to, or permission from, the applicant.

6. It is hereby understood that during the review of the application additional studies or information may be required as a result of issues arising during the processing of the application or the review of the submitted studies.

7. If the Municipality or Region does not have sufficient expertise to review and determine that a study is acceptable, the Municipality may require a peer review. The cost of the peer review shall be paid for by the applicant. The Terms of Reference for a peer review is determined by the Municipality or Region.

8. Some studies may require NPCA review and clearance/approval. In this instance, the NPCA review fee shall be paid by the applicant.

9. All plans and statistics must be submitted in metric.

10. It is hereby understood that during the review of the application additional applications, studies or information may be required as a result of issues arising during the processing of the application.

11. There may also be financial requirements arising from the application, including, but not limited to, parkland dedication, development charges, payment of outstanding property taxes, deferred local improvement charges, cost for lifting 0.3 metres reserves, and reimbursement for road widening acquisition or road improvements.

12. Engineering review done in association with an application will be billed to the applicant.

Signatures: Signatures: (To be filled out following the pre-con meeting – who was in attendance)

Susan Smyth		**January 16, 2025**
Township Planning Staff	Township Planning Staff (signature)	Date
Township Public Works Staff	Township Public Works (signature)	Date
Township Building Staff	Township CBO (signature)	Date
Regional Staff	Regional Staff (signature)	Date
NPCA Staff	Conservation Staff (signature)	Date
Agent	Agent (signature)	Date
Owner	Owner (signature)	Date

Niagara Region

Public Works Growth Management & Planning Division
1815 Sir Isaac Brock Way, Thorold, ON L2V 4T7
905-980-6000 Toll-free:1-800-263-7215

Via Email Only

January 16, 2025

File Number: PLPRE202500001

Susan Smyth
Senior Planner
Township of West Lincoln
318 Canborough Street
Smithville, ON L0R 2A0

Dear Ms. Smyth:

Re: Regional Pre-consultation Comments
Owner: Dehaan Homes Inc.
Agent/Applicant: Upper Canada Consultants
Location: Concession 1, Part Lot 20 (Caistorville Road) West Lincoln

Application Description: Subdivision containing 13 lots for single detached dwellings, 3 blocks for watercourses, 1 environmental block and a public road.

Application Type: Draft Plan of Subdivision

Provincial and Regional Land Use Designations

Provincial Planning Statement, 2024 (PPS): Rural Settlement Area
Niagara Official Plan, 2022 (NOP): Rural Area (Fulton Rural Settlement – Caistorville Hamlet)

Provincial and Regional Policies

- In accordance with the PPS and NOP, development in rural settlements should be planned in such a way that encourages residential infill development that considers the locally appropriate rural characteristics of the surrounding area and ensures that residents have access to adequate amenities.
- Staff note that, consistent with NOP Policy 2.2.3.5, development within rural settlements must be service by sustainable private water and wastewater treatment systems.
- As the interface with surrounding land uses is primarily a local planning responsibility, the Township should be satisfied that the proposed development is compatible with the surrounding local context and its built-form provides for a

transition with nearby existing and planned land uses.

Agricultural Warning Clause

- The lands on the east side of Rice Road fall outside the Urban Area boundary and are designated for agricultural use. As such, staff request the inclusion of a warning clause in the site plan agreement to advise future residents of potential impacts from nearby agricultural activities.

Archaeological Potential

- The subject lands are in an area of archaeological potential, with seven registered archaeological sites identified on the subject lands. Staff are of the understanding that an archaeological assessment has already been undertaken for the subject lands.
- Staff request that copies of all applicable archaeological assessment reports, as well as a clearance letter from the Ministry of Citizenship and Multiculturalism (MCM), be circulated to the Region. No demolition, grading or other soil disturbance shall take place on the property until a letter from the MCM is submitted to the Niagara Region confirming that the required archaeological assessment report(s) have met licensing and resource conservation requirements
- For further information, the Niagara Region Archaeological Management Plan can be found at: https://www.niagararegion.ca/culture-and-environment/pdf/archaeological-management-plan.pdf

Gas Well

- There is a private gas well located on the subject lands (ID #32362). In accordance with NO Policy 4.4.1.3, no development shall occur within 75 metres of a petroleum resource operation unless the petroleum resource operation has been decommissioned and rehabilitated in accordance with applicable Provincial regulations and standards.
- Applicant is to confirm the location of the well and its status per the above noted policy in accordance with applicable Provincial regulations and standards. Petroleum well data is available at the Oil, Gas and Salt Resources Library. The interactive petroleum well map and searchable well recordsprovide information about wells regulated under the Oil, Gas and Salt Resources Act. The library can also be contacted at info@ogsrlibrary.com or 226-646-7414 to obtain information about a specific well. Petroleum well data is also publicly available in a spatial format from Ontario GeoHub.
- In the case the gas well has been decommissioned and/or is outside of the 75 metre set back, it is in the applicant's best interest to assess potential risks and mitigation measures through technical studies, prior to any demolition, construction, grading or other soil disturbances occurring on the subject lands.

Natural Heritage

- The subject property is impacted by the Region's Natural Environment System (NES), consisting of the Caistor Canborough Slough Forest Provincially Significant Wetland (PSW), Significant Woodland and Permanent/Intermittent Watercourses.
- NOP Policy 3.1.9.8.1 requires the completion of an **Environmental Impact Study** (EIS) when development or site alteration is proposed within 120 metres of PSW/Significant Woodland and within 30 metres of Watercourses.
- Regional Environmental Planning staff have conducted a site visit and approved/provided feedback on the Terms of Reference for the EIS being undertaken for this development. Staff note that the review fee for the Terms of Reference ($535) is outstanding.
- The EIS shall confirm the extent of mapped features, screen for additional natural heritage features and areas, determine buffer widths, and screen the property for supporting features and areas, enhancement areas, and linkages.

Regional Road

Road Widening

- The subject property has frontage along Regional Road #2 (Caistorville Road) The ROW for Regional Road 2 exceeds the NOP required 26.2 metres. As such, no widening is required.

Daylight Triangle

- A **daylight triangle of 6.0 meters x 6.0 meters is required** at the intersections of both the new proposed roads and the Regional road to meet the NOP requirement. The applicant is to be aware should future planning applications with agreement be applied for on this site.

Regional Permit Requirements

- Existing driveways are to be closed and reinstated if they are not being used as the entrance to the development. Engineering drawings for all the work within the Regional right-of-way will need to be reviewed and approved by Regional staff.
- Require Regional Construction Encroachment and Entrance Permit prior to any construction within Regional Road Allowance.
- Regional Sign Permit Required for any signs within 20 metres of the centreline of the Regional Road
- Permit link: https://www.niagararegion.ca/living/roads/permits/default.aspx
- Restoration is to be to Regional standards : https://www.niagararegion.ca/living/roads/permits/construction-encroachment-specifications.aspx

Regional Bicycle Network

- The subject property has frontage along a road which is designated as part of the Regional Niagara Bicycling Network. If the bicycle routes are currently not established and identified with signage, it is the intent of the Region to make

provisions for doing so when an appropriate opportunity arises. This may involve additional pavement width, elimination of on-street parking, etc.

Protection of Survey Evidence

- Survey Evidence adjacent to Regional road allowances is not to be damaged or removed during the development of the property. We would request that any future agreements entered into for this development include a clause that requires the owner to obtain a certificate from an Ontario Land Surveyor stating that all existing and new evidence is in place at the completion of said development.

Servicing

- According to NOP Policy 4.1.9.2(b), the minimum size of proposed and retained lots for non-agricultural residential development on rural land shall one hectare unless it is determined through a hydrogeological study that considers the potential cumulative impacts that a smaller size lot will adequately accommodate private water and sewage treatment facilities for long-term operation but not less than 0.4 hectares.
- The proposed lots will be serviced by private servicing approvals for the on-site systems will be through the Township, however, the Region will require that a **Hydrogeological Study** be completed for the site. A term of reference can be submitted to Susan Dunsmore, Director of Infrastructure Planning & Development Engineering, for review and approval at Susan.Dunsmore@niagararegion.ca

Stormwater Management

- At the time of Draft Plan/Site Plan stage, the Region will require a **Stormwater Management Report** be submitted for Regional review and approval. The existing drainage ditches/features that convey stormwater from Provincially Significant Wetlands across the site and Caistorville Road (Regional Road 2) shall not be negatively affected as a result of the development. The following comments are provided by information purposes to assist the applicant with the preparation of a detailed site plan:
  - Stormwater runoff from the development shall be treated to an Enhanced protection (i.e., 80% long-term suspended solids removal) prior to discharge from the site.
  - Stormwater peak flow must be restricted to pre-development flow level for all design storms (i.e., from 2-year up to and including the 100-year storm) prior to discharge from the site.
  - A SWM report is required to be submitted to this office indicating in detail how the above noted criteria will be achieved and including a section of inspection and maintenance requirements of SWM facilities for the future owner.
  - Prior to construction, the Niagara Region will require that detailed grading, servicing and construction erosion/sediment control plans be submitted to this office for review and approval.

On behalf of Township, it is required that stormwater drainage from the adjacent properties be adequately accommodated across the site.

Waste Collection (Low Density Residential)

- Green – no limit (weekly)
- Waste – 2 bag/can limit per unit (bi-weekly)
- Curbside collection only

Future submissions in support of this development will need to include **Regional truck turning templates or radii that meet the policy to ensure that the Regional waste collection vehicle is able to safely maneuver through the proposed road network in order to provide curbside waste collection services**. Drawings must also show the waste collection vehicle entering and exiting the development from both directions from (Caistorville Road).

Circular Materials Ontario is responsible for the delivery of Blue / Grey Box recycling collection services. The most up to date information regarding recycling can be found using the following link: https://www.circularmaterials.ca/resident-communities/niagara-region/

Required Submission Materials

- Environmental Impact Study
- Stage 1-2 Archaeological Assessment and Ministry acceptance letter
- Stormwater Management Report
- Hydrogeological Study (and Terms of Reference)
- Stormwater Management Report
- Detailed grading, servicing and construction erosion/sediment control plans (prior to construction)
- Regional truck turning template or radii overlay for waste collection

Required Fees

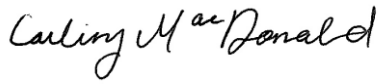
The Region's Fee Schedule is available at:
https://www.niagararegion.ca/business/fpr/forms_fees.aspx

Development Application Review Type	Fee Amount
Draft Plan of Subdivision (Based on the entire area of the subdivision)	$5,691 + $1,915 (per hectare)
EIS Terms of Reference	$535
Major EIS Review	$2,700
Stormwater Management Review	$2,125
Hydrogeological Review	$1,325

Please be advised that the current Regional review fees are subject to change after March 31, 2025. Applications will be subject to the in-effect fee amounts at the time that the Application is submitted. Please contact Regional staff when you submit the application to confirm fees.

If you have any questions related to the above comments, please contact me at carling.macdonald@niagararegion.ca.

Kind regards,



Carling MacDonald
Development Planner, Niagara Region

Susan Smyth

From: Paige Pearson <ppearson@npca.ca>
Sent: January 30, 2025 9:27 AM
To: Susan Smyth
Subject: NPCA: Pre-Consultation Comments - January 16th - NPCA
Attachments: 2023_Planning_and_Regulation_Fee_Schedules_(Including_Tax).pdf

Hi Susan,

The NPCA has prepared comments for the Pre-Consultation meeting from January 16th pertaining to Caistorville development. They are as follows:

M: Part Lot 20, Concession 1 – DeHaan Homes Inc. (Owner) and (UCC – Agent): Draft Plan of Subdivision

Based on the NPCA mapping and site visits, the proposed area of works located within the north portion of the Castorville Parcel (ARN 260201000310501) contain the following NPCA Regulated Areas:

- Watercourses and 15 m associated buffers
- Provincially Significant Wetlands and 30 m associated buffers
- Wetlands and associated buffers
    - Identified within northeast corner during a site visit on July 23, 2024.

Wetlands

- The NPCA will require confirmation of the applied buffers for the Provincially Significant Wetlands identified on the site plan
    - Please be advised, the NPCA will require a 30 m buffer to be applied as per NPCA Policies as notes, lot lines are not to encroach within wetlands and buffer areas
    - A revised site plan will be required to identify the distance (meters) the proposed development is located from the PSW to the south on a revised site plan for the NPCAs review and approval
    - Additional comments by the NPCA maybe provided following a review of the applied setbacks.
- Identified within Block 9 and 10 is an "existing wetland"
    - There is an identified 'existing wetland' noted within Block 9 and 10 (without applied buffers) and was identified within a site visit held on July 23, 2024 with NPCA staff present.
    - The proposed lot lines intersect the identified 'existing wetland' shown. As such, the NPCA will require clarification on if this feature is going to be maintained or removed
        - If the wetland is proposed to be removed, the NPCA will require confirmation that the removal will not cause a hydrological impact on the site
        - Additional comments and requirements maybe provided by the NPCA following further clarification by the applicant.
- As per NPCA Policy, Section 2.4, proposed lot lines will not be supported through Wetlands and/or through wetland buffers

Watercourses

- As per NPCA Policy, watercourses and 15 m buffer are Regulated by the NPCA
- The NPCA is supportive of the identified watercourses being contained within blocks.

- The Town of West Lincoln as asking for further information regarding blocked watercourses. Block Plan conditions that will be addressed further within the submitted Planning Applications include fencing the block of the watercourse and abutting wetland boundaries to remain naturalized. Watercourse blocks allow for protection of the feature and are to remain naturalized with no maintenance.

- There are two watercourse crossings proposed as such, the NPCA will require review, approval, and permits for crossing and culverts to meet the satisfaction of the NPCA. Proposed culverts are to be appropriately sized to the NPCAs satisfaction. As per Policy Section 9.2.4 *Watercourse Crossings,* compliance with the policy requirements outlined below shall be met to the satisfaction of the NPCA
  - ***9.2.4 Watercourse Crossings -*** *Watercourse crossings, including infrastructure which goes over a watercourse or underneath it, such as bridges, culverts, pipelines, channel enclosures of less than 20 metres and causeways may be permitted, subject to the following:*
    - *a) There are no reasonable alternatives to the crossing;*
    - *b) Where physical alterations to the watercourse are required, they are in accordance with policy 9.2.3.2;*
    - *c) Where feasible, crossings avoid any bends in the watercourse;*
    - *d) The preferred location for crossings is in areas which are already disturbed, making use of existing*
    - *impacted or open areas on the channel bank or valley slope;*
    - *e) The risk for increased flooding as a result of the crossing, either upstream or downstream, is mitigated;*
    - *f) Risks associated with erosion are addressed;*
    - *g) The design minimizes impacts on the hydrological features and functions, with a preference for open*
    - *bottom structures and where appropriate, restoration measures are included to the satisfaction of the*
    - *NPCA; and,*
    - *h) Maintenance requirements are minimized.*

- During the pre-consultation meeting, it was addressed that potential watercourse realignment was of interest by the Township. It is of the preference of the NPCA to leave water in-situ however, the NPCA can entertain watercourse realignments if it meets the satisfaction of the NPCA staff and Policy requirements. As per the current NPCA Policy Section 9.2.3.2, there is a criteria for assessing proposed watercourse alterations and they area as follows:
  - ***9.2.3.2 Criteria for Assessing Watercourse Alterations -*** *The following policies apply to the alteration of a watercourse:*
    - *a) The need for the watercourse alteration has been demonstrated to the satisfaction of the NPCA;*
    - *b) The watercourse has been evaluated under NPCA's Procedural Manual and the alteration would be*
    - *supported;*
    - *c) The proposed works are in accordance with NPCA standards;*
    - *d) Any proposed channel realignment shall only be allowed such that any required riparian buffer will not*
    - *cross any property lines;*
    - *e) The proposed watercourse alteration does not increase flood plain elevations, flood frequency, erosion*
    - *rates or erosion frequency along either side of the watercourse, upstream and/or downstream of the*
    - *proposed works;*
    - *f) The works will not adversely affect the hydrologic function of the watercourse and riparian zone;*

    - *g) Adequate erosion protection measures are utilized when required; and*
    - *h) Sediment*
- The applicant advised that the pond located in Block 6 is to be filled. Although the pond is not regulated, it is connected to a drainage feature. The NPCA will require further review of proposed works that interfere with the regulated watercourses as drainage is to be maintained unless otherwise approved by NPCA staff to meet our satisfaction.
- All proposed works that interfere with watercourses will require review and approval (and permits) by the NPCA to meet our satisfaction. As such, the NPCA will require further clarification for any proposals within the watercourses that are not identified to be contained within a block.

It was addressed during the pre-consultation meeting that all lots will be privately serviced by Septic systems. The NPCA will require to review and approval all septic placements to meet our satisfaction if encroaching within NPCA Regulated Areas. Additional comments will be provided following our review of circulated proposed site plans.

The NPCA will require that the applicant submits an Erosion and Sediment Control (ESC) drawing which shows appropriate ESC measures with details regarding inspections, maintenance, and repairs in the General Notes. The NPCA will require continued circulation for proposed development plans. The NPCA will require ESC measures and, grading and servicing plans to be circulated to the NPCA office for review and approval to meet the satisfaction of the NPCA. Additional comments and requirements maybe addressed by the NCPA following circulation of further details including any revisions to the proposed draft plans.

The NPCA will require circulation of a review fee; our current fee schedule (attached) is as follows:

- Draft Plan of Subdivision
    - Less than 100 lots, $4746.00

Please be advised that all proposed development activities within NPCA Regulated Areas will require review, approval, and Permits prior to the start of development.

Thank you,

Paige Pearson **(She/Her)**
Watershed Planner
Niagara Peninsula Conservation Authority (NPCA)
3350 Merrittville Highway, Unit 9, Thorold, Ontario L2V 4Y6

(O) 905.788.3135 Ext 205
www.npca.ca
ppearson@npca.ca

The NPCA completed its Watershed-based Resource Management and Conservation Area Strategies, paving the way for sustainable conservation across the Niagara Peninsula watershed. It's Watershed Natural Asset Analysis and Valuation for the Niagara Peninsula watershed offers new insights that redefine how we view nature. **Explore them today!**

From: Susan Smyth <ssmyth@westlincoln.ca>
Sent: January 28, 2025 9:08 AM
To: Paige Pearson <ppearson@npca.ca>
Subject: RE: Pre-Consultation Comments - January 16th - NPCA

Thank you Paige.

West Lincoln
Your Future Naturally

318 Canborough St. P.O. Box 400
Smithville, ON
L0R 2A0
T: 905-957-3346
F: 905-957-3219
www.westlincoln.ca

Memo

To: Susan Smyth, Senior Planner

From: Jennifer Bernard, Coordinator of Engineering Services

Date: January 22, 2025

Re: DeHaan Homes Caistorville Draft Plan of Subdivision – January 16/25 Pre-consultation Meeting

The Operations Department provides the following comments on the Draft Plan of Subdivision for the DeHaan Homes property identified as Part of Lot 20, Concession 1 in Caistorville:

- The Draft Plan of Subdivision proposes a local road with a right-of-way of 18m. All Township owned local roads shall have a minimum right-of-way of 20m, the subdivision layout is to be revisited to meet this standard. Where the required road width cannot be provided, a reduced right-of-way may be considered if justification can be provided to show how the proposal meets policy 6.11.7.4.4.h) in the Township's Official Plan.

- The Draft Plan of Subdivision proposes Blocks 14, 15, 16 and 17, identified as Environmental Lands and Watercourse, be dedicated to the Township. Staff are opposed to assuming those lands as they are unusable and would require maintenance. Further consideration of the subdivision layout and perhaps discussion with the NPCA to determine what options may be available for those lands.

- Public Works staff request confirmation be obtained from the Township Fire Department if a fire cistern will be required for the development.

- A stormwater management report will be required for the development.

Appendix B



Headwaters Drainage Features Photo Log

Appendix B

HDFA Photographic Reference



Photograph 1. Drainage Feature 1a; Ploughed Furrows in Farm Field - Looking West from Caistorville Road Culvert – March 2024



Photograph 2. Drainage Feature 1a; Ploughed Furrows in Farm Field - Looking West from Caistorville Road Culvert – May 2024



Photograph 3. Drainage Feature 1a; Ploughed Furrows in Farm Field - Looking West from Caistorville Road Culvert – June 2024



Photograph 4. Drainage Feature 1b; Ploughed Furrows in Farm Field - Looking West to the West Property Boundary – March 2024



Photograph 5. Drainage Feature 1b; Ploughed Furrows in Farm Field - Looking East to the Drainage Feature 1a – May 2024



Photograph 6. Drainage Feature 1b; Ploughed Furrows in Farm Field - Looking West to the West Property Boundary – June 2024



Photograph 7. Drainage Feature 2; Ploughed Furrow in Fram Field Looking North to Drainage Feature 1a – March 2024



Photograph 8. Drainage Feature 3; Shallow Ditch in Fram Field Looking North to Drainage Feature 1a – March 2024



Photograph 9. Drainage Feature 3; Shallow Ditch in Fram Field Looking South to the South Boundary of the Subject Lands – May 2024



Photograph 10. Drainage Feature 3; Shallow Ditch in Fram Field Looking North to Drainage Feature 1a – June 2024



Photograph 11. Drainage Feature 4; Ploughed Furrow in Fram Field Along West Boundary Looking North from Drainage Feature 1b – March 2023



Photograph 12. Drainage Feature 4; Ploughed Furrow in Fram Field Along West Boundary Looking North from Drainage Feature 1b – June 2023



Photograph 13. Drainage Feature 5; A Shallow Ditch Which Drains the Pond Overflow Southward to Drainage Feature 1b, Looking North to from Drainage Feature 1b to Dug Pond March 2024



Photograph 14. Drainage Feature 5; Looking South from Dug Pond to Drainage Feature 1b May 2024



Photograph 15. Drainage Feature 6 A Grass Swale with Coble Draining Residential Lawns Southward to the Dug Pond; Looking North from Dug Pond – March 2024



Photograph 16. Drainage Feature 7; Feature in Ploughed Field – Looking North from Drainage Feature 1a – March 2024



Photograph 17. Drainage Feature 7; Ploughed Through Feature in Farm Field – Looking South to Drainage Feature 1a – March 2024



Photograph 18. Drainage Feature 7; Feature in Ploughed Field – Looking South to Drainage Feature 1a – May 2024



Photograph 19. Drainage Feature 7; Feature in Ploughed Field – Looking South to Drainage Feature 1a – June 2024



Photograph 20. Drainage Feature 8; Feature in Ploughed Field – Looking North to North Property Boundary – March 2024



Photograph 21. Drainage Feature 8; Feature in Ploughed Field – Looking Southeast to Caistorville Road – March 2024



Photograph22. Drainage Feature 8; Feature in Ploughed Field – Looking Northwest from Caistorville Road – May 2024



Photograph 23. Drainage Feature 8; Feature in Ploughed Field – Looking Northwest from Caistorville Road – June 2024

BEACON ENVIRONMENTAL

Appendix C



Plant List

Appendix C

Plant List

Scientific Name	English Name	Srank	COSEWIC	COSSARO	Niagara
Acer saccharinum	Silver Maple	S5			
Achillea millefolium	Common Yarrow	SE5?			
Agrostis gigantea	Redtop	SE5			
Alisma triviale	Northern Water-plantain	S5			
Alliaria petiolata	Garlic Mustard	SE5			
Ambrosia artemisiifolia	Common Ragweed	S5			
Arctium minus	Common Burdock	SE5			
Asclepias incarnata	Swamp Milkweed	S5			
Asclepias syriaca	Common Milkweed	S5			
Bidens frondosa	Devil's Beggarticks	S5			
Brassica nigra	Black Mustard	SE5			
Bromus inermis	Smooth Brome	SE5			
Carex crinita	Fringed Sedge	S5			
Carex cristatella	Crested Sedge	S5			
Carex lupulina	Hop Sedge	S5			
Carex lurida	Sallow Sedge	S4S5			
Carex scoparia	Pointed Broom Sedge	S5			
Carex tribuloides	Blunt Broom Sedge	S4			
Carex vulpinoidea	Fox Sedge	S5			
Cerastium fontanum	Common Mouse-ear Chickweed	SE5			
Cicuta maculata	Spotted Water-hemlock	S5			
Cirsium arvense	Canada Thistle	SE5			
Cirsium vulgare	Bull Thistle	SE5			
Cornus obliqua	Silky Dogwood	S5			
Cornus racemosa	Grey Dogwood	S5			
Crataegus mollis	Downy Hawthorn	S4S5			
Daucus carota	Wild Carrot	SE5			
Dianthus armeria	Deptford Pink	SE5			
Dipsacus fullonum	Common Teasel	SE5			
Echinochloa crus-galli	Large Barnyard Grass	SE5			
Eleocharis obtusa	Blunt Spikerush	S5			
Elymus repens	Quackgrass	SE5			
Epilobium coloratum	Purple-veined Willowherb	S5			
Erigeron annuus	Annual Fleabane	S5			
Erigeron canadensis	Canada Horseweed	S5			
Eupatorium perfoliatum	Common Boneset	S5			
Euthamia graminifolia	Grass-leaved Goldenrod	S5			
Fragaria virginiana	Wild Strawberry	S5			
Geum canadense	Canada Avens	S5			
Geum laciniatum	Rough Avens	S4			
Hemerocallis fulva	Orange Daylily	SE5			
Hesperis matronalis	Dame's Rocket	SE5			

Scientific Name	English Name	Srank	COSEWIC	COSSARO	Niagara
Hordeum jubatum	Foxtail Barley	S5?			
Hypericum perforatum	Common St. John's-wort	SE5			
Juncus effusus	Soft Rush	S5			
Juncus tenuis	Path Rush	S5			
Juniperus virginiana	Eastern Red Cedar	S5			
Lactuca serriola	Prickly Lettuce	SE5			
Leersia oryzoides	Rice Cutgrass	S5			
Lemna minor	Small Duckweed	S5?			
Lepidium campestre	Field Peppergrass	SE5			
Leucanthemum vulgare	Oxeye Daisy	SE5			
Lolium arundinaceum	Tall Ryegrass	SE5			
Lotus corniculatus	Garden Bird's-foot Trefoil	SE5			
Ludwigia palustris	Marsh Seedbox	S5			
Lythrum salicaria	Purple Loosestrife	SE5			
Medicago lupulina	Black Medick	SE5			
Melilotus albus	White Sweet-clover	SE5			
Myosotis scorpioides	True Forget-me-not	SE5			
Oenothera biennis	Common Evening-primrose	S5			
Parthenocissus vitacea	Thicket Creeper	S5			
Persicaria maculosa	Spotted Lady's-thumb	SE5			
Phalaris arundinacea	Reed Canarygrass	S5			
Phleum pratense	Common Timothy	SE5			
Plantago lanceolata	English Plantain	SE5			
Plantago major	Common Plantain	SE5			
Poa compressa	Canada Bluegrass	SE5			
Populus deltoides	Eastern Cottonwood	S5			
Potentilla recta	Sulphur Cinquefoil	SE5			
Quercus macrocarpa	Bur Oak	S5			
Ranunculus abortivus	Kidney-leaved Buttercup	S5			
Rhamnus cathartica	European Buckthorn	SE5			
Rosa rubiginosa	Sweetbriar Rose	SE4			
Rubus allegheniensis	Allegheny Blackberry	S5			
Rumex crispus	Curled Dock	SE5			
Salix euxina	Crack Willow	SE			
Scirpus atrocinctus	Black-girdled Bulrush	S5			
Scirpus cyperinus	Common Woolly Bulrush	S5			
Sium suave	Common Water-parsnip	S5			
Solidago altissima	Tall Goldenrod	S5			
Solidago rugosa	Rough-stemmed Goldenrod	S5			
Sonchus arvensis	Field Sow-thistle	SE5			
Spiraea alba	White Meadowsweet	S5			
Symphyotrichum novae-angliae	New England Aster	S5			
Symphyotrichum pilosum	Old Field Aster	S5			
Taraxacum officinale	Common Dandelion	SE5			
Thlaspi arvense	Field Pennycress	SE5			
Trifolium hybridum	Alsike Clover	SE5			
Trifolium pratense	Red Clover	SE5			
Trifolium repens	White Clover	SE5			
Typha latifolia	Broad-leaved Cattail	S5			

Scientific Name	English Name	Srank	COSEWIC	COSSARO	Niagara
Ulmus pumila	Siberian Elm	SE3			
Verbascum thapsus	Common Mullein	SE5			
Verbena hastata	Blue Vervain	S5			
Viburnum recognitum	Smooth Arrowwood	S4			
Vicia cracca	Tufted Vetch	SE5			
Vicia tetrasperma	Four-seed Vetch	SE5			
Vitis riparia	Riverbank Grape	S5			

KEY
COSEWIC = Committee on the Status of Endangered Wildlife in Canada
COSSARO = Committee on the Status of Species at Risk in Ontario
END = Endangered, THR = Threatened, SC = Special Concern

SRANK = Natural Heritage Information Centre occurrence status
S1 (Critically Imperiled), S2 (Imperiled), S3 (Vulnerable), S4 (Apparently Secure), S5 (Secure)
SE (exotic, i.e. non-native)
R= Rare in Niagara Region (Oldham 2010)

Appendix D

Species at Risk (SAR) Screening – MNRF List for West Lincoln Township

Appendix D

Species at Risk (SAR) Screening – MNRF List for West Lincoln Township

Species	ESA Status	General habitat description	Assessment for Adjacent Lands
Amphibians – No SAR identified			
Birds			
Acadian Flycatcher	Endangered	Generally requires large areas of mature, undisturbed forest; avoids the forest edge; often found in well wooded swamps and ravines.	The woodlot adjacent to the west boundary of the subject land provides limit suitable habitat. Breeding surveys conducted along the edge of the woodlot did not detect the species.
Bald Eagle	Special Concern	Prefers deciduous and mixed deciduous forest; and habitat close to water bodies such as lakes and rivers. They roost in super canopy trees such as Pine.	Low Potential. Limited suitable nesting habitat is present in the woodlot adjacent to the west boundary of the subject land. Leaf off surveys did not detect large stick nest along the woodlot edge and no eagle was observed during field surveys.
Bank Swallow	Threatened	It nests in a wide variety of naturally and anthropogenically created vertical banks, which often erode and change over time including aggregate pits and the shores of large lakes and rivers.	No suitable habitat is present. Species not observed during field surveys.
Barn Swallow	Special Concern	Prefers farmland; lake/river shorelines; wooded clearings; urban populated areas; rocky cliffs; and wetlands. They nest inside or outside buildings; under bridges and in road culverts; on rock faces nd in caves etc.	Species was observed conducting feeding fights over the subject land. A small wood shed could provide nesting habitat, however inspection of the shed found no swallow nests to be present.
Barn Owl	Endangered	Generally prefer low-elevation, open country; often associated with agricultural lands, especially pasture. Nests are located in buildings, hollow trees and cavities in cliffs.	No suitable habitat is present.

Species	ESA Status	General habitat description	Assessment for Adjacent Lands
Bobolink/Eastern Meadowlark	Threatened	Generally, prefers open grasslands and hay fields. In migration and in winter uses freshwater marshes and grasslands	No suitable habitat is present.
Canada Warbler	Special Concern	Generally prefers wet coniferous, deciduous and mixed forest types, with a dense shrub layer. Nests on the ground, on logs or hummocks, and uses dense shrub layer to conceal the nest.	No suitable habitat is present.
Cerulean Warbler	Threatened	Generally found in mature deciduous forests with an open understorey; also nests in older, second-growth deciduous forests.	The woodlot adjacent to the west boundary of the subject land provides limit suitable habitat. Breeding surveys conducted along the edge of the woodlot did not detect the species.
Chimney Swift	Threatened	Historically found in deciduous and coniferous, usually wet forest types, all with a well developed, dense shrub layer; now most are found in urban areas in large uncapped chimneys	No suitable nesting habitat is present.
Common Nighthawk	Special Concern	Generally prefer open, vegetation free habitats, including dunes, beaches, recently harvested forests, burnt-over areas, logged areas, rocky outcrops, rocky barrens, grasslands, pastures, peat bogs, marshes, lakeshores , and river banks. This species also inhabits mixed and coniferous forests. Can also be found in urban areas (nest on flat rooftops)	No suitable habitat is present.
Eastern Wood Pewee	Special Concern	Associated with deciduous and mixed forests. Within mature and intermediate age stands it prefers areas with little understory vegetation as well as forest clearings and edges	The woodlot adjacent to the west boundary of the subject land provides limit suitable habitat. Breeding surveys conducted along the edge of the woodlot did not detect the species.
Eastern Whip-poor-will	Threatened	Generally prefer semi-open deciduous forests or patchy forests with clearings; areas with little ground cover are also preferred; In winter they occupy primarily mixed woods in open areas.	No suitable habitat is present.
Peregrine Falcon	Special Concern	Generally nest on tall, steep cliff ledges adjacent to large waterbodies; some birds adapt to	No suitable habitat is present.

Species	ESA Status	General habitat description	Assessment for Adjacent Lands
		urban environments and nest on ledges of tall buildings, even in densely populated downtown areas.	
Red-headed Woodpecker	Endangered	Generally prefer open oak and beech forests, grasslands, forest edges, orchards, pastures, riparian forests, roadsides, urban parks, golf courses, cemeteries, as well as along beaver ponds and brooks	Mature hedgerow trees along the edge of the woodlot associated with the subject land provides limit suitable habitat. Breeding surveys conducted along the edge of the woodlot did not detect the species.
Wood Thrush	Special Concern	Nests mainly in second growth and mature deciduous and mixed forests, with saplings and well-developed understory layers. Prefers large forest mosaics but may also nest in small forest fragments.	The woodlot adjacent to the west boundary of the subject land provides limit suitable habitat. Breeding surveys conducted along the edge of the woodlot did not detect the species.
Fish/Molluscs – No Aquatic habitat is associated with the subject lands or adjacent lands			
Insects			
Monarch Butterfly	Special Concern	Exist primarily wherever milkweed and wildflowers exist; abandoned farmland, along roadsides, and other open spaces	No suitable habitat is present.
Rusty-patch Bumblebee	Endangered	Generally inhabits a range of diverse habitats including mixed farmland, sand dunes, marshes, urban and wooded areas. It usually nests underground in abandoned rodent burrows	No suitable habitat is present.
West Virginia White Butterfly	Special Concern	Generally prefer moist, deciduous woodlands. The larvae feed only on the leaves of the two-leaved toothwort (Cardamine diphylla), which is a small, spring-blooming plant of the forest floor.	No suitable habitat is present. Host plant Toothwort is not present within the woodlot.
Mammals			
Eastern small-footed Myotis Little Brown Myotis Northern Myotis Tri-colour Bat Silver-haired Bat Eastern Red Bat Hoary Bat	Endangered	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius. Maternal Roosts: primarily under loose rocks on exposed rock outcrops, crevices and cliffs, and occasionally in buildings, under bridges and highway overpasses and under tree bark.	No overwintering habitat is present. Suitable maternity and roosting habitat is present in woodlot adjacent to the west boundary of the subject land provides suitable habitat.
Plants			

Species	ESA Status	General habitat description	Assessment for Adjacent Lands
American Chestnut	Endangered	Found in deciduous forest communities; this tree prefers arid forests with acid and sandy soils.	General habitat is present in the woodlot adjacent to the west boundary of the subject lands. Species not detected along the woodlot edge during field surveys.
American Columbo	Endangered	Most commonly associated with open deciduous forested slopes, thickets and clearings; grows in a variety of relatively stable habitats as well on a wide variety of soils.	General habitat is present in the woodlot adjacent to the west boundary of the subject lands. Species not detected along the woodlot edge during field surveys.
American Ginseng	Endangered	Grows in rich, moist, undisturbed and relatively mature deciduous woods in areas of neutral soil (such as over limestone or marble bedrock).	Low potential habitat in woodlot. Species not detected during field surveys.
Broad Beech Fern	Special Concern	Generally inhabits shady areas of beech and maple forests where the soil is moist or wet	No suitable habitat is present.
Butternut	Endangered	Generally grows in rich, moist, and well-drained soils often found along streams. It may also be found on well-drained gravel sites, especially those made up of limestone. It is also found, though seldomly, on dry, rocky and sterile soils. In Ontario, the Butternut generally grows alone or in small groups in deciduous forests as well as in hedgerows.	General habitat is present in the woodlot adjacent to the west boundary of the subject lands. Species not detected along the woodlot edge during field surveys.
Cucumber Tree	Endangered	Generally grows in rich, well-drained soils in deciduous forest habitats.	General habitat is present in the woodlot adjacent to the west boundary of the subject lands. Species not detected along the woodlot edge during field surveys.
Drooping Trillium	Endangered	Generally grows in dry, sandy loam, non-acidic soils of mature, deciduous woodlands that are usually associated with watercourses.	No suitable habitat is present. Species not detected during field surveys.
Eastern Flowering Dogwood	Endangered	Generally grows in deciduous and mixed forests, in the drier areas of its habitat, although it is occasionally found in slightly moist environments; Also grows around edges and hedgerows	General habitat is present in the woodlot adjacent to the west boundary of the subject lands. Species not detected along the woodlot edge during field surveys.

Species	ESA Status	General habitat description	Assessment for Adjacent Lands
Shumard Oak	Special Concern	Generally grows in deciduous forests, where the soils are poorly drained clay and clay loam. Requires full sunlight.	General habitat is present in the woodlot adjacent to the west boundary of the subject lands. Species not detected along the woodlot edge during field surveys.
Spotted Wintergreen	Endangered	Generally grow in sandy habitats in dry-mesic oak-pine woods.	No suitable habitat is present.
Round-leaved Greenbrier	Threatened	Generally grows in open moist to wet woodlands, often growing on sandy soils . Habitat is variable.	General habitat is present in the woodlot adjacent to the west boundary of the subject lands. Species not detected along the woodlot edge during field surveys.
White Wood Aster	Threatened	Generally grows in open, dry, deciduous forests. It has been suggested that it may benefit from some disturbance, as it often grows along trails in woodlands.	General habitat is present in the woodlot adjacent to the west boundary of the subject lands. Species not detected along the woodlot edge during fall field surveys.
Reptiles			
Common Five-lined Skink	Endangered	Generally occur near dunes, fields,and deciduous forests. This species is generally associated with relatively open environments.	General habitat is present. Species not detected during field surveys. No current records are known for this area of West Lincoln.
Eastern Ribbonsnake	Special Concern	Generally occur along the edges of shallow ponds, streams, marshes, swamps, or bogs bordered by dense vegetation that provides cover. Abundant exposure to sunlight is also required, and adjacent upland areas may be used for nesting.	General habitat is present in the cultural meadow habitat surrounding the dug pond. Species not detected during specie snake surveys.
Grey Ratsnake	Endangered	Generally associated with deciduous forests, with a preference for a mosaic of forest and open habitats, such as fields and rocky outcrops	General habitat is present in the woodlot adjacent to the west boundary of the subject lands. Species not detected along the woodlot edge during field surveys.
Snapping Turtle	Special Concern	Generally inhabit shallow waters where they can hide under the soft mud and leaf litter.	Dug pond provides limited suitable habitat.

Species	ESA Status	General habitat description	Assessment for Adjacent Lands
		Nesting sites usually occur on gravely or sandy areas along streams. Snapping Turtles often take advantage of manmade structures for nest sites, including roads (especially gravel shoulders), dams and aggregate pits.	Species not detected during field surveys.

Significant Wildlife Habitat (SWH) Screening – EcoRegion 7E

Significant Wildlife Habitat Type	Habitat Description	Habitat Assessment March 2022
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.	Suitable habitat was not observed.
Waterfowl Stopover and Staging Areas (Aquatic)	Ponds, marshes, lakes, bays, costal inlets and watercourses that are used as stopover areas during migration. These habitats typically have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water).	Suitable habitat was not observed.
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	Suitable habitat was not observed.
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.	General habitat is present in the woodlot adjacent to the west boundary of the subject lands.

Significant Wildlife Habitat Type	Habitat Description	Habitat Assessment March 2022
Bat Hibernacula	Hibernacula may be found in caves, mine shafts, underground foundations and karsts.	Suitable habitat was not observed.
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.	Suitable maternity and roosting habitat is present in woodlot adjacent to the west boundary of the subject land provides suitable habitat.
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.	Dug pond provides limited suitable habitat. Species not detected during field surveys.
Snake Hibernaculum	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 provide access to sites below the frost line.	Suitable habitat was not observed.
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.	Suitable habitat was not observed. Species not observed during field surveys.
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.	Suitable habitat was not observed. Species not observed during field surveys.
Colonially - Nesting Bird Breeding Habitat (Ground)	Nesting colonies of gulls and terns occur on rocky islands or peninsulas within a lake or larger river	Habitat is not present. Species not observed during field surveys.

Significant Wildlife Habitat Type	Habitat Description	Habitat Assessment March 2022
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.	Suitable habitat was not observed.
Landbird Migratory Stopover Areas	Woodlots >5 ha in size and within 5 km of Lake Erie and Lake Ontario. If woodlands are rare in an area of shoreline, woodland fragments 2-5 ha can be considered for this habitat. If multiple woodlands are located along the shoreline those Woodlands <2 km from Lake Erie and Lake Ontario are more significant.	Suitable habitat is not present.
Deer Yarding Areas	Deer yarding areas or winter concentration within a mixed or coniferous forest and swamp communities.	Suitable habitat is not present.
Deer Winter congregation Areas	Deer movement in winter months within eco-region 7E 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.	General habitat is present in the woodlot adjacent to the west boundary of the subject lands. March field surveys did not identify evidence of deer congregation.
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.	Cliffs or talus slops are not associated with the subject lands.
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.	Sand barren habitat is not associated with the subject lands.
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.	Alvar was not observed for the subject lands.

Significant Wildlife Habitat Type	Habitat Description	Habitat Assessment March 2022
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).	Old growth forest was not observed.
Savannah	Savannah is a tallgrass prairie habitat that has tree cover between 20 - 60%.	Savannah was not observed for the subject lands.
Tallgrass Prairie	Tallgrass Prairie has ground cover that is dominated by prairie grasses. An open tallgrass prairie has less than 25% tree cover.	Tallgrass Prairie was not observed for the subject lands.
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.	Field surveys did not identify the presence of rare vegetation communities.
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	Suitable habitat is not associated with the subject lands.
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.	Species not observed during field surveys.
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).	General habitat is present in the woodlot adjacent to the west boundary of the subject lands. Leaf off surveys did not detect large stick nests.

Significant Wildlife Habitat Type	Habitat Description	Habitat Assessment March 2022
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.	Suitable habitat is not present. Turtle not observed during field surveys.
Seeps and Springs	Seeps/springs are areas where ground water comes to the surface. Often they are found within headwater areas within forested habitats.	Not found occur during field surveys.
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.	Woodland ponds along the west boundary of the subject lands are assessed to provide high quality breeding habitat.
Amphibian Breeding Habitat (Wetlands)	Wetlands and pools that are greater than 500 m^2 and are isolated from woodlands (greater than 120 m)	Suitable habitat is not associated with the subject lands.
Marsh Bird Breeding Habitat	This type of habitat occurs in wetlands with shallow water and emergent aquatic vegetation present	Suitable habitat is not associated with the subject lands.
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).	General habitat is present in the woodlot adjacent to the west boundary of the subject lands. Area sensitive birds were not recorded during surveys along the woodlot edge.

Significant Wildlife Habitat Type	Habitat Description	Habitat Assessment March 2022
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.	Suitable habitat is not associated with the subject lands.
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.	Suitable habitat is not associated with the subject lands.
Terrestrial Crayfish	This type of habitat occurs in meadows and edge of shallow marshes.	Suitable habitat is not associated with the subject lands.
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.	One special concern species was observed, the Barn Swallow. However nesting activity was not observed.
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 corridor habitat is present with the subject lands.

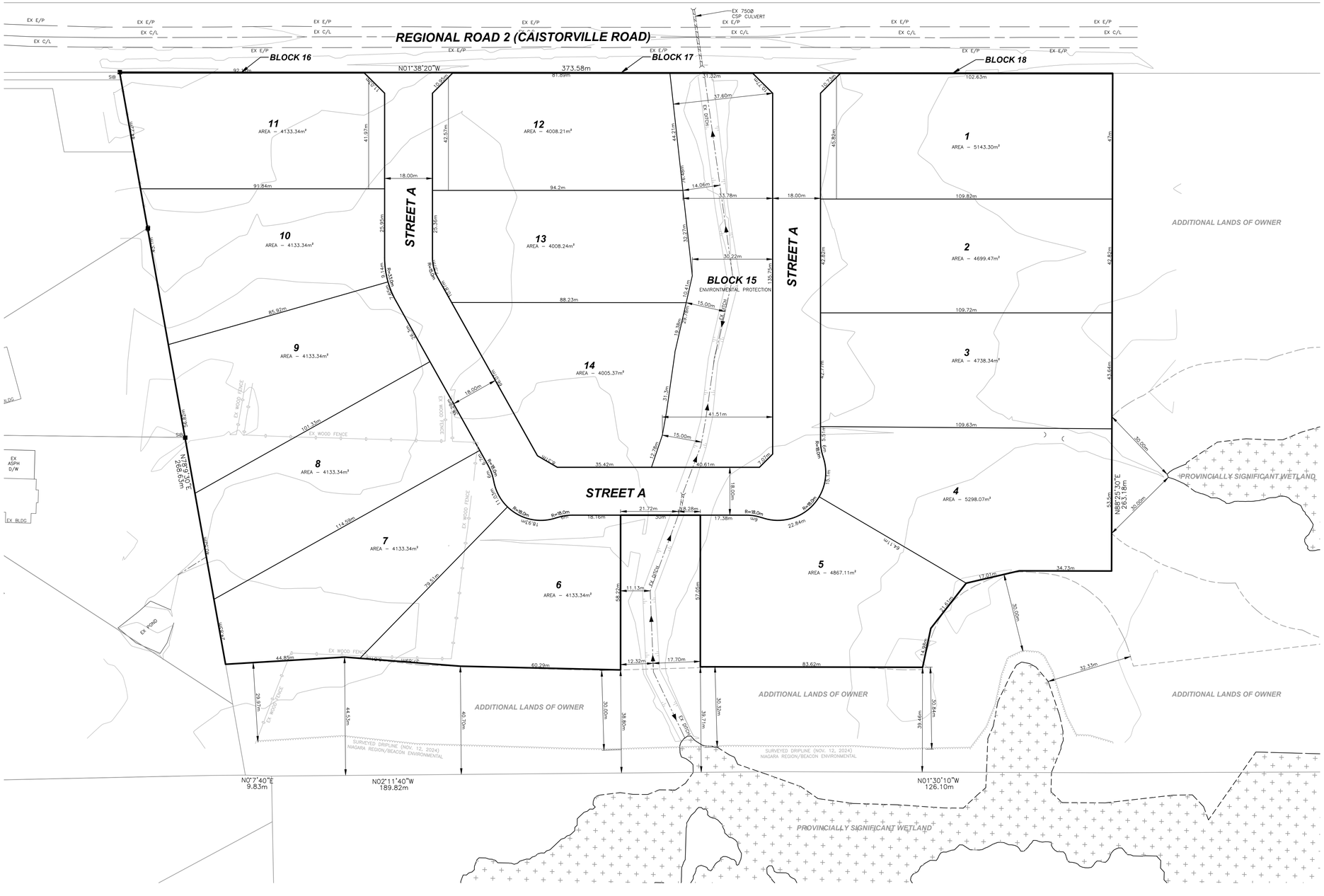
BEACON ENVIRONMENTAL

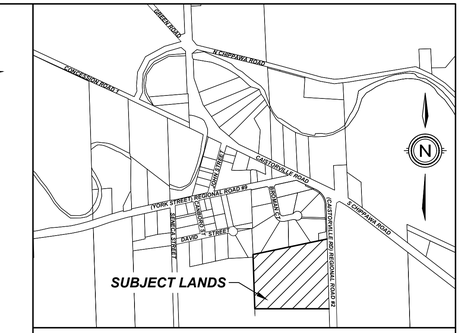
Appendix E



Draft Plan of Subdivision

CAISTOR MEADOWS
WEST LINCOLN





KEY PLAN
N.T.S.

DRAFT PLAN OF SUBDIVISION

LEGAL DESCRIPTION

PART OF LOT 20, CONCESSION 1
GEOGRAPHIC TOWNSHIP OF CAISTOR
NOW IN THE TOWNSHIP OF WEST LINCOLN
REGIONAL MUNICIPALITY OF NIAGARA

OWNER'S CERTIFICATE

BEING THE REGISTERED OWNER, I HEREBY AUTHORIZE UPPER CANADA CONSULTANTS TO PREPARE AND SUBMIT THIS DRAFT PLAN OF SUBDIVISION TO THE TOWN OF WEST LINCOLN FOR APPROVAL.

MAY 28, 2025
DEHANN HOMES INC. DATE

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED ARE CORRECTLY SHOWN.

MAY 28, 2025
DONALD CHAMBERS (O.L.S.) DATE

REQUIREMENTS OF SECTION 51(17) OF THE PLANNING ACT

a) SEE PLAN
b) SEE PLAN
c) SEE PLAN
d) SEE PLAN
e) SEE PLAN
f) SEE PLAN
g) SEE PLAN
h) PRIVATE WATER
i) SILTY SAND
j) SEE PLAN
k) FULL SERVICE
l) SEE PLAN

LAND USE SCHEDULE

LAND USE	LOT/BLOCK	# OF UNITS	AREA(ha)	AREA(%)
SINGLE FAMILY RESIDENTIAL	LOT 1–14	14	6.156	82.26
ENVIRONMENTAL PROTECTION	BLOCK 15		0.529	7.07
0.3m RESERVE	BLOCK 16–18		0.010	0.13
ROADWAY			0.789	10.54
TOTAL		14	7.484	100.00

DEVELOPABLE AREA = 6.955ha (EXCLUDES BLOCK 15)
DEVELOPABLE DENSITY = 2.01 units/ha

#	REVISION	DATE	INIT
.	.	.	.
.	.	.	.
0	ISSUED FOR REVIEW	2025-05-28	TA

UPPER CANADA CONSULTANTS
ENGINEERS / PLANNERS

DRAWING TITLE
DRAFT PLAN OF SUBDIVISION

DRAFTING	TA
DATE	MAY 28, 2025
PRINTED	MAY 28, 2025
SCALE	1:750
DWG No.	REV
22255-DP	**0**

DRAWING FILE: F:\22255\Engineering\22255-BASE.dwg PLOTTED: May 28, 2025 – 3:09pm PLOTTED BY: TAllen

Appendix F



Field Survey Sheets

Headwater Drainage Feature Assessment

Date: MARCH 15/25 Project #: 224049 Recorder/Crew: Ron Huizer

Stream Name: N/A Stream Code: 1 Site Codes: 1a

Site Limits: Upstream WP# _____ Field Assessment: ☑ Sample 1 ☐ Sample 2 ☐ Sample 3 Unconnected HDF: ☐ Not connected to downstream network

Downstream WP# _____

Direction of Assessment: ☐ Upstream ☑ Downstream

Flow Influence ☑ Freshet (1) ☐ Spate (2) ☐ Baseflow (3)

Flow Condition ☐ Dry (1) ☐ Standing Water (2) ☐ Interstitial Flow (3) ☑ Minimal Flow (4) ☐ Substantial Flow (5)

Feature Type ☐ Defined Natural Channel (1) ☐ Channelized or Constrained (2) ☑ Multi-thread (3) ☐ No Defined Feature (4) ☐ Tiled Feature (5) ☐ Wetland (6) ☐ Swale (7) ☐ Roadside Ditch (8) ☐ Pond (9)

Feature Vegetation ☑ None (1) ☐ Lawn (2) ☑ Cropped (3) ☐ Meadow (4) ☐ Scrubland (5) ☐ Wetland(6) ☐ Forest (7)

Riparian Vegetation

0 - 1.5 m	Left Bank	☑ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
	Right Bank	☑ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
1.5 - 10 m	Left Bank	☑ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
	Right Bank	☑ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
10 - 30 m	Left Bank	☑ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
	Right Bank	☐ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)

Channel Gradient (S4.M7) ☑ Visual (1) ☐ Clinometer (2) ☐ Laser Level (3) ☐ Survey Level (4) ☐ Other (5) ☐ LiDAR (6)

Distance (m): _____ _____ _____ Elevation (cm): _____ _____ _____ Gradient (%): 2%

	Clay (Hard Pan)	Silt	Sand (0.06-2 mm)	Gravel (2-64 mm)	Cobble (65-249 mm)	Boulder (250 mm)	Bedrock
Dominant Substrate (S2.M3)	☑	☐	☐	☐	☐	☐	☐
Sub-Dominant Substrate (S2.M3)	☑	☐	☐	☐	☐	☐	☐

Feature Roughness ☑ < 10% Minimal (1) ☐ 10 - 40% Moderate (2) ☐ 40 - 60% High (3) ☐ > 60% Extreme (4)

Width Measurement ☐ Can't Measure (1) ☐ Bankfull (2) ☐ Mean Width (3) ☑ Estimated (4) ☐ GIS (5) ☐ Measure/GIS (6)

Channel Dimensions Feature Width (m): 4 Bankfull Depth (mm) 5

Entrenchment Total: ☑ > 40 m ☐ < 40 m Left Bank _____ m Right Bank _____ m Total width _____ m

Surface Flow Method ☐ Perched Culvert (1) ☐ Hydraulic Head (2) ☐ Distance by Time (3) ☑ Estimated (4)

Wetted Width (m)	Wetted Depth (mm)			Hydraulic head (mm)			Volume (L)			Distance (m)			Time (s)		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3

Sediment Transport

Adjacent Feature: ☐ None (1) ☑ Rill (2) ☐ Rill and Gully (3) ☐ Gully (4) ☐ Outlet Scour (5) ☐ Sheet Erosion (6) ☐ Instream Bank Erosion (7) ☐ Other (8)

Feature: ☐ None (1) ☐ Rill (2) ☐ Rill and Gully (3) ☐ Gully (4) ☐ Outlet Scour (5) ☑ Sheet Erosion (6) ☐ Instream Bank Erosion (7) ☐ Other (8)

Sediment Deposition Measures (mm): _____ _____ _____ _____

☐ None (1) ☑ Minimal: < 5 mm (2) ☐ Moderate: 5-30 mm (3) ☐ Substantial: 31-80 mm (4) ☐ Extensive: > 80 mm (5)

Headwater Drainage Feature Assessment

Date: MARCH 15/24 Project #: 224049 Recorder/Crew: RON ALIZER

Stream Name: N/A Stream Code: 1 Site Code: 15

Site Limits: Upstream WP# ____ Field Assessment: ☑ Sample 1 Unconnected HDF:

Downstream WP# ____ ☐ Sample 2 ☐ Not connected

Direction of Assessment: ☐ Upstream ☑ Downstream ☐ Sample 3 to downstream network

Flow Influence ☑ Freshet (1) ☐ Spate (2) ☐ Baseflow (3)

Flow Condition ☐ Dry (1) ☐ Interstitial Flow (3) ☐ Substantial Flow (5)
☐ Standing Water (2) ☑ Minimal Flow (4)

Feature Type ☐ Defined Natural Channel (1) ☐ No Defined Feature (4) ☐ Swale (7)
☐ Channelized or Constrained (2) ☐ Tiled Feature (5) ☐ Roadside Ditch (8)
☑ Multi-thread (3) ☐ Wetland (6) ☐ Pond (9)

Feature Vegetation ☑ None (1) ☐ Lawn (2) ☑ Cropped (3) ☐ Meadow (4) ☐ Scrubland (5) ☐ Wetland(6) ☐ Forest (7)

Riparian Vegetation

0 - 1.5 m	Left Bank	☑ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
	Right Bank	☑ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
1.5 - 10 m	Left Bank	☑ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
	Right Bank	☑ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
10 - 30 m	Left Bank	☑ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
	Right Bank	☑ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)

Channel Gradient (S4.M7) ☑ Visual (1) ☐ Clinometer (2) ☐ Laser Level (3) ☐ Survey Level (4) ☐ Other (5) ☐ LiDAR (6)

Distance (m): ____ ____ ____ Elevation (cm) : ____ ____ ____ Gradient (%): 2%

	Clay (Hard Pan)	Silt	Sand (0.06-2 mm)	Gravel (22-66 mm)	Cobble (67-249 mm)	Boulder (250 mm)	Bedrock
Dominant Substrate (S2.M3)	☑	☐	☐	☐	☐	☐	☐
Sub-Dominant Substrate (S2.M3)	☑	☐	☐	☐	☐	☐	☐

Feature Roughness ☑ < 10% Minimal (1) ☐ 10 - 40% Moderate (2) ☐ 40 - 60% High (3) ☐ > 60% Extreme (4)

Width Measurement ☐ Can't Measure (1) ☐ Bankfull (2) ☐ Mean Width (3) ☑ Estimated (4) ☐ GIS (5) ☐ Measure/GIS (6)

Channel Dimensions Feature Width (m): 2-3 Bankfull Depth (mm) 10

Entrenchment Total: ☑ > 40 m ☐ < 40 m Left Bank ____ m Right Bank ____ m Total width ____ m

Surface Flow Method ☐ Perched Culvert (1) ☐ Hydraulic Head (2) ☐ Distance by Time (3) ☑ Estimated (4)

Wetted Width (m)			Wetted Depth (mm)			Hydraulic head (mm)			Volume (L)			Distance (m)			Time (s)		
1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3

Sediment Transport

Adjacent ☐ None (1) ☑ Rill (2) ☐ Rill and Gully (3) ☐ Gully (4) ☐ Outlet Scour (5)
☐ Sheet Erosion (6) ☐ Instream Bank Erosion (7) ☐ Other (8)

Feature ☐ None (1) ☐ Rill (2) ☐ Rill and Gully (3) ☐ Gully (4) ☐ Outlet Scour (5)
☑ Sheet Erosion (6) ☐ Instream Bank Erosion (7) ☐ Other (8)

Sediment Deposition Measures (mm): ____ ____ ____ ____ ____

☑ None (1) ☑ Minimal: < 5 mm (2) ☐ Moderate: 5-30 mm (3) ☐ Substantial: 31-80 mm (4) ☐ Extensive: > 80 mm (5)

Headwater Drainage Feature Assessment

Date: MARCH 15/24 Project #: 224049 Recorder/Crew: Ron Huizer

Stream Name: N/A Stream Code: 2 Site Code: N/A

Site Limits: Upstream WP# _____ Field Assessment: ☐ Sample 1 Unconnected HDF:

Downstream WP# _____ ☐ Sample 2 ☐ Not connected

Direction of Assessment: ☐ Upstream ☑ Downstream ☐ Sample 3 to downstream network

Flow Influence ☑ Freshet (1) ☐ Spate (2) ☐ Baseflow (3)

Flow Condition ☑ Dry (1) ☐ Interstitial Flow (3) ☐ Substantial Flow (5)
☐ Standing Water (2) ☐ Minimal Flow (4)

Feature Type ☐ Defined Natural Channel (1) ☑ No Defined Feature (4) ☐ Swale (7)
☐ Channelized or Constrained (2) ☐ Tiled Feature (5) ☐ Roadside Ditch (8)
☐ Multi-thread (3) ☐ Wetland (6) ☐ Pond (9)

Feature Vegetation ☑ None (1) ☐ Lawn (2) ☑ Cropped (3) ☐ Meadow (4) ☐ Scrubland (5) ☐ Wetland(6) ☐ Forest (7)

Riparian Vegetation

0 - 1.5 m	Left Bank	☑ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
	Right Bank	☐ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
1.5 - 10 m	Left Bank	☑ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
	Right Bank	☑ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
10 - 30 m	Left Bank	☑ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
	Right Bank	☐ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)

Channel Gradient (S4.M7) ☑ Visual (1) ☐ Clinometer (2) ☐ Laser Level (3) ☐ Survey Level (4) ☐ Other (5) ☐ LiDAR (6)

Distance (m): _____ _____ _____ Elevation (cm) : _____ _____ _____ Gradient (%): 2%

	Clay (Hard Pan)	Silt	Sand (0.06-2 mm)	Gravel (2-66 mm)	Cobble (67-249 mm)	Boulder (250 mm)	Bedrock
Dominant Substrate (S2.M3)	☑	☐	☐	☐	☐	☐	☐
Sub-Dominant Substrate (S2.M3)	☑	☐	☐	☐	☐	☐	☐

Feature Roughness ☑ < 10% Minimal (1) ☐ 10 - 40% Moderate (2) ☐ 40 - 60% High (3) ☐ > 60% Extreme (4)

Width Measurement ☑ Can't Measure (1) ☐ Bankfull (2) ☐ Mean Width (3) ☐ Estimated (4) ☐ GIS (5) ☐ Measure/GIS (6)

Channel Dimensions Feature Width (m): _____ Bankfull Depth (mm) _____

Entrenchment Total: ☐ > 40 m ☐ < 40 m Left Bank N/A m Right Bank _____ m Total width _____ m

Surface Flow Method ☐ Perched Culvert (1) ☐ Hydraulic Head (2) ☐ Distance by Time (3) ☐ Estimated (4)

Wetted Width (m)			Wetted Depth (mm)			Hydraulic head (mm)			Volume (L)			Distance (m)			Time (s)		
1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
									N/A								

Sediment Transport

Adjacent ☑ None (1) ☐ Rill (2) ☐ Rill and Gully (3) ☐ Gully (4) ☐ Outlet Scour (5)
☐ Sheet Erosion (6) ☐ Instream Bank Erosion (7) ☐ Other (8)

Feature ☑ None (1) ☐ Rill (2) ☐ Rill and Gully (3) ☐ Gully (4) ☐ Outlet Scour (5)
☐ Sheet Erosion (6) ☐ Instream Bank Erosion (7) ☐ Other (8)

Sediment Deposition Measures (mm): _____ _____ _____ _____ _____

☑ None (1) ☐ Minimal: < 5 mm (2) ☐ Moderate: 5-30 mm (3) ☐ Substantial: 31-80 mm (4) ☐ Extensive: > 80 mm (5)

Headwater Drainage Feature Assessment

Date: MARCH 15/24 Project #: 224049 Recorder/Crew: RGW DWKEP

Stream Name: N/A Stream Code: 3 Site Code: N/A

Site Limits: Upstream WP# ____ Field Assessment: ☑ Sample 1 Unconnected HDF:

Downstream WP# ____ ☐ Sample 2 ☐ Not connected

Direction of Assessment: ☐ Upstream ☑ Downstream ☐ Sample 3 to downstream network

Flow Influence ☑ Freshet (1) ☐ Spate (2) ☐ Baseflow (3)

Flow Condition ☐ Dry (1) ☐ Interstitial Flow (3) ☐ Substantial Flow (5)
☐ Standing Water (2) ☑ Minimal Flow (4)

Feature Type ☐ Defined Natural Channel (1) ☐ No Defined Feature (4) ☐ Swale (7)
☐ Channelized or Constrained (2) ☐ Tiled Feature (5) ☑ ~~Roadside~~ Ditch (8)
☐ Multi-thread (3) ☐ Wetland (6) ☐ Pond (9)

Feature Vegetation ☑ None (1) ☐ Lawn (2) ☐ Cropped (3) ☐ Meadow (4) ☐ Scrubland (5) ☐ Wetland(6) ☐ Forest (7)

Riparian Vegetation

0 - 1.5 m	Left Bank	☑ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
	Right Bank	☐ None (1)	☐ Lawn (2)	☐ Cropped (3)	☑ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
1.5 - 10 m	Left Bank	☑ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
	Right Bank	☐ None (1)	☐ Lawn (2)	☐ Cropped (3)	☑ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
10 - 30 m	Left Bank	☑ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
	Right Bank	☑ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)

Channel Gradient (S4.M7) ☑ Visual (1) ☐ Clinometer (2) ☐ Laser Level (3) ☐ Survey Level (4) ☐ Other (5) ☐ LiDAR (6)

Distance (m): ____ ____ ____ Elevation (cm) : ____ ____ ____ Gradient (%): 2%

	Clay (Hard Pan)	Silt	Sand (0.06-2 mm)	Gravel (22-66 mm)	Cobble (67-249 mm)	Boulder (250 mm)	Bedrock
Dominant Substrate (S2.M3)	☑	☐	☐	☐	☐	☐	☐
Sub-Dominant Substrate (S2.M3)	☑	☐	☐	☐	☐	☐	☐

Feature Roughness ☑ < 10% Minimal (1) ☐ 10 - 40% Moderate (2) ☐ 40 - 60% High (3) ☐ > 60% Extreme (4)

Width Measurement ☐ Can't Measure (1) ☐ Bankfull (2) ☐ Mean Width (3) ☑ Estimated (4) ☐ GIS (5) ☐ Measure/GIS (6)

Channel Dimensions Feature Width (m): 1-1.5 Bankfull Depth (mm) 30

Entrenchment Total: ☑ > 40 m ☐ < 40 m Left Bank ____ m Right Bank ____ m Total width ____ m

Surface Flow Method ☐ Perched Culvert (1) ☐ Hydraulic Head (2) ☐ Distance by Time (3) ☑ Estimated (4)

Wetted Width (m)			Wetted Depth (mm)			Hydraulic head (mm)			Volume (L)			Distance (m)			Time (s)		
1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
										N/A							

Sediment Transport

Adjacent ☑ None (1) ☐ Rill (2) ☐ Rill and Gully (3) ☐ Gully (4) ☐ Outlet Scour (5)
☐ Sheet Erosion (6) ☐ Instream Bank Erosion (7) ☐ Other (8)

Feature ☑ None (1) ☐ Rill (2) ☐ Rill and Gully (3) ☐ Gully (4) ☐ Outlet Scour (5)
☐ Sheet Erosion (6) ☐ Instream Bank Erosion (7) ☐ Other (8)

Sediment Deposition Measures (mm): ____ ____ ____ ____ ____

☑ None (1) ☐ Minimal: < 5 mm (2) ☐ Moderate: 5-30 mm (3) ☐ Substantial: 31-80 mm (4) ☐ Extensive: > 80 mm (5)

Headwater Drainage Feature Assessment

Date: MARCH 15/24 Project #: 224049 Recorder/Crew: Ron Hulcer

Stream Name: N/A Stream Code: 4 Site Code: N/A

Site Limits: Upstream WP# _____ Field Assessment: ☑ Sample 1 Unconnected HDF:

Downstream WP# _____ ☐ Sample 2 ☐ Not connected

Direction of Assessment: ☐ Upstream ☑ Downstream ☐ Sample 3 to downstream network

Flow Influence ☑ Freshet (1) ☐ Spate (2) ☐ Baseflow (3)

Flow Condition ☐ Dry (1) ☐ Interstitial Flow (3) ☐ Substantial Flow (5)
☐ Standing Water (2) ☑ Minimal Flow (4)

Feature Type ☐ Defined Natural Channel (1) ☑ No Defined Feature (4) ☐ Swale (7)
☐ Channelized or Constrained (2) ☐ Tiled Feature (5) ☐ Roadside Ditch (8)
☑ Multi-thread (3) ☐ Wetland (6) ☐ Pond (9)

Feature Vegetation ☑ None (1) ☐ Lawn (2) ☑ Cropped (3) ☐ Meadow (4) ☐ Scrubland (5) ☐ Wetland(6) ☐ Forest (7)

Riparian Vegetation

0 - 1.5 m	Left Bank	☑ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
	Right Bank	☑ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
1.5 - 10 m	Left Bank	☑ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
	Right Bank	☑ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
10 - 30 m	Left Bank	☑ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
	Right Bank	☑ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)

Channel Gradient (S4.M7) ☑ Visual (1) ☐ Clinometer (2) ☐ Laser Level (3) ☐ Survey Level (4) ☐ Other (5) ☐ LiDAR (6)

Distance (m): _____ _____ _____ Elevation (cm) : _____ _____ _____ Gradient (%): 3%

	Clay (Hard Pan)	Silt	Sand (0.06-2 mm)	Gravel (22-66 mm)	Cobble (67-249 mm)	Boulder (250 mm)	Bedrock
Dominant Substrate (S2.M3)	☑	☐	☐	☐	☐	☐	☐
Sub-Dominant Substrate (S2.M3)	☑	☐	☐	☐	☐	☐	☐

Feature Roughness ☑ < 10% Minimal (1) ☐ 10 - 40% Moderate (2) ☐ 40 - 60% High (3) ☐ > 60% Extreme (4)

Width Measurement ☐ Can't Measure (1) ☐ Bankfull (2) ☐ Mean Width (3) ☑ Estimated (4) ☐ GIS (5) ☐ Measure/GIS (6)

Channel Dimensions Feature Width (m): 0.5 Bankfull Depth (mm) 30

Entrenchment Total: ☑ > 40 m ☐ < 40 m Left Bank _____ m Right Bank _____ m Total width _____ m

Surface Flow Method ☐ Perched Culvert (1) ☐ Hydraulic Head (2) ☐ Distance by Time (3) ☐ Estimated (4)

Wetted Width (m)			Wetted Depth (mm)			Hydraulic head (mm)			Volume (L)			Distance (m)			Time (s)		
1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
									N/A								

Sediment Transport

Adjacent ☑ None (1) ☐ Rill (2) ☐ Rill and Gully (3) ☐ Gully (4) ☐ Outlet Scour (5)
☑ Sheet Erosion (6) ☐ Instream Bank Erosion (7) ☐ Other (8)

Feature ☑ None (1) ☐ Rill (2) ☐ Rill and Gully (3) ☐ Gully (4) ☐ Outlet Scour (5)
☐ Sheet Erosion (6) ☐ Instream Bank Erosion (7) ☐ Other (8)

Sediment Deposition Measures (mm): _____ _____ _____ _____ _____

☑ None (1) ☐ Minimal: < 5 mm (2) ☐ Moderate: 5-30 mm (3) ☐ Substantial: 31-80 mm (4) ☐ Extensive: > 80 mm (5)

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Headwater Drainage Feature Assessment

Date: MARCH 15/24 Project #: 224049 Recorder/Crew: RON HUIZER

Stream Name: N/A Stream Code: 5 Site Code: N/A

Site Limits: Upstream WP# _____ Field Assessment: ☑ Sample 1 Unconnected HDF:

Downstream WP# _____ ☐ Sample 2 ☐ Not connected

Direction of Assessment: ☐ Upstream ☑ Downstream ☐ Sample 3 to downstream network

Flow Influence ☑ Freshet (1) ☐ Spate (2) ☐ Baseflow (3)

Flow Condition ☐ Dry (1) ☐ Interstitial Flow (3) ☐ Substantial Flow (5)
☑ Standing Water (2) ☐ Minimal Flow (4)

Feature Type ☐ Defined Natural Channel (1) ☐ No Defined Feature (4) ☑ Swale (7)
☐ Channelized or Constrained (2) ☐ Tiled Feature (5) ☑ Roadside Ditch (8)
☐ Multi-thread (3) ☐ Wetland (6) ☐ Pond (9)

Feature Vegetation ☐ None (1) ☐ Lawn (2) ☐ Cropped (3) ☑ Meadow (4) ☐ Scrubland (5) ☐ Wetland(6) ☐ Forest (7)

Riparian Vegetation

0 - 1.5 m	Left Bank	☐ None (1)	☐ Lawn (2)	☐ Cropped (3)	☑ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
	Right Bank	☐ None (1)	☐ Lawn (2)	☐ Cropped (3)	☑ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
1.5 - 10 m	Left Bank	☐ None (1)	☐ Lawn (2)	☐ Cropped (3)	☑ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
	Right Bank	☐ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
10 - 30 m	Left Bank	☐ None (1)	☐ Lawn (2)	☑ Cropped (3)	☑ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
	Right Bank	☐ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)

Channel Gradient (S4.M7) ☑ Visual (1) ☐ Clinometer (2) ☐ Laser Level (3) ☐ Survey Level (4) ☐ Other (5) ☐ LiDAR (6)

Distance (m): _____ _____ _____ Elevation (cm) : _____ _____ _____ Gradient (%): 2%

	Clay (Hard Pan)	Silt	Sand (0.06-2 mm)	Gravel (22-66 mm)	Cobble (67-249 mm)	Boulder (250 mm)	Bedrock
Dominant Substrate (S2.M3)	☑	☐	☐	☐	☐	☐	☐
Sub-Dominant Substrate (S2.M3)	☑	☐	☐	☐	☐	☐	☐

Feature Roughness ☐ < 10% Minimal (1) ☑ 10 - 40% Moderate (2) ☐ 40 - 60% High (3) ☐ > 60% Extreme (4)

Width Measurement ☐ Can't Measure (1) ☐ Bankfull (2) ☐ Mean Width (3) ☑ Estimated (4) ☐ GIS (5) ☐ Measure/GIS (6)

Channel Dimensions Feature Width (m): 1m Bankfull Depth (mm) 400

Entrenchment Total: ☑ > 40 m ☐ < 40 m Left Bank _____ m Right Bank _____ m Total width _____ m

Surface Flow Method ☐ Perched Culvert (1) ☐ Hydraulic Head (2) ☐ Distance by Time (3) ☐ Estimated (4)

Wetted Width (m)			Wetted Depth (mm)			Hydraulic head (mm)			Volume (L)			Distance (m)			Time (s)		
1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
									N/A								

Sediment Transport

Adjacent ☑ None (1) ☐ Rill (2) ☐ Rill and Gully (3) ☐ Gully (4) ☐ Outlet Scour (5)
☐ Sheet Erosion (6) ☐ Instream Bank Erosion (7) ☐ Other (8)

Feature ☑ None (1) ☐ Rill (2) ☐ Rill and Gully (3) ☐ Gully (4) ☐ Outlet Scour (5)
☐ Sheet Erosion (6) ☐ Instream Bank Erosion (7) ☐ Other (8)

Sediment Deposition Measures (mm): _____ _____ _____ _____ _____

☑ None (1) ☐ Minimal: < 5 mm (2) ☐ Moderate: 5-30 mm (3) ☐ Substantial: 31-80 mm (4) ☐ Extensive: > 80 mm (5)

Headwater Drainage Feature Assessment

Date: MARCH 5/24 Project #: 22049 Recorder/Crew: Rob Huizer

Stream Name: N/A Stream Code: 6 Site Code: N/A

Site Limits: Upstream WP# _____ Field Assessment: ☑ Sample 1 Unconnected HDF:

Downstream WP# _____ ☐ Sample 2 ☐ Not connected

Direction of Assessment: ☐ Upstream ☑ Downstream ☐ Sample 3 to downstream network

Flow Influence ☑ Freshet (1) ☐ Spate (2) ☐ Baseflow (3)

Flow Condition ☑ Dry (1) ☐ Interstitial Flow (3) ☐ Substantial Flow (5)
☐ Standing Water (2) ☐ Minimal Flow (4)

Feature Type ☐ Defined Natural Channel (1) ☐ No Defined Feature (4) ☑ Swale (7)
☐ Channelized or Constrained (2) ☐ Tiled Feature (5) ☐ Roadside Ditch (8)
☐ Multi-thread (3) ☐ Wetland (6) ☐ Pond (9)

Feature Vegetation ☑ None (1) ☐ Lawn (2) ☐ Cropped (3) ☐ Meadow (4) ☐ Scrubland (5) ☐ Wetland(6) ☐ Forest (7)

Riparian Vegetation

0 - 1.5 m	Left Bank	☐ None (1)	☐ Lawn (2)	☐ Cropped (3)	☑ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
	Right Bank	☐ None (1)	☐ Lawn (2)	☐ Cropped (3)	☑ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
1.5 - 10 m	Left Bank	☐ None (1)	☑ Lawn (2)	☐ Cropped (3)	☑ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
	Right Bank	☐ None (1)	☑ Lawn (2)	☐ Cropped (3)	☑ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
10 - 30 m	Left Bank	☐ None (1)	☑ Lawn (2)	☐ Cropped (3)	☑ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
	Right Bank	☐ None (1)	☑ Lawn (2)	☐ Cropped (3)	☑ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)

Channel Gradient (S4.M7) ☑ Visual (1) ☐ Clinometer (2) ☐ Laser Level (3) ☐ Survey Level (4) ☐ Other (5) ☐ LiDAR (6)

Distance (m): _____ _____ _____ Elevation (cm) : _____ _____ _____ Gradient (%): 5%

	Clay (Hard Pan)	Silt	Sand (0.06-2 mm)	Gravel (2-66 mm)	Cobble (67-249 mm)	Boulder (250 mm)	Bedrock
Dominant Substrate (S2.M3)	☐	☐	☐	☐	☑	☐	☐
Sub-Dominant Substrate (S2.M3)	☑	☐	☐	☐	☐	☐	☐

Feature Roughness ☐ < 10% Minimal (1) ☑ 10 - 40% Moderate (2) ☐ 40 - 60% High (3) ☐ > 60% Extreme (4)

Width Measurement ☐ Can't Measure (1) ☐ Bankfull (2) ☐ Mean Width (3) ☑ Estimated (4) ☐ GIS (5) ☐ Measure/GIS (6)

Channel Dimensions Feature Width (m): 2-3 Bankfull Depth (mm) 200

Entrenchment Total: ☑ > 40 m ☐ < 40 m Left Bank _____ m Right Bank _____ m Total width _____ m

Surface Flow Method ☐ Perched Culvert (1) ☐ Hydraulic Head (2) ☐ Distance by Time (3) ☐ Estimated (4)

Wetted Width (m)	Wetted Depth (mm)			Hydraulic head (mm)			Volume (L)			Distance (m)			Time (s)		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
							N/A								

Sediment Transport

Adjacent ☑ None (1) ☐ Rill (2) ☐ Rill and Gully (3) ☐ Gully (4) ☐ Outlet Scour (5)
☐ Sheet Erosion (6) ☐ Instream Bank Erosion (7) ☐ Other (8)

Feature ☑ None (1) ☐ Rill (2) ☐ Rill and Gully (3) ☐ Gully (4) ☐ Outlet Scour (5)
☐ Sheet Erosion (6) ☐ Instream Bank Erosion (7) ☐ Other (8)

Sediment Deposition Measures (mm): _____ _____ _____ _____ _____

☑ None (1) ☐ Minimal: < 5 mm (2) ☐ Moderate: 5-30 mm (3) ☐ Substantial: 31-80 mm (4) ☐ Extensive: > 80 mm (5)

Headwater Drainage Feature Assessment

Date: MARCH 15/24 Project #: 2240A9 Recorder/Crew: RON Hunter

Stream Name: N/A Stream Code: 7 Site Code: N/A

Site Limits: Upstream WP# _____ Field Assessment: ☑ Sample 1 Unconnected HDF:

Downstream WP# _____ ☐ Sample 2 ☐ Not connected

Direction of Assessment: ☐ Upstream ☑ Downstream ☐ Sample 3 to downstream network

Flow Influence ☑ Freshet (1) ☐ Spate (2) ☐ Baseflow (3)

Flow Condition ☑ Dry (1) ☐ Interstitial Flow (3) ☐ Substantial Flow (5)
☑ Standing Water (2) ☐ Minimal Flow (4)

Feature Type ☐ Defined Natural Channel (1) ☐ No Defined Feature (4) ☐ Swale (7)
☐ Channelized or Constrained (2) ☐ Tiled Feature (5) ☐ Roadside Ditch (8)
☑ Multi-thread (3) ☐ Wetland (6) ☐ Pond (9)

Feature Vegetation ☑ None (1) ☐ Lawn (2) ☐ Cropped (3) ☐ Meadow (4) ☐ Scrubland (5) ☐ Wetland(6) ☐ Forest (7)

Riparian Vegetation

0 - 1.5 m	Left Bank	☑ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
	Right Bank	☑ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
1.5 - 10 m	Left Bank	☑ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
	Right Bank	☑ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
10 - 30 m	Left Bank	☑ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
	Right Bank	☑ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)

Channel Gradient (S4.M7) ☑ Visual (1) ☐ Clinometer (2) ☐ Laser Level (3) ☐ Survey Level (4) ☐ Other (5) ☐ LiDAR (6)

Distance (m): _____ _____ _____ Elevation (cm) : _____ _____ _____ Gradient (%): 2%

	Clay (Hard Pan)	Silt	Sand (0.06-2 mm)	Gravel (2-66 mm)	Cobble (67-249 mm)	Boulder (250 mm)	Bedrock
Dominant Substrate (S2.M3)	☑	☐	☐	☐	☐	☐	☐
Sub-Dominant Substrate (S2.M3)	☑	☐	☐	☐	☐	☐	☐

Feature Roughness ☑ < 10% Minimal (1) ☐ 10 - 40% Moderate (2) ☐ 40 - 60% High (3) ☐ > 60% Extreme (4)

Width Measurement ☐ Can't Measure (1) ☐ Bankfull (2) ☐ Mean Width (3) ☑ Estimated (4) ☐ GIS (5) ☐ Measure/GIS (6)

Channel Dimensions Feature Width (m): 1 - 4m Bankfull Depth (mm) 50

Entrenchment Total: ☑ > 40 m ☐ < 40 m Left Bank _____ m Right Bank _____ m Total width _____ m

Surface Flow Method ☐ Perched Culvert (1) ☐ Hydraulic Head (2) ☐ Distance by Time (3) ☐ Estimated (4)

Wetted Width (m)			Wetted Depth (mm)			Hydraulic head (mm)			Volume (L)			Distance (m)			Time (s)		
1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
									N/A								

Sediment Transport

Adjacent ☐ None (1) ☐ Rill (2) ☐ Rill and Gully (3) ☐ Gully (4) ☐ Outlet Scour (5)
☑ Sheet Erosion (6) ☐ Instream Bank Erosion (7) ☐ Other (8)

Feature ☐ None (1) ☑ Rill (2) ☐ Rill and Gully (3) ☐ Gully (4) ☐ Outlet Scour (5)
☑ Sheet Erosion (6) ☐ Instream Bank Erosion (7) ☐ Other (8)

Sediment Deposition Measures (mm): _____ _____ _____ _____ _____

☑ None (1) ☐ Minimal: < 5 mm (2) ☐ Moderate: 5-30 mm (3) ☐ Substantial: 31-80 mm (4) ☐ Extensive: > 80 mm (5)

Headwater Drainage Feature Assessment

Date: MARCH 15/24 Project #: 224049 Recorder/Crew: RON LUICER

Stream Name: N/A Stream Code: 8 Site Code:

Site Limits: Upstream WP# Field Assessment: ☑ Sample 1 Unconnected HDF:

Downstream WP# ☐ Sample 2 ☐ Not connected

Direction of Assessment: ☐ Upstream ☑ Downstream ☐ Sample 3 to downstream network

Flow Influence ☑ Freshet (1) ☐ Spate (2) ☐ Baseflow (3)

Flow Condition ☐ Dry (1) ☐ Interstitial Flow (3) ☐ Substantial Flow (5)
☑ Standing Water (2) ☑ Minimal Flow (4)

Feature Type ☐ Defined Natural Channel (1) ☐ No Defined Feature (4) ☐ Swale (7)
☐ Channelized or Constrained (2) ☐ Tiled Feature (5) ☐ Roadside Ditch (8)
☑ Multi-thread (3) ☐ Wetland (6) ☐ Pond (9)

Feature Vegetation ☑ None (1) ☐ Lawn (2) ☐ Cropped (3) ☐ Meadow (4) ☐ Scrubland (5) ☐ Wetland(6) ☐ Forest (7)

Riparian Vegetation

0 - 1.5 m	Left Bank	☑ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
	Right Bank	☑ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
1.5 - 10 m	Left Bank	☑ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
	Right Bank	☑ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
10 - 30 m	Left Bank	☑ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)
	Right Bank	☑ None (1)	☐ Lawn (2)	☑ Cropped (3)	☐ Meadow (4)	☐ Scrubland (5)	☐ Wetland (6)	☐ Forest (7)

Channel Gradient (S4.M7) ☑ Visual (1) ☐ Clinometer (2) ☐ Laser Level (3) ☐ Survey Level (4) ☐ Other (5) ☐ LiDAR (6)

Distance (m): Elevation (cm) : Gradient (%): 2%

	Clay (Hard Pan)	Silt	Sand (0.06-2 mm)	Gravel (22-66 mm)	Cobble (67-249 mm)	Boulder (250 mm)	Bedrock
Dominant Substrate (S2.M3)	☑	☐	☐	☐	☐	☐	☐
Sub-Dominant Substrate (S2.M3)	☑	☐	☐	☐	☐	☐	☐

Feature Roughness ☑ < 10% Minimal (1) ☐ 10 - 40% Moderate (2) ☐ 40 - 60% High (3) ☐ > 60% Extreme (4)

Width Measurement ☐ Can't Measure (1) ☐ Bankfull (2) ☐ Mean Width (3) ☑ Estimated (4) ☐ GIS (5) ☐ Measure/GIS (6)

Channel Dimensions Feature Width (m): 1-4m Bankfull Depth (mm) 50

Entrenchment Total: ☑ > 40 m ☐ < 40 m Left Bank m Right Bank m Total width m

Surface Flow Method ☐ Perched Culvert (1) ☐ Hydraulic Head (2) ☐ Distance by Time (3) ☐ Estimated (4)

Wetted Width (m)	Wetted Depth (mm)			Hydraulic head (mm)			Volume (L)			Distance (m)			Time (s)		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
							N/A								

Sediment Transport

Adjacent ☐ None (1) ☐ Rill (2) ☐ Rill and Gully (3) ☐ Gully (4) ☐ Outlet Scour (5)
☑ Sheet Erosion (6) ☐ Instream Bank Erosion (7) ☐ Other (8)

Feature ☐ None (1) ☑ Rill (2) ☐ Rill and Gully (3) ☐ Gully (4) ☐ Outlet Scour (5)
☐ Sheet Erosion (6) ☐ Instream Bank Erosion (7) ☐ Other (8)

Sediment Deposition Measures (mm):
☑ None (1) ☐ Minimal: < 5 mm (2) ☐ Moderate: 5-30 mm (3) ☐ Substantial: 31-80 mm (4) ☐ Extensive: > 80 mm (5)

Potential Maternity Roost
Snag Tree ID Form

BAT SNAG TREES

Surveyors: RON HUIZER Date: MARCH 15
Weather:
Project: 2024 Page of

Plot #	Tree #	Species	# of Cavities	DBH (cm)	Cavity Height (m)	Tree Height (m)	% Loose Bark	Decay Class	Canopy Cover	# of Leaf Nests	UTM	Notes	Photos
1		SHAGBARK	0	27	N/A	27	30	1	1	6	0604617 4766719		
2		BUR OAK	0	15	N/A	60	0	1	1	1	0604628 4766757		
3		BUR OAK	0	25	N/A	30	0	1	2	1	0604624 4766784		
4		BUR OAK	0	~~24~~ 22	N/A	14	0	1	1	1	0604633 4766978		

Breeding Bird Survey Summary Form

Surveyor Name: Ron Hunzer Date (use letters for mos.): June 2/24

Project Name: Caistorville Project #: 224049

Time of Survey (start and finish): 7:05 - 8:15

Weather (approx. temp., cloud cover, wind, precipitation): 21° wind 0-1 clouds 3/8

Random Walk ✓ Point Count

Observations

Song Sparrow
Killdeer
R-w-B-Bird
Yellow warb
common Yellowthroat
Robin
Gold Finch
Blue Jay
Catbird
Crow
Cowbird
Grackle
R-B-G Bank
Cardinal
Mallard
Bobolink
Kill Bird
Starling
Barn Swallow
Morning Dove
Savannah Sp
Field Sp
R-B-woodpecker
Mocking Bird
Horned Lark
Ortiel

Breeding Bird Survey Summary Form

Surveyor Name: RON HUIZER Date (use letters for mos.): JUNE 16/24

Project Name: CHESTERVILLE Project #: 224049

Time of Survey (start and finish): 7:13 9:32

Weather (approx. temp., cloud cover, wind, precipitation): 22° WIND 0-1 CLOUD 2/8

Random Walk ✓ Point Count

Observations

ROBIN
GOLDFINCH
MORNING DOVE
HORNED LARK
FIELD SPARROW
BARN SWALLOW
GRACKEL
SONG SP
CARDINAL
KILLDEER
R-W-B-BIRD
KINGBIRD
YELLOW WARBLER
COMMON YELLOW
ORIOL-
RED-B. WOODPECKER
HOUSE WREN
BLUE JAY

STARLING
SAVANNA SP
COWBIRD
CATBIRD
FLICHER
SHIPING SP
VT
BUNTING
CROW

Breeding Bird Survey Summary Form

Surveyor Name: Josh Vandermeulen Date (use letters for mos.): July 2, 2024

Project Name: Caistorville West Lincoln Project #: 224049

Time of Survey (start and finish): 9:20 - 10:40

Weather (approx. temp., cloud cover, wind, precipitation): 22°C, wind=2, CC=20%, no rain

Additional notes on birds (nests, uncertainties, unusual observations, habitat comments etc.) :
Pair of American kestrels likely nesting in/near the north end of the site, though I did not find the nest.

Incidental Observations

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

Bird Species List

RWBL AMRO EAST BARS MODO
SAVS CHSP KILL HOSP BAOR
BHCO AMKE AMGO NOCA COGR
TUVU NOFL SOSP GRHE COYE
SWSP INBU BLJA YEWA EAKI
HOLA CANG GRCA AMCR VESP
TRES CEDW HOWR

Project: 224049 Caistorville West Lincoln
Project Manager: DAN
Field Staff: Josh Vandermeulen
Date of Site Visit(s): July 2, 2024
Type of Data Collected:
Data Collected With: Breeding Bird Survey
Notes:

604600 604700 604800 604900

4767100 4767000 4766900 4766800 4766700 4766600

Broman Court

Caistorville Road

N

HOWR
EUST
MODO
HOSP
AMRO
RWBL
CHSP
BAOR
NOFL
AMGO
SOSP
AMKE
KILL
INBU
BHCO
SAVS
COYE
SWSP
COGR
AMRO
YEWA
GRCA
NOCA
VESP
HOLA
EAKI

0 50 100 m

Legend
- Subject Property (Approximate)
- Watercourse (MNRF 2023)
- Provincially Significant Wetland (MNRF 2023)

C:\ODB\OneDrive - Beacon Environmental\GeoSpatial\Geo Projects\2024\224049 Caistorville West Lincoln\Q Project Files\2024-02-29 - Caistorville West Lincoln - 224049.qgz

Amphibian Data Form

BEACON ENVIRONMENTAL

Visit Information

Project Name: CASTORVILLE
Project #: 224049
Observer Name: ROL HUIZER
Visit #: 1
Date: APR 6/24
Cloud Cover (%): 3/8
Temperature (°C): 12
Beaufort Wind Scale (0-6): 0-1
Precipitation (check one): ☒ None/Dry ☐ Damp/Haze/Fog ☐ Drizzle ☐ Rain

Call Level Codes

Code 1: Calls not simultaneous, number of individuals can be accurately counted.
Code 2: Some calls simultaneous, number of individuals can be reliably estimated.
Code 3: Full chorus, call continuous and overlapping, number of individuals cannot be reliably estimated.

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

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

Station 1

S

SPPE=1 CHFR=2

100m 100m

Station Start Time (24 hr): 1:32
Background Noise Code (1-4): 1
GPS Coordinates: N/A
Water Temperature: N/A

Amphibian Data Form

BEACON ENVIRONMENTAL

Visit Information

Project Name: Alstonville | Project #: 224049

Observer Name: Ron Huizer | Visit #: 1

Date: April 6/24 | Cloud Cover (%): 3/8

Temperature (°C): 12 | Beaufort Wind Scale (0-6): 0-1

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

Call Level Codes

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

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

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

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

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

Station 2

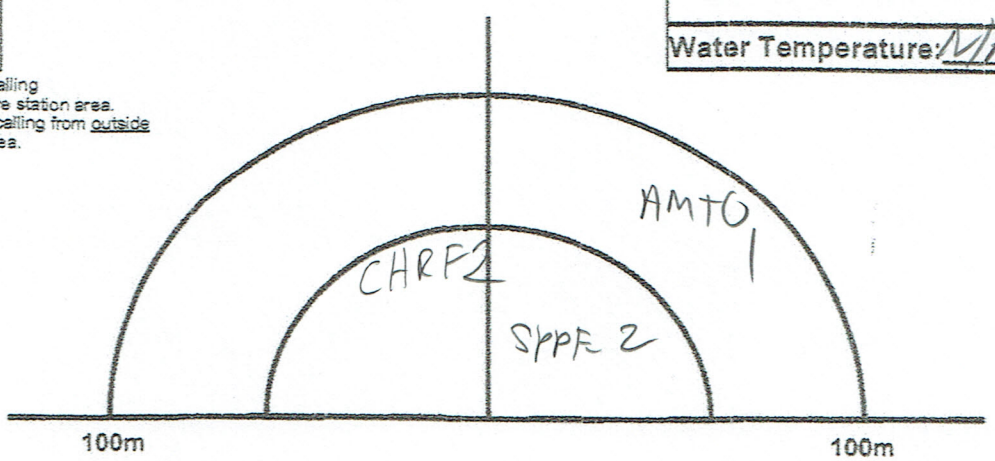
S

Station Start Time (24 hr): 7:43

Background Noise Code (1-4): 1

GPS Coordinates: N/A

Water Temperature: N/A



Amphibian Data Form

BEACON ENVIRONMENTAL

Visit Information

Project Name: CALSTOCKville
Project #: 224049
Observer Name: RUN HUIZER
Visit #: 1
Date: April 6/24
Cloud Cover (%): 3/8
Temperature (°C): 12
Beaufort Wind Scale (0-6): 0-1
Precipitation (check one): ☒ None/Dry ☐ Damp/Haze/Fog ☐ Drizzle ☐ Rain

Call Level Codes

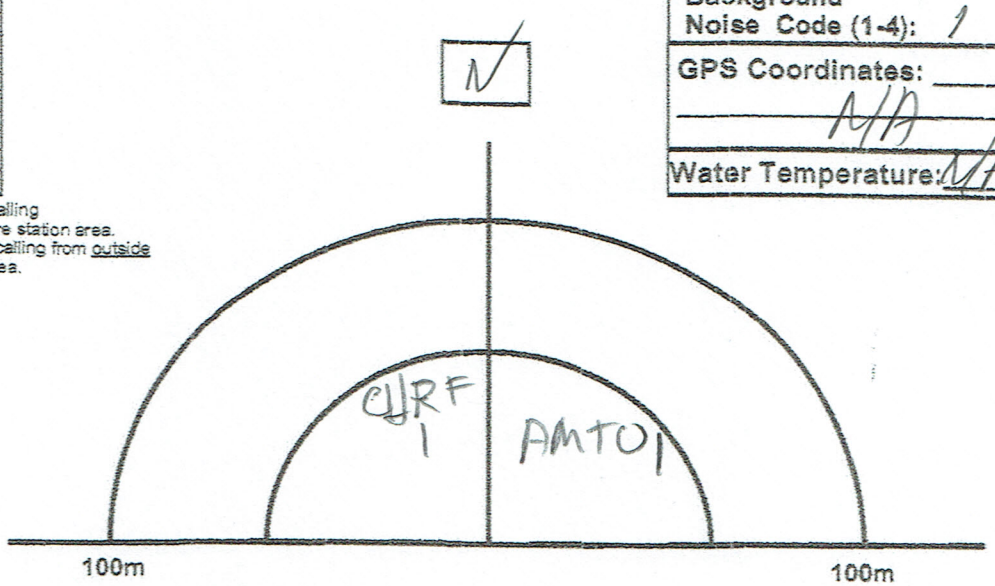
Code 1: Calls not simultaneous, number of individuals can be accurately counted.
Code 2: Some calls simultaneous, number of individuals can be reliably estimated.
Code 3: Full chorus, call continuous and overlapping, number of individuals cannot be reliably estimated.

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

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

Station 3

Station Start Time (24 hr):	759
Background Noise Code (1-4):	1
GPS Coordinates:	N/A
Water Temperature:	N/A



Amphibian Data Form

BEACON ENVIRONMENTAL

Visit Information

Project Name: Chisholville
Project #: 224049
Observer Name: Ron Dwyer
Visit #: 1
Date: April 8/24
Cloud Cover (%): 3/8
Temperature (°C): 10
Beaufort Wind Scale (0-6): 0-1
Precipitation (check one): ☒ None/Dry ☐ Damp/Haze/Fog ☐ Drizzle ☐ Rain

Call Level Codes

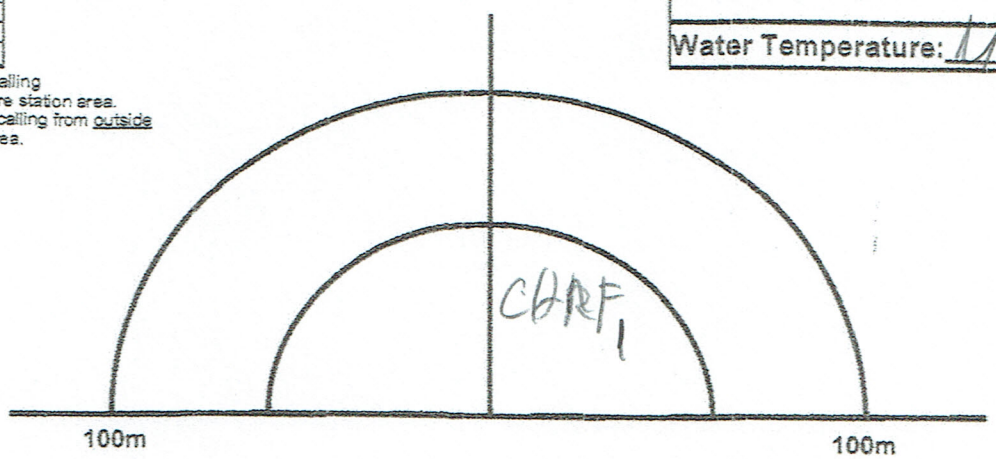
Code 1: Calls not simultaneous, number of individuals can be accurately counted.
Code 2: Some calls simultaneous, number of individuals can be reliably estimated.
Code 3: Full chorus, call continuous and overlapping, number of individuals cannot be reliably estimated.

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

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

Station 1

Station Start Time (24 hr):	8:15
Background Noise Code (1-4):	2
GPS Coordinates:	N/A
Water Temperature:	N/A



Amphibian Data Form

BEACON ENVIRONMENTAL

Visit Information

Project Name: CASTLEVILLE

Project #: 224079

Observer Name: ROWITHUIZER

Visit #: 2

Date: MAY 1/24

Cloud Cover (%): 5/8

Temperature (°C): 13

Beaufort Wind Scale (0-6): 0-1

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

Call Level Codes

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

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

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

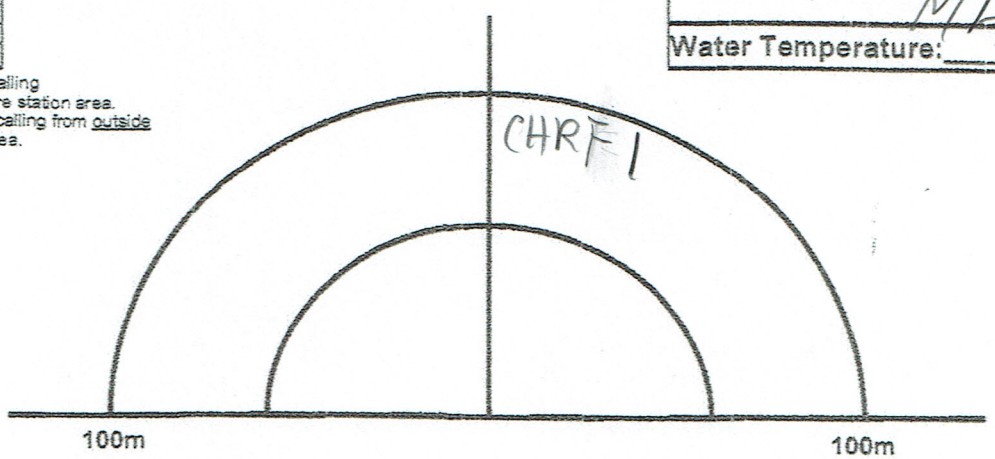
Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

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

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

Station 1

Station Start Time (24 hr):	21:05
Background Noise Code (1-4):	2
GPS Coordinates:	N/A
Water Temperature:	



Amphibian Data Form

BEACON ENVIRONMENTAL

Visit Information

Project Name: CASTLEVILLE
Project #: 2240AG
Observer Name: Ryan Huzar
Visit #: 2
Date: MAY 1/24
Cloud Cover (%): 5/8
Temperature (°C): 13
Beaufort Wind Scale (0-6): 0-1
Precipitation (check one): [X] None/Dry ☐ Damp/Haze/Fog ☐ Drizzle ☐ Rain

Call Level Codes

Code 1: Calls not simultaneous, number of individuals can be accurately counted.
Code 2: Some calls simultaneous, number of individuals can be reliably estimated.
Code 3: Full chorus, call continuous and overlapping, number of individuals cannot be reliably estimated.

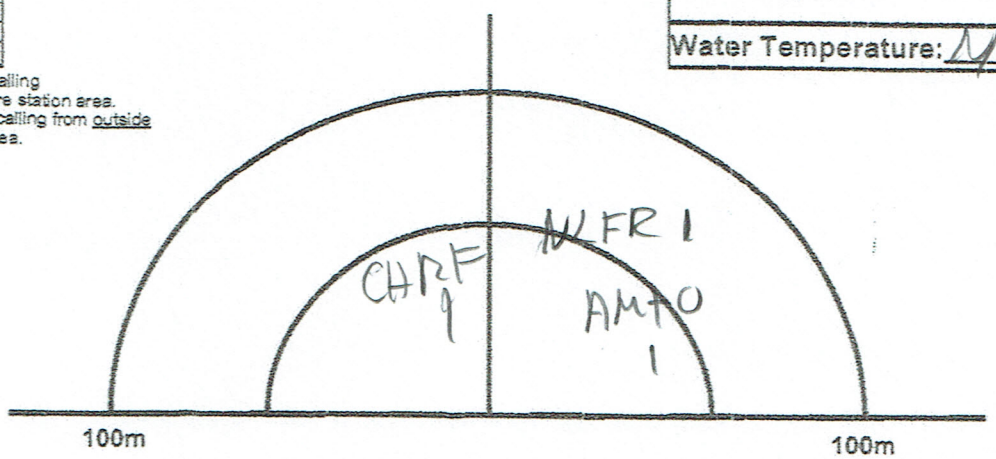
Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

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

Station 2

S

Station Start Time (24 hr):	817
Background Noise Code (1-4):	1
GPS Coordinates:	NA
Water Temperature:	NA



Amphibian Data Form

BEACON ENVIRONMENTAL

Visit Information

Project Name: CASTORVILLE Project #: 224049

Observer Name: RICH BUZZA Visit #: 2

Date: MAY 1/24 Cloud Cover (%): 5/8

Temperature (°C): 13 Beaufort Wind Scale (0-6): 0-1

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

Call Level Codes

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

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

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

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

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

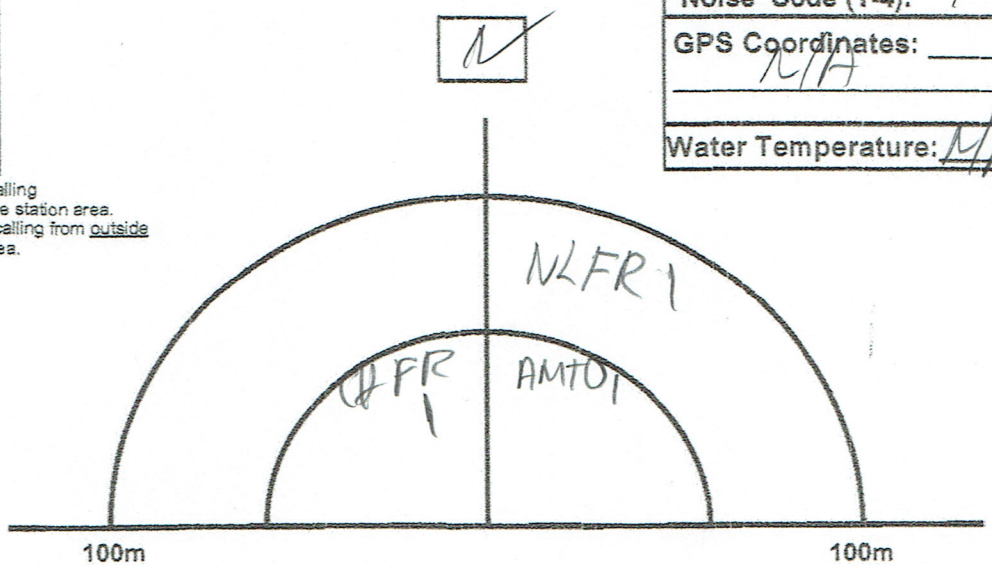
Station 3

Station Start Time (24 hr): 8:33

Background Noise Code (1-4): 1

GPS Coordinates: N/A

Water Temperature: N/A



Amphibian Data Form

BEACON ENVIRONMENTAL

Visit Information

Project Name: CASTLEVILLE
Project #: 224049
Observer Name: RON HUIZER
Visit #: 2
Date: MAY 1/24
Cloud Cover (%): 5/9
Temperature (°C): 11°
Beaufort Wind Scale (0-6): 0-1
Precipitation (check one): ☒ None/Dry ☐ Damp/Haze/Fog ☐ Drizzle ☐ Rain

Call Level Codes

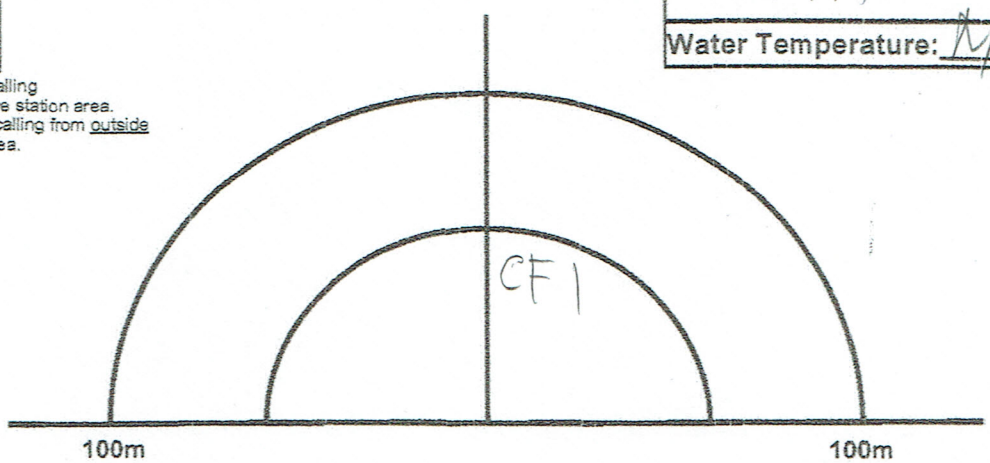
Code 1: Calls not simultaneous, number of individuals can be accurately counted.
Code 2: Some calls simultaneous, number of individuals can be reliably estimated.
Code 3: Full chorus, call continuous and overlapping, number of individuals cannot be reliably estimated.

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

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

Station 4

Station Start Time (24 hr):	8:46
Background Noise Code (1-4):	2
GPS Coordinates:	N/A
Water Temperature:	N/A



Amphibian Data Form

BEACON ENVIRONMENTAL

Visit Information

Project Name: CAISTORVILLE
Project #: 224049
Observer Name: ROB DRIVER
Visit #: 3
Date: JUL 3/24
Cloud Cover (%): 8/8
Temperature (°C): 20
Beaufort Wind Scale (0-6): 0-1
Precipitation (check one): ☒ None/Dry ☐ Damp/Haze/Fog ☐ Drizzle ☐ Rain

Call Level Codes

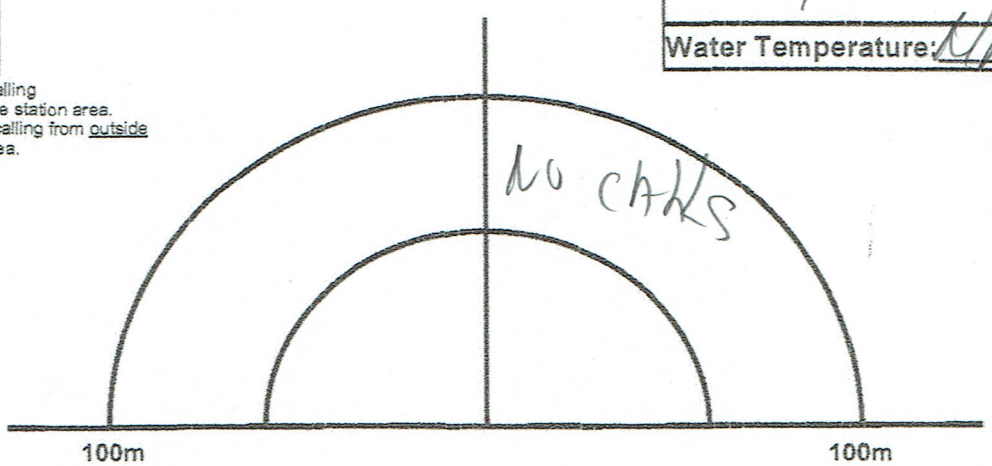
Code 1: Calls not simultaneous, number of individuals can be accurately counted.
Code 2: Some calls simultaneous, number of individuals can be reliably estimated.
Code 3: Full chorus, call continuous and overlapping, number of individuals cannot be reliably estimated.

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

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

Station 1

S



Station Start Time (24 hr): 10:07
Background Noise Code (1-4): 1
GPS Coordinates: N/A
Water Temperature: N/A

Amphibian Data Form

BEACON ENVIRONMENTAL

Visit Information

Project Name: Chisterville Project #: 224049

Observer Name: Ron Kuizenga Visit #: 3

Date: July 3/24 Cloud Cover (%): 8/8

Temperature (°C): 20 Beaufort Wind Scale (0-6): 0-1

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

Call Level Codes

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

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

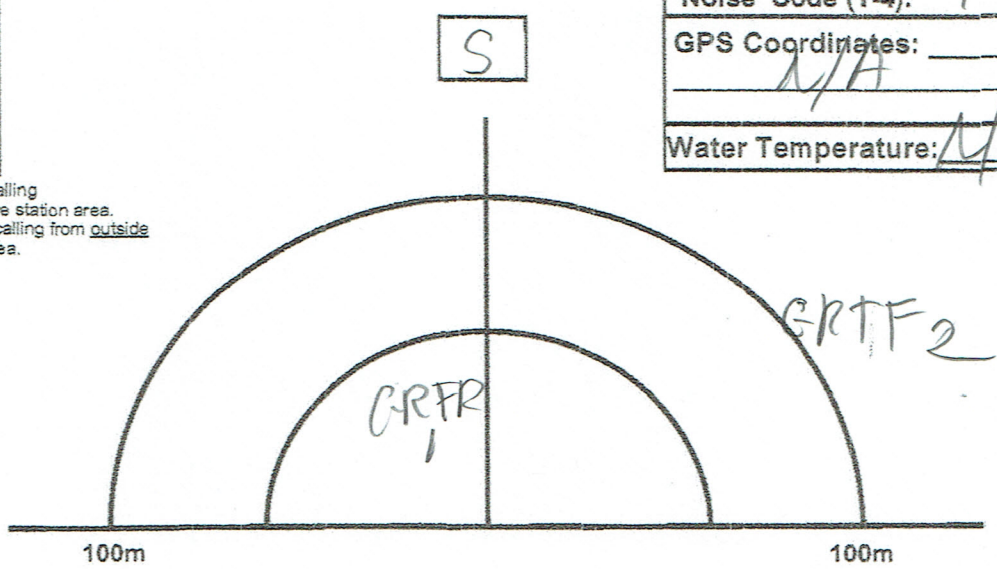
Code 3: Full chorus, call continuous and overlapping, number of individuals cannot be reliably estimated.

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

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

Station 2

Station Start Time (24 hr):	10:13
Background Noise Code (1-4):	1
GPS Coordinates:	N/A
Water Temperature:	N/A



Amphibian Data Form

BEACON ENVIRONMENTAL

Visit Information

Project Name: CHISTLETTE Project #: 224049

Observer Name: RON HUIZER Visit #: 3

Date: July 3/24 Cloud Cover (%): 8/8

Temperature (°C): 19 Beaufort Wind Scale (0-6): 0-1

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

Call Level Codes

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

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

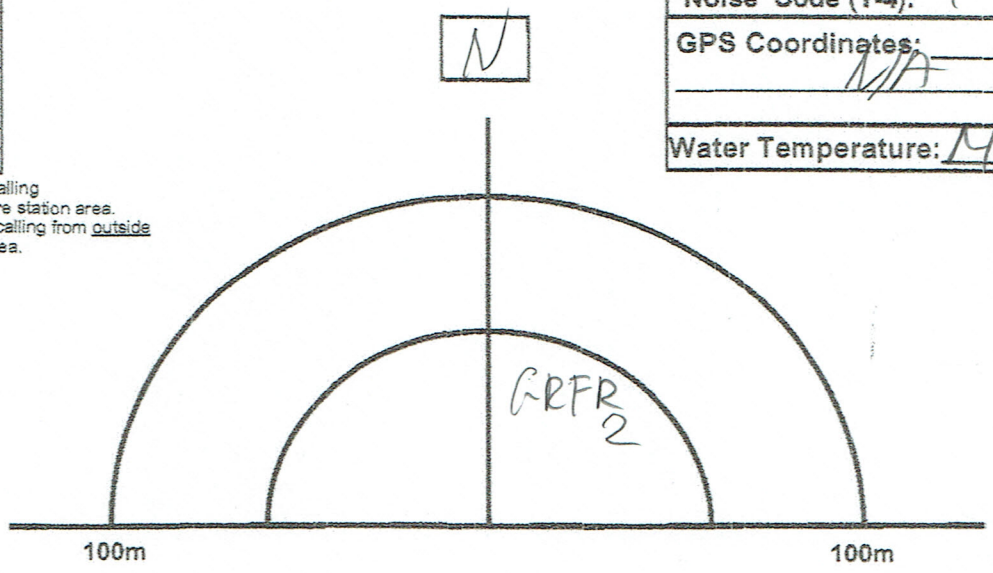
Code 3: Full chorus, call continuous and overlapping, number of individuals cannot be reliably estimated.

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

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

Station 3

Station Start Time (24 hr):	10:28
Background Noise Code (1-4):	1
GPS Coordinates:	N/A
Water Temperature:	N/A



Amphibian Data Form

BEACON ENVIRONMENTAL

Visit Information

Project Name: Christorville | Project #: 224049

Observer Name: Rowlhuizer | Visit #: 3

Date: July 3/24 | Cloud Cover (%): 8/8

Temperature (°C): 19 | Beaufort Wind Scale (0-6): 0-1

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

Call Level Codes

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

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

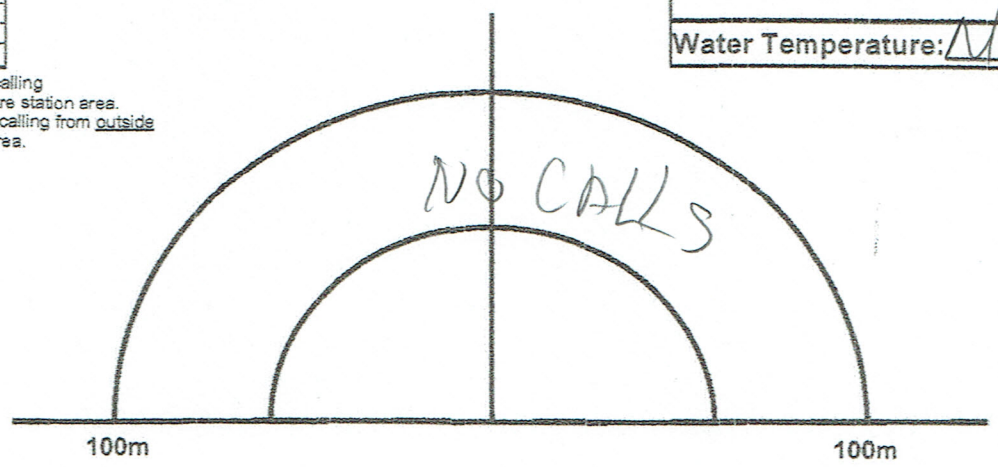
Code 3: Full chorus, call continuous and overlapping, number of individuals cannot be reliably estimated.

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

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

Station 4

Station Start Time (24 hr):	10:42
Background Noise Code (1-4):	2
GPS Coordinates:	NA
Water Temperature:	NA



Beacon Environmental Project # 224049

Caistorville Rd

ELC COMMUNITY DESCRIPTION & CLASSIFICATION

SITE:		POLYGON:	
SURVEYOR(S):	DATE: 26/07/22	TIME: start	
		finish	
UTMZ:	UTME:	UTMN:	

POLYGON DESCRIPTION

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

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY			
2	SUB-CANOPY			
3	UNDERSTOREY			
4	GRD. LAYER			DAUCCAR > SYMPLAN > ERIGANN

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:

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

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:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:		CUM 1
INCLUSION		
COMPLEX		

Notes:

ELC PLANT SPECIES LIST

SITE:

POLYGON:

DATE: July 26, 2022

SURVEYOR(S):

LAYERS: 1 = CANOPY 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	COL.
Orange Lily				R	
PHALARU				A	
DAUCCAR				A	
SOLIALT				A	
CIRSARV				O	
DIPSFUS				O	
Curly Dock				R	
TRIFPRA				A	
MELIALB				O	
ERIGANN				A	
C. Ragweed				O	
EUTHGRA				O	
OENBIE				R	
CONYCAN				O	
JUNCEFF				O	
CIRSVUL				O	
JUNCTEN				R	
Oxeye Daisy				O	
MEDILUP				O	
BIDEFRO				R	
C. Burdock				O	
LOTCOR				O	
Prickly Lettuce				R	
Timothy				R	
SCIRCYPE				R	
CORNOBL				R	
AGROGIA				A	
PLANMAJ				R	
F. Pepper Grass				R	
Quack Grass				R	
RHAMCAT				R	

SPECIES CODE	LAYER 1	2	3	4	COL.
SYMPPIL				O	
DIAN ARM				R	
C. Dandelion				R	
FRAGVIR				O	
VERBHAS				R	
Barnyard Grass				R	
CYMPNOV				R	
HYPEPER				R	
VITIRIP				R	
TRIFCOC				R	
PLANLAN				O	
GEUMLAC				R	
ACHIMIL				R	
CAREVUL				R	
TRIFHYB				O	
CIRSARV				O	
ASCLSYR				R	
VIBUREO				R	
SPIRALB				R	
PORTPAC				R	
Siberian Elm				R	
RUBUALL				R	
CORNRAC				O	
SYMPLAN				A	

except Ford Pt.

Beacon Environmental Project # 2240459

Caistorville Rd Wetland

ELC COMMUNITY DESCRIPTION & CLASSIFICATION

SITE:		POLYGON:	
SURVEYOR(S):	DATE: 26/07	TIME: start	
		finish	
UTMZ:	UTME:	UTMN:	

POLYGON DESCRIPTION

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

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY			
2	SUB-CANOPY			
3	UNDERSTOREY	4	2	TYPHLAT >> PHRAAUS
4	GRD. LAYER	4	3	TYPHLAT > LEMMINN > TLEOOBT

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:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:	Cattail Marsh	MAS2
INCLUSION		
COMPLEX		

Notes:

ELC PLANT SPECIES LIST

SITE:	
POLYGON:	
DATE:	July 26 / 2024
SURVEYOR(S):	

LAYERS: 1 = CANOPY 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	COL.
TYPHLAT			A	A	
LEMMINN				A	
PERSMAC				O	
JUNCEFF				O	
ALISTRI				O	
TLEOOBT				A	
CAREVUL				R	
PHRAAUS			R		
LYTHSAL				R	
SilverMaple	A	A			
CockscrowH	R	R			
JUNIVIR			O		
QUERMAC	O				
SPIRALB			R		
SALIX SP				R	
LYTHSAL				O	
LYCEURY				A	
CARETRI				R	
CARECRI				R	
ASCLINC				R	
SCIRCY				R	
CICUMAC				R	
SIUMSUM				R	
TYPHLAT				O	
ALISTRI				O	
Boneset				R	
JUNCEFF				A	
POPUDEL				R	
Water Pulse				A	
JUNCEFF				A	

SPECIES CODE	LAYER 1	2	3	4	COL.
TLEOOBT				O	

Cattail Marsh

HE

Drain

Green Frog

Castroville Rd West Lincoln

ELC

SOILS ONTARIO

SITE:

POLYGON:

DATE:

SURVEYOR(S):

Slope UTM

	P/A	PP	Dr	Position	Aspect	%	Type	Class	Z	EASTING	NORTHING
1											
2											
3											
4											
5											

SOIL TEXTURE x HORIZON	1	2	3	4	5

A TEXTURE					
COURSE FRAGMENTS					
B TEXTURE					
COURSE FRAGMENTS					
C TEXTURE					
COURSE FRAGMENTS					
EFFECTIVE TEXTURE					
SURFACE STONINESS					
SURFACE ROCKINESS					

DEPTH TO / OF

MOTTLES					
GLEY					
BEDROCK					
WATER TABLE					
CARBONATES					
DEPTH OF ORGANICS					
PORE SIZE DISC #1					
PORE SIZE DISC #2					
MOISTURE REGIME					

SOIL SURVEY MAP					
LEGEND CLASS					

ELC PLANT SPECIES LIST

SITE:

POLYGON:

DATE: June 05, 2024

SURVEYOR(S): SM

LAYERS: 1 = CANOPY 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	COL.
C. durieui				O	
C. scorpioidea				R	
C. lupulina				O	
Ri. cur				O	

Little Drain Species

SPECIES CODE	LAYER 1	2	3	4	COL.

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June 05 Vegetation Surveys Species List
Castroville 224049

ELC
SOILS ONTARIO

SITE: Castroville Rd. W. Lincoln
POLYGON:
DATE: June 05, 2024
SURVEYOR(S): SM

	P/A	PP	Dr	Position	Aspect	Slope %	Type	Class	Z	UTM EASTING	UTM NORTHING
1											
2											
3											
4											
5											

SOIL TEXTURE x HORIZON	1	2	3	4	5

	1	2	3	4	5
A TEXTURE					
COURSE FRAGMENTS					
B TEXTURE					
COURSE FRAGMENTS					
C TEXTURE					
COURSE FRAGMENTS					
EFFECTIVE TEXTURE					
SURFACE STONINESS					
SURFACE ROCKINESS					

DEPTH TO / OF	1	2	3	4	5
MOTTLES					
GLEY					
BEDROCK					
WATER TABLE					
CARBONATES					
DEPTH OF ORGANICS					
PORE SIZE DISC #1					
PORE SIZE DISC #2					
MOISTURE REGIME					

SOIL SURVEY MAP					
LEGEND CLASS					

ELC
PLANT SPECIES LIST

SITE: Castroville Rd. W. Lincoln
POLYGON:
DATE: June 05, 2024
SURVEYOR(S): SM

LAYERS: 1 = CANOPY 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	COL.
VICICRA				O	
CONYCAN				R	
TRIFHYB				A	
Oxeye Daisy				A	
LOTUCORN				O	
AGROGIA				O	
Curly Dock				O	
SOLIRUGU				O	
Dandelion				D	
POTEREC				R	
Penny Cress				R	
PLANMAJ				R	
SOLIALT				A	
RED CLOVER				O	
WHITECLOVER				O	
C. Teasel				O	
VIIRIP				R	
DAUCAR				O	
BROMINE				O	
CIRSVUL				R	
CORNRAC				O	
SYMPLAN				O	
Dames Rocket				R	
PHALARU				A	
Tall Fescue				D	
OENOBIE				R	
C. Muellin				R	
Deptford Pink				R	
RHAMCA					
Path Rush				R	
MYOLUD				R	

SPECIES CODE	LAYER 1	2	3	4	COL.
FRAGVIR				O	
TRIFOAT				O	
RANUABO				R	
STEMCAN				R	
Mouse ear Chickweed				R	
Soft Rush				R	
BRASNIG				R	
POA-COM				O	
VICI TET				R	
ERIGANN				A	
ALLIPET				R	
SYMPPIL		–		R	
Water Plantain				R	
Timothy				R	
CAREW				R	
STEMAVE				R	
QUERMAC				D	
Th. Creeper				R	
S. clover				O	
CRAT SP				R	
hordjub				O	sq. tail
FRAGVIR				O	
Yellow S-Clover				R	
ROSARUB				R	
P. LOOSESTRIFE				R	
Cowbane				R	
Spi. alba				R	
Typh lat				R	
Forget me not				R	
C. Milkweed				R	

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Jun 05 Vegetation Surveys Species List
Castroville 224049

ELC
SOILS ONTARIO

SITE: Castroville Rd. W. Lincoln
POLYGON:
DATE: June 05, 2024
SURVEYOR(S): SM

Slope | UTM

	P/A	PP	Dr	Position	Aspect	%	Type	Class	Z	EASTING	NORTHING
1											
2											
3											
4											
5											

SOIL	1	2	3	4	5
TEXTURE x HORIZON					
A TEXTURE					
COURSE FRAGMENTS					
B TEXTURE					
COURSE FRAGMENTS					
C TEXTURE					
COURSE FRAGMENTS					
EFFECTIVE TEXTURE					
SURFACE STONINESS					
SURFACE ROCKINESS					
DEPTH TO / OF					
MOTTLES					
GLEY					
BEDROCK					
WATER TABLE					
CARBONATES					
DEPTH OF ORGANICS					
PORE SIZE DISC #1					
PORE SIZE DISC #2					
MOISTURE REGIME					
SOIL SURVEY MAP					
LEGEND CLASS					

ELC
PLANT SPECIES LIST

SITE: Castroville Rd. W. Lincoln
POLYGON:
DATE: June 05, 2024
SURVEYOR(S): SM

LAYERS: 1 = CANOPY 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	COL.
VICICRA				O	
CONYCAN				R	
TRIFHYB				A	
Oxeye Daisy				A	
LOTUCORN				O	
AGROGIA				O	
Curly Dock				O	
SOLIRUG				O	
Dandelion				D	
POTEREC				R	
Penny Cress				R	
PLANMAJ				R	
SOLIALT				A	
RED CLOVER				O	
WHITE CLOVER				O	
C. Teasel				O	
VIIRIP				R	
DAUCAR				O	
BROMINE				O	
CIRSVUL				R	
CORNRAC				O	
SYMPLAN				O	
Dames Rocket				R	
PHALARU				A	
Tall Fescue				R	
OENOBIE				R	
C. Muellin				R	
Deptford Pink				R	
RHAMCAT					
Path Rush				R	
MEDILUP				R	

SPECIES CODE	LAYER 1	2	3	4	COL.
FRAGVIR				O	
TRIFOR				O	
RANUARB				R	
GEUMCAN				R	
Mouse ear Chickweed				R	
Soft Rush				R	
BRASNIG				R	
POA-COM				O	
VICI TET				R	
ERIGANN				A	
ALLI PET				R	
SYMPPIL				R	
Water Plantain				R	
Timothy				R	
CAREW				R	
GEUMAUT				R	
QUERMAC				R	
Th. Creeper				R	
S. clover				O	
CRAT-SP				R	
hord jub.				O	sq. tail
FRAGVIR				O	
Yellow S-Clover				R	
Rosa Rub				R	
P. Loosestrife				R	
Cowbane				R	
Spi. alba				R	
Typh lat				R	
Forget me not				R	
C. Milkweed				R	

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Drawn Specs

Castroville Rd West Lincoln

ELC

SOILS ONTARIO

SITE:

POLYGON:

DATE:

SURVEYOR(S):

Slope UTM

	P/A	PP	Dr	Position	Aspect	%	Type	Class	Z	EASTING	NORTHING
1											
2											
3											
4											
5											

SOIL TEXTURE x HORIZON	1	2	3	4	5

A TEXTURE					
COURSE FRAGMENTS					
B TEXTURE					
COURSE FRAGMENTS					
C TEXTURE					
COURSE FRAGMENTS					
EFFECTIVE TEXTURE					
SURFACE STONINESS					
SURFACE ROCKINESS					

DEPTH TO / OF					
MOTTLES					
GLEY					
BEDROCK					
WATER TABLE					
CARBONATES					
DEPTH OF ORGANICS					
PORE SIZE DISC #1					
PORE SIZE DISC #2					
MOISTURE REGIME					

SOIL SURVEY MAP					
LEGEND CLASS					

ELC PLANT SPECIES LIST

SITE:

POLYGON:

DATE: June 05, 2024

SURVEYOR(S): SM

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

Little Drain Species

SPECIES CODE	LAYER 1	2	3	4	COL.
C. deltoidea				O	
C. scorpioides				R	
C. lupulina				O	
Ricecur				O	

SPECIES CODE	LAYER 1	2	3	4	COL.

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