



GUIDING SOLUTIONS IN THE
NATURAL ENVIRONMENT

Environmental Impact Study 7370 Centre Road, Uxbridge

Prepared For:

Bridgebrook Corporation

Prepared By:

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1. Introduction

Beacon Environmental Limited (Beacon) has been retained by Bridgebrook Corporation to undertake an Environmental Impact Statement (EIS) for a parcel of land located on the 7370 Centre Road, Uxbridge in the Regional Municipality of Durham (the “subject property”, **Figure 1**).

The property is approximately 40 hectares in area and is bounded by 6th Concession Road and Centre Road. Most of the subject property is composed of agricultural lands. There are three headwater drainage features that traverse the subject property as well as a portion of Uxbridge Brook. Other natural features include woodlands and wetlands. The property falls within the jurisdiction of the Lake Simcoe Region Conservation Authority (LSRCA).

This report is being prepared to meet submission requirements for a proposed residential development. The purpose of this EIS is to identify and determine the potential impacts of the proposed development on the natural features and functions at the subject property. This EIS provides a background review and description of the physical and ecological characteristics of the subject property, their functions, significance and sensitivity.

2. Policy Context

2.1 Provincial Policy Statement (2020)

The Provincial Policy Statement (PPS) (Ministry of Municipal Affairs and Housing (MMAH) 2020) should be considered and applied as one integrated document. Policy 2.1 of the PPS provides direction to regional and local municipalities regarding planning policies specifically for the protection and management of natural heritage features and resources. The PPS defines seven natural heritage features and provides planning policies for each.

The Natural Heritage Reference Manual (MNR 2010) is a technical document used to help assess the natural heritage features listed below:

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

Some of these features occur on the subject property.

2.2 Greenbelt Plan

The subject property is located within the *Protected Countryside – Towns and Villages* lands of the Greenbelt Plan area. As per Section 3.2.2.4 of the Greenbelt Plan, the Natural Heritage System, including the policies of section 3.2.5, does not apply within the existing boundaries of settlement areas, but does apply when considering expansions to settlement areas as permitted by the policies of this Plan. Municipalities should consider the Natural Heritage Systems connections within settlement areas when implementing municipal policies, plans and strategies.

2.3 Regional Municipality of Durham Official Plan (2017)

The Regional Municipality of Durham published its latest Official Consolidated Plan in May 2020. In *Schedule A - Map A4 - Regional Structure* of the Durham Official Plan, the subject property is shown within the Urban Area Boundary.

The Official Plan contains several policies intended to preserve, conserve and enhance the Region's natural environment.

The Region of Durham Official Plan defines Key Natural Heritage Features (KNHFs) as the following:

- Significant habitat of endangered and threatened, special concern and rare species;
- Fish habitat;
- Wetlands;
- Life Science Areas of Natural and Scientific Interest (ANSIs);
- Significant valleylands;
- Significant woodlands;
- Significant wildlife habitat;
- Sand barrens, savannahs and tallgrass prairies; and
- Alvars.

The Official Plan also recognizes the following Key Hydrologic Features (KHF):

- Permanent and intermittent streams;
- Wetlands;
- Lakes and their littoral zones;
- Kettle lakes and their surface catchment areas;
- Seepage areas and springs; and
- Aquifers and recharge areas.

The OP does not provide specific criteria for the identification of features. On *Schedule B – Map 'B1b'* Key Natural Heritage and Hydrologic Features associated with Uxbridge Brook corridor are identified at the southeast limit of the subject property.



According to Section 2.3.14 of the Official Plan the location and extent of key natural heritage and/or hydrologic features shown on Schedule 'B' – Map 'B1' may be further confirmed through appropriate studies such as a watershed plan or an environmental impact study in accordance with Policy 2.3.43.



Legend

- Subject Property
- Watercourse (MNR 2019)



Site Location		Figure 1
7370 Centre Road Uxbridge		
		Project: 217431 Last Revised: February, 2021
Client: MDTR Group		Prepared by: BD Checked by: JM
	1:8,100	Inset Map: 1:50,000
Contains information licensed under the Open Government License— Ontario Orthoimagery Baselayer: 2020 (FBS)		

Section 2.3.43 of the Durham Region Official Plan states that:

Any proposal for development or site alteration in proximity to key natural heritage or hydrologic features shall be required to include an Environmental Impact Study as part of a complete application.

Significant Woodlands (off the Oak Ridges Moraine) are defined in the Regional Official Plan as:

...an area which is ecologically important in terms of features such as species composition, age of trees and stand history; functionally important due to its contribution to the broader landscape because of its location, size or due to the amount of forest cover in the planning area; or economically important due to site quality, species composition, or past management history.

This definition would lead to the conclusion that woodlands associated with wetlands and watercourses would be considered significant. In absence of a defined criteria, we are applying 0.5 ha as the minimum size criteria for woodlands associated with wetlands and watercourses as this has been used in many other municipal official Plans.

On the basis that the woodlands are associated with watercourses and wetlands, it is concluded that the woodlands onsite, with the exception of FOD4-A and FOD7-A at the southwest limit, meet the definition of significant woodlands.

2.4 Town of Uxbridge Official Plan (January 2014)

The Township of Uxbridge Official Plan (2014) implements provincial plans and provides land use planning directives for the Township. The subject property has been identified as “future residential area” within the Secondary Plan Area on Schedule A, “Land Use and Transportation Plan, Uxbridge Urban Area”.

In accordance with Section 2.3.4.2:

The size and extent of environmental buffer areas, the form they take and the uses permitted shall be established through the submission of an Township of Uxbridge 2-26 Office Consolidation January 2014 environmental impact study and/or other information required by the Township, in consultation with the Conservation Authority,

and

where development is proposed adjacent to a watercourse, a minimum naturally vegetated buffer zone of 30 metres shall generally be established on both sides of the watercourse.

This policy framework allows some flexibility on the watercourse buffer zone, which would be determined to the satisfaction of the LSRCA and the Township.

2.5 Lake Simcoe Region Conservation Authority Watershed Policies and Regulations

The Lake Simcoe Region Conservation Authority (LSRCA) regulates hazard lands including watercourses, valleylands, flood hazards, shorelines, and wetlands, and lands adjacent to these features under Ontario Regulation 179/06. The LSRCA Watershed Development Policies (2014) implement the Conservation Authorities Act (1990), as well as provide details on the requirements for assessing hazard lands. The LSRCA also provides guidance to the Township of Uxbridge on matters related to natural hazards through peer review and technical comment.

In accordance with Section 2(b) of Ontario Regulation 179/06, development is prohibited within river or stream valleys that have depressional features associated with a river or stream, whether or not they contain a watercourse. The limits associated with river or stream valleys are determined in accordance with the following rules:

- Where the river or stream valley is apparent and has stable slopes, the valley extends from the stable top of bank, plus 15 metres, to a similar point on the opposite side;
- Where the river or stream valley is apparent and has unstable slopes, the valley extends from the predicted long term stable slope projected from the existing stable slope or, if the toe of the slope is unstable, from the predicted location of the toe of the slope as a result of stream erosion over a projected 100-year period, plus 15 metres, to a similar point on the opposite side;
- Where the river or stream valley is not apparent, the valley extends the greater of:
 - The distance from a point outside the edge of the maximum extent of the flood plain under the applicable flood event standard, plus 15 metres, to a similar point on the opposite side; and
 - The distance from the predicted meander belt of a watercourse, expanded as required to convey the flood flows under the applicable flood event standard, plus 15 metres, to a similar point on the opposite side.

2.5.1 LSRCA Watershed Development Policies

The LSRCA's Watershed Development Policies aim to protect the environmental integrity of the Lake Simcoe watershed through implementation of the Regulation as well as providing technical review support to their member municipalities.

Policies provide direction regarding valleyland, watercourse and wetland protection, Environmentally Significant Areas, stormwater management, floodplain management, hazard lands; as well as guidance on plan review and approvals.

Generally, the LSRCA directs development away from: regulatory floodplains; Environmentally Significant Areas; wetlands; Areas of Natural and Scientific Interest; significant woodlands; significant valleylands; sensitive and/or significant wildlife habitat(s); habitats of Endangered and Threatened species; areas of unstable slopes; and fish habitat.

Section 4 provides watercourse protection guidance and under policy 4.0.3, requires a 15 m setback from the edge of the watercourse features (e.g., meander belt, flood plain, top of slope, etc.). Typically setbacks are only required to intermittent or permanent streams. Seasonal field investigations, including

hydrogeological investigations and consultation with LSRCA is required to determine the characterization of watercourses.

LSRCA requires a 30 m minimum buffer from all other wetlands for all new development unless it can be demonstrated that the hydrological function of adjacent lands has been evaluated and it has been demonstrated through the submission of a hydrologic study to the satisfaction of the LSRCA that there will be no negative impacts on the wetland as a result of the proposed development.

When determined that wetland and/or its buffer can be removed, the LSRCA apply their Ecological Offsetting Strategy (2018) through which a net gain of wetland and/or buffer is sought.

2.5.2 LSRCA Ecological Offsetting Strategy

The Board of Directors of the LSRCA approved the Authority's Ecological Offsetting Plan ("the Plan"), which came into effect in June 2017, updated in May 2019. The Offsetting Plan requires compensation of natural heritage features and their buffers where avoidance is not possible or does not represent good planning.

2.5.3 Lake Simcoe Protection Plan

The Lake Simcoe Protection Plan (LSPP) was developed by the Ontario Ministry of the Environment in 2009. This plan addresses the promotion and protection of Lake Simcoe proper, its shoreline, and the natural heritage features and functions associated with the entire Lake Simcoe watershed. As the subject property is located within the Lake Simcoe watershed, this Plan applies.

Under the LSPP, *Development* means:

The creation of a new lot, a change in land use, or the construction of buildings and structures, any of which require the approval under the Planning Act, the Public Lands Act, the Conservation Authorities Act, or that are subject to the Environmental Assessment Act.

Settlement areas are urban areas and rural settlement areas (e.g., cities, towns, villages and hamlets) where development is concentrated and lands are designated in municipal official plans for development over the long term.

The following policies apply to those settlement areas designated in official plans as they existed on the date the Plan came into effect and to settlement area expansions:

- a. *Increase or improve fish habitat in streams, lakes and wetlands, and any adjacent riparian areas;*
- b. *Include landscaping and habitat restoration that increase the ability of native plants and animals to use valleylands or riparian areas as wildlife habitat and movement corridors;*
- c. *Seek to avoid, minimize and/or mitigate impacts associated with the quality and quantity of urban run-off into receiving streams, lakes and wetlands; and*
- d. *Establish or increase the extent and width of a vegetation protection zone adjacent to Lake Simcoe to a minimum of 30 m where feasible.*

Within Settlement Areas the LSPP generally defers to the PPS with respect to the retention of natural features and appropriate buffers.

2.6 Federal Fisheries Act (1985)

Fish habitat is protected under the Federal *Fisheries Act* (1985). In Ontario, the federal department of Fisheries and Oceans Canada (DFO) manages fish habitat and the Ontario Ministry of Natural Resources and Forestry (MNRF, formerly known as OMNR or MNR) manages fisheries. Section 35 (1) of the Federal *Fisheries Act* precludes “any work, undertaking or activity that results in serious harm to fish” that are part of a commercial, recreational or aboriginal fishery, or to fish that support such a fishery. S. 35(2) provides that s. 35(1) does not apply where the work, undertaking or activity has been authorized by the Minister and is carried on in accordance with conditions established by the Minister.

The *Fisheries Act* defines “serious harm” to fish as “the death of fish or any permanent alteration to, or destruction of, fish habitat”. The Fisheries Protection Policy Statement (2013) was prepared by Fisheries and Oceans Canada (formerly Department of Fisheries and Oceans [DFO]) to provide guidance on compliance with the *Fisheries Act*.

Compliance with the provisions of s. 35 of the *Fisheries Act* in regard to particular water bodies is now made on a case-by-case basis through a self-assessment process to determine impacts to fish and fish habitat and to identify appropriate responses. Where development activities taking place in or near water may affect fisheries by adversely affecting fish or fish habitat, the Fisheries Protection Policy Statement (2013) recommends that proponents of these activities should:

- Understand the types of impacts their projects are likely to cause;
- Take measures to avoid and mitigate impacts to the extent possible; and
- Request authorization from the Minister and abide by the conditions of any such authorization, when it is not possible to avoid and mitigate impacts of projects that are likely to cause serious harm to fish.

As per the Fisheries Protection Policy Statement (2013), efforts should be made to avoid impacts first. When avoidance is not possible, efforts should be made to mitigate impacts caused by the project in question. After these actions, any residual impacts should then be addressed by offsetting. Proponents are required to submit an offsetting plan to demonstrate that the measures and standards above are adhered to and will also be required to demonstrate that the offsetting measures will maintain or improve the productivity of fisheries.

There is fish habitat on the subject property.

2.7 Endangered Species Act (2007)

The MNRF provides oversight of the *Endangered Species Act* (ESA) for the regulation of Species at Risk (SAR) in Ontario. Under the ESA native species that are in danger of becoming extinct or extirpated from the province are identified as being extirpated, endangered, threatened and special concern. These designations are defined as follows:

- Extirpated - a species that no longer exists in the wild in Ontario but still occurs elsewhere;

- Endangered – a species facing imminent extinction or extirpation in Ontario which is a candidate for regulation under Ontario's *Endangered Species Act*;
- Threatened - a species that is at risk of becoming endangered in Ontario if limiting factors are not reversed; and
- Special Concern (formerly Vulnerable) - a species with characteristics that make it sensitive to human activities or natural events.

Under the ESA, protection is provided to threatened or endangered species and their habitat, as well as providing stewardship and recovery strategies for species. Permitting is required to conduct works within habitat regulated for threatened or endangered species. Species of Special Concern require management plans from the MNR but are not directly protected under the ESA.

There are regulated species on the subject property.

3. Methods

Background information pertaining to the natural and physical setting of the subject property was gathered and reviewed at the outset of the project. These information sources included:

- Region of Durham Official Plan (2017);
- Town of Uxbridge Official Plan (2014);
- Greenbelt Plan (2020);
- LSRCA Regulations and Policies;
- Ministry of Natural Resources and Forestry (MNR) Natural Heritage Information Centre (NHIC); and
- *Endangered Species Act* (2007).

Other sources of information, such as aerial photography and topographic maps, were also consulted prior to commencing field investigations. A Terms of Reference submitted for the study is presented in **Appendix A**.

3.1 Field Investigations

Field investigations on the subject property were undertaken by Beacon staff in 2019 including: breeding bird surveys, vegetation community mapping and aquatic habitat assessment. A description of these investigations follows below and a summary of the timing is provided in **Table 1**.

Table 1. Summary of Field Investigations

Survey Type	Date of Survey
Breeding Amphibian Surveys	April 30, June 7, and July 27, 2019
Breeding Bird Surveys	May 29 and June 7, 2019
Ecological Land Classification, Vascular Plant Inventory	July 19, 2019 and July 23, 2020
Headwater Drainage Feature Assessment	April 16 and June 3, 2019
Aquatic Habitat Assessment	June 3, 2019
Fish Community Sampling	June 3, 2019
Feature Staking	June 24 and July 24, 2020
Butternut Health Assessment	July 23, August 17 and 18, 2020

3.1.1 Breeding Amphibian Surveys

Breeding amphibian surveys were completed according to Environment Canada’s Marsh Monitoring Program protocol and consisted of auditory surveys undertaken during the prime breeding period to record calling males that are present. Three surveys are spread throughout the breeding season in an attempt to include the short temporal peak for each species of interest. Survey dates are spaced to record different amphibian species that call during different times in the spring. These surveys are conducted to record the presence or absence of breeding amphibians in potentially suitable habitat.

Breeding amphibian surveys on the subject property were completed on April 30th, June 7th and July 27th, 2019 after dusk and during suitable temperature conditions. All areas that contained potential breeding amphibian habitat (i.e., wetlands) were surveyed from a distance that would enable calling amphibians to be heard. Survey conditions are provided in **Table 2**. Wind conditions are provided using the Beaufort Scale.

Table 2. Breeding Amphibian Survey Conditions

Survey Date	Weather
April 30, 2019	9°C, No wind
May 27, 2019	12°C, No wind
June 27, 2019	22°C, No wind

3.1.2 Breeding Birds

Breeding birds were surveyed on May 29 and June 7, 2019. The visits to the subject property commenced between 6:15 and 7:15 in the morning on days with low to moderate winds (0-3 Beaufort Scale), no precipitation, and temperatures within 5 °C of normal average temperature. The entire subject property was walked such that all singing birds could be heard or observed and recorded. That is, the surveyor is within 50 to 100 m of all parts of the subject property depending on habitat. All birds heard and seen were recorded on an aerial photograph of the subject property.

3.1.3 Ecological Land Classification and Flora

Vegetation surveys took place on July 19, 2019 and July 23, 2020. Vegetation units on the subject property were described and mapped on current colour ortho-photography of the lands using the Ecological Land Classification system for southern Ontario (ELC) (Lee *et al.* 1998). This is the standard method used for describing vegetation communities in southern Ontario. At the same time as vegetation community mapping was undertaken, a floral inventory occurred which consisted of a compilation of a list of plants observed on the property. Biologists also searched for Butternut (*Juglans cinerea*). This is a relatively common tree species in southern Ontario that is listed provincially and federally as endangered.

3.1.4 Incidental Wildlife

Incidental observations of wildlife species, including mammals were made during field investigations that were primarily for other purposes.

3.1.5 Wetland Function Assessment and Features Based Water Balance

These two documents were prepared by Terrapex (2020; 2021) to assist in understanding hydrologic function and effects related to the wetlands on the subject property.

3.1.6 Headwater Drainage Feature Assessment

An assessment of aquatic resources was completed for the subject property to confirm previous findings of the constraints analysis and identify the presence of watercourses, ponds, water flow regimes and the presence/absence of fish. Any evident drainage features were assessed in accordance with the document entitled: *Evaluation, Classification and Management of Headwater Drainage Features* (TRCA/CVC, 2014). This included include two (2) site visits by an aquatic ecologist to document seasonal conditions. Site visits occurred on April 16th and June 3rd, 2019.

3.1.7 Aquatic Habitat Assessment

An aquatic habitat assessment for the portion of Uxbridge Brook within the study area was completed on June 3, 2019. The assessment follows the Rapid Assessment Methodology as described in Section 4 Module 4 of the Ontario Stream Assessment Protocol (OSAP) (Stanfield *et al.*, 2010). The assessment involved walking the creek channel from Centre Road to Bolton Drive and recording the following habitat characteristics:

- Stream morphology, runs, pools, riffles;
- Channel width and depth profile, bank height, bank stability;
- Substrate types and distribution;
- Seepage areas;
- Dams and obstructions;
- Riparian and in-stream cover type and extent;
- Floodplain vegetation;
- Wetland and pond areas; and

- Side channels and floodplain.

3.1.8 Fish Community Sampling

Fish community sampling was undertaken on June 3, 2019. The purpose of community sampling is to determine the presence/absence of fish species and to understand the species composition in the Uxbridge Brook tributary. Fish were sampled using a Smithroot Electrofisher. Fish were identified, photographed and returned to the creek.

3.1.9 Feature Staking with LSRCA

A feature staking was undertaken with staff from LSRCA on June 24 and July 24, 2020. Members of the consulting team were also present.

A design charette was also completed with the Township and LSRCA on August 25, 2020 to discuss design considerations for the proposed development plan.

3.1.10 Butternut Health Assessment

In conjunction with the ELC and floral surveys, Butternut surveys were completed. Butternut Health Assessments were conducted on all Butternut encountered by a certified Butternut Health Assessor, as per Ontario Regulation 242/08.

4. Existing Conditions

4.1 General Conditions and Landscape Context

The subject property is approximately 40 ha in area, the majority of which is under agricultural land use with annual row crops. The property is generally rectangular in shape, and is bounded by Centre Road to the east, Concession Road 6 to the west, and located north of an existing subdivision at Bolton Drive in Uxbridge, Ontario.

The subject property is located within the Lake Simcoe watershed. This watershed is approximately 3,400 km² and spans from the Oak Ridges Moraine in the south to the Oro Moraine in the north, through York and Durham regions, Simcoe County and the cities of Kawartha Lakes, Barrie and Orillia (LSRCA 2016). This watershed is composed of eight major river systems; 4,225 kilometres of creek, stream and tributary channels; and it is home to 75 species of fish with at least 50 species within the lake itself (LSRCA 2016). According to the Lake Simcoe Watershed Report Card (2018), the Uxbridge subwatershed surface water quality was rates as “Fair”. This rating is based on phosphorous concentration and the health of invertebrate communities.

The property is regulated by LSRCA, and occurs within the Lake Simcoe and Couchiching/Black River Source Protection Area (SPA) in the City of Uxbridge. The subject property is located within the Severn-Lake Simcoe Quaternary Watershed (02EC-04).

The subject property is located within the *Protected Countryside – Towns and Villages* lands of the Greenbelt Plan area, and is therefore, subject to the corresponding policies of the Greenbelt Plan as well as the Regional Municipality of Durham and Township of Uxbridge Official Plans and LSRCA regulations. A tributary of Uxbridge Brook traverses the southeast corner of the subject property.

The topography of the subject property is summarized as highest in the west, with a general gradient downward towards the east. Topographic elevations for the subject property range from approximately 330 metres above sea level (masl) to approximately 280 masl. The subject property is drained by sheet overflow to the wetlands and a portion of Uxbridge Brook, located in the east of the property.

4.2 Aquatic Resources

4.2.1 Headwater Drainage Feature Assessment

Headwater Drainage Feature 1

This HDF originates in the southern part of the subject property. The drainage feature starts at a cattail mineral marsh which is approximately 30 x 20 m in area (See **Photograph 1 & 2** in **Appendix B**). The marsh connects to a 0.5 m wide channel in an area with dense shrubs of Red Osier Dogwood. The substrate in the channel consists of sand. The channel continues for about 150 m until it crosses the southern property boundary. South of the subject property, the channel connects to the headwall of a storm water conduit that is covered by a metal grate. On April 16 and June 3 2019 sheet flow was observed in the marsh and in the connecting channel.

Based on the presence of trickle flow on April 16 and June 3, HDF 3 is likely intermittent within the subject property.

Headwater Drainage Feature 2

This HDF originates enters the subject property in two locations from the north. The northern swale consists of a 12 m wide low-lying area densely vegetated by shrubs i.e. Red Osier Dogwood (**Appendix B: Photograph 3 & 4**). Sheet flow was observed in a 1 m wide swale with a maximum depth of 0.03 m in the early Spring (April 16). Mature deciduous trees within 5 m of the HDF partially shade the channel. Standing water was observed in the late spring (June 3) at this location.

At the time of the site visit, the southern channel appeared to have been tilled recently based on the presence of upturned roots. Shallow standing water with a maximum depth of 0.03 m was observed in the spring in an approximately 7 m wide swale. Standing water was also observed in the late spring at this location.

North of this HDF the land use is meadow and to the south it is crop agriculture. The channel turns south at the eastern end of the field and follows the hedgerow with a maximum width of 30 m. The channel is defined in this area with an average width of 0.4 m. Substrate consists of sand. Shrubs and mature trees provide cover to the channel. Clear flow was observed in the early spring with an average depth of 0.05 m. Trickle flow was observed in the late spring.

The channel is diverted underneath a farm access laneway through a 9 m long corrugated steel pipe culvert with a 0.5 m diameter (Culvert 1).

The channel continues into a valley which is approximately 30 m wide and entrenched by approximately 1.5 m. This area is within a forest feature that provides approximately 10% channel cover. The average width of the channel is 0.3 m.

The channel is diverted underneath another farm access laneway through a 5 m long plastic tile drain with a 0.15 m diameter (Culvert 2).

The channel continues into a forested area as a defined channel with a steep gradient. The average bankfull depth is 0.4 m and average bankfull width is 0.8 m. Sorted substrate is present with silt and sand as the predominant substrate. The substrate is covered by organic matter in areas. In the early spring, clear shallow flow was observed with a wetted 0.4 m. In the late spring, trickle flow was observed in pools with dry conditions in between pools. Canopy cover was approximately 60% and was provided by mature deciduous trees including Manitoba Maple (*Acer negundo*). The channel merges with a wetland area that is connected to Uxbridge Brook. Riparian vegetation is mainly cattails.

Based on the presence of trickle flow on April 4 and no water on June 3 the two separate branches of HDF 2 in the north part of the subject property are likely ephemeral. Trickle flow was observed on both April 16 and June 3 starting from the woodlot where the two branches of HDF 2 combine. This HDF remains intermittent until it reaches Uxbridge Brook.

Headwater Drainage Feature 3

This HDF originates in the eastern part of the subject property, to the south of the farm access lane in an area densely vegetated by Willows and Red Osier Dogwood (**Appendix B: Photograph 5 & 6**). There is no defined channel but sheet flow was observed in the early spring. A plastic tile drain conveys flow to Uxbridge Brook in this location. Trickle flow was observed from the tile drain in early spring. No flow was observed from the tile drain in the late spring.

Based on the presence of trickle flow on April 16 and no water on June 3 HDF 3 is likely ephemeral within the subject property.

Headwater Drainage Feature 4

This HDF enters the subject property from the northeast corner. It is evident that this area has recently been tilled due to the presence of upturned roots (**Appendix B: Photograph 7 & 8**). A poorly defined channel is present upstream of the culvert beneath the Centre Road. A trickle flow was observed in this channel during both site visits. Wetted width was ~0.5 m with a wetted depth of 0.05 m. A 0.7 m diameter plastic pipe culvert diverts water under Centre Road. Downstream of Centre Road there is a defined channel along a hedgerow.

Based on the presence of trickle flow on April 16 and June 3 HDF 4 is likely intermittent within the subject property.

Headwater Drainage Feature Classification

The HDF are classified according to the methods described by CVC/TRCA 2014 in the table below. The classifications are used to link each HDF with a management recommendation.

	HDF 1	HDF 2	HDF 3	HDF 4
Hydrology Classification	Valued	Valued	Valued	Valued
Riparian Classification	Important	Important	Important	Limited
Fish & Fish Habitat Classification	Contributing	Contributing	Contributing	Contributing
Terrestrial Habitat Classification	Contributing	Contributing	Limited	Limited
Management Recommendation	Conservation	Conservation	Mitigation	Mitigation

4.2.2 Aquatic Habitat Assessment

The main watercourse, Uxbridge Brook, enters the subject property from the southeast as a low gradient constructed channel with straightened and uniform banks that are lined with boulders (**Appendix B: Photograph 9**). Wetted width is approximately 2.0-2.5 m with a wetted depth of <0.2 m. Minimal in-stream cover was observed at the time of the assessment.

Starting at approximately 60 m north of the southern property boundary, the channel appears to be unaltered (**Appendix B: Photograph 10**). The wetted width is relatively narrow with bankfull width of 0.8 – 1.0 m. Wetted depth is between 0.2 and 0.3 m. The thalweg measured approximately 0.1 m in depth. The morphology in this section is mostly a run, with a couple of pools close to Centre Road. Substrate is mainly clay and silt with patches of gravel and sand and occasional boulders. The banks are steep, nearly vertical, with undercuts in some areas. Riparian vegetation is defined by grasses and herbaceous vegetation. The upper canopy is almost completely open. The lower canopy is mainly open, however there are patches of dense shrub species (i.e. Red Osier Dogwood) covering the channel. Cover for fish was moderate and provided by large boulders, undercut banks, overhanging terrestrial vegetation. No macrophytes were observed through this reach.

Upstream of Bolton Drive there is stormwater control structure with a surface flow outlet. There is an online pond upstream of Bolton Drive. A concrete culvert diverts flows under Bolton Drive.

4.2.3 Fish Community

Fish records are available from MNRF for Uxbridge Brook (January 8, 2010). Beacon fish community sampling occurred on June 3, 2019. **Table 3** lists all the species found by MNRF and Beacon. Thermal preference for each species is shown based on study by Coker *et al.* (2001).

Table 3. Fish Species Observed in Uxbridge Brook (Recent Sampling and Historical Records)

Common Name	Scientific Name	Thermal Preference ¹	MNRF 2010	Beacon 2019
Bluegill	<i>Lepomis macrochirus</i>	Warm	X	1
Bluntnose Minnow	<i>Pimephales notatus</i>	Warm	X	
Brassy Minnow	<i>Hybognathus hankinsoni</i>	Not Available	X	
Brook Stickleback	<i>Culaea inconstans</i>	Cool	X	
Brook Trout	<i>Salvelinus fontinalis</i>	Cold	X	
Brown Bullhead	<i>Ameiurus nebulosus</i>	Warm	X	
Brown Trout	<i>Salmo trutta</i>	Cold-cool	X	
Central Mudminnow	<i>Umbra limi</i>	Not Available	X	
Common Shiner	<i>Luxilus cornutus</i>	Cool	X	
Creek Chub	<i>Semotilus atromaculatus</i>	Cool	X	38
Western Blacknose Dace	<i>Rhinichthys obtusus</i>	Cool	X	2
Fathead Minnow	<i>Pimephales promelas</i>	Warm	X	10
Finescale Dace	<i>Chrosomus neogaeus</i>	Not Available	X	
Northern Redbelly Dace	<i>Phoxinus eos</i>	Cool-warm	X	2
Sculpins sp.	<i>Cottus sp.</i>	Cold	X	
Suckers sp.	<i>Catostomus sp.</i>	Not Available	X	

1- Source: Coker *et al.* (1999)

As mentioned above this reach of Uxbridge Brook has been classified as coldwater habitat by MNRF. Many fish species with coldwater thermal habitat have been documented in this reach prior to 2010. Historically cool and coldwater species have been documented throughout Uxbridge Brook as documented by MNRF (2010). No fishes with a cold water thermal preference were captured in 2019.

Two fish species with a cool water thermal preference were captured¹ (Creek Chub and Western Blacknose Dace). Creek Chub was also the most prevalent throughout this reach accounting for 60% of the fish caught. One species with a cool-warm water thermal preference was captured in 2019 i.e. Northern Redbelly Dace. Two species with a warm water thermal preference were captured i.e. Fathead Minnow and Bluegill. The fish species with a cool-warm and warm water thermal preference were all captured in the southern part of the subject property. This is the reach that has been altered and is immediately downstream of the pond on the south side of Bolton Drive.

This branch of Uxbridge Brook has potential for coldwater thermal fish habitat based on review of MNRF LIO ARA database. Historical fish collection records prior to 2010 shows that coldwater species such as sculpins and Brook Trout have been captured in this branch.

Within the subject property this reach of Uxbridge Brook is affected by an online stormwater management pond which is located just upstream of the site (**Appendix B: Photograph 11 & 12**) as well as channel alterations that have occurred north of Bolton Drive.

The fish population within the subject property is indicative of a cool or cool-warmwater thermal regime based on the results of recent samplings completed by Beacon in 2019.

4.3 Terrestrial Resources

4.3.1 Vegetation Communities

The subject property is predominantly active agriculture and was planted in corn at the time of field investigations. Contiguous natural features occur on the eastern portion of the subject property, associated with Uxbridge Brook and a headwater drainage feature (HDF 2). Vegetation on the subject property was classified according to Ecological Land Classification (ELC) to the vegetation type (**Figure 2**).

4.3.1.1 Cultural Communities

Fresh-Moist Mineral Cultural Meadow (CUM1)

This community occurs along the edges of the staked features forming a transition between the feature limits and adjacent agricultural field. Vegetation cover is a mix of native and non-native grasses and herbs including Timothy Grass (*Phleum pretense*), Redtop (*Agrostis stolonifera*), Queen Anne's Lace (*Daucus carota*), Black-eyed Susan (*Rudbeckia hirta*), Common Buttercup (*Ranunculus acris*), Coltsfoot (*Tussilago farfara*), Field Horsetail (*Equisetum arvense*), Daisy Fleabane (*Erigeron annuus*), Common Yarrow (*Achillea millefolium*), Tall Goldenrod (*Solidago altissima var. altissima*), and Common Plantain (*Plantago major*; **Photograph 1**).



Photograph 1. Fresh-Moist Old Field Meadow (July 23, 2020)

Mineral Cultural Thicket (CUT1)

This community occurs in a couple locations within the staked feature limits and has a varying composition. CUT1-A is dominated by European Buckthorn (*Rhamnus cathartica*) with Tatarian Honeysuckle (*Lonicera tatarica*), Common Apple (*Malus pumila*) and Green Ash (*Fraxinus pennsylvanica*) and American Elm (*Ulmus americana*) saplings (**Photograph 2**). Ground flora includes Poison Ivy (*Toxicodendron radicans*), Tall Hairy Agrimony (*Agrimonia gryposepala*), Motherwort (*Leonurus cardiaca*), and Cow Vetch (*Vicia cracca*). This community forms the feature edge of the staked dripline on the western side of HDF 2 (**Photograph 2**).

CUT1-B is dominated by Red-Osier Dogwood with Multiflora Rose and Red Raspberry (*Rubus idaeus*) with Redtop, Queen Anne's Lace Coltsfoot, Field Horsetail, Tall Goldenrod, and Reed Canary Grass (*Phalaris arundinacea*).



Photograph 2. Mineral Cultural Thicket (CUT1-A) along Staked Feature Limit (July 23, 2020)

Scotch Pine Coniferous Plantation (CUP3-3)

This community is comprised of densely planted Scotch Pine (*Pinus Sylvestris*) with sparse understory vegetation (**Photograph 3**). The majority of trees are less than 30 cm in diameter. Associated species include European Buckthorn, Guelder Rose (*Viburnum opulus*), Enchanter's Nightshade (*Circaea lutetiana*), Urban Avens (*Geum urbanum*), Climbing Nightshade (*Solanum dulcamara*) and Thicket Creeper (*Parthenocissus inserta*).

Mineral Cultural Woodland (CUW1)

This community occurs in a couple locations along HDF 2 and has a varying composition. CUW1-A has an open canopy dominated by Manitoba Maple (*Acer negundo*) with Sugar Maple, Black Walnut

7370 Centre Road Uxbridge

Legend

- Subject Property
- ELC Communities
- Staked Dripline (LSRCA July 24, 2020)
- Staked Wetland (LSRCA July 24, 2020)
- Staked Top of Bank (LSRCA July 24, 2020)
- Section Divide
- Wetlands (Beacon 2020)
- Watercourse (Beacon 2020)

Headwater Drainage Feature

- Intermittent
- Ephemeral

Butternut Trees

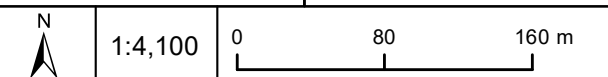
- Category 3
- Category 2
- Category 1/Dead Tree
- ★ Hybrid Tree

Code	Community Description
	Wetland Communities
SWD3-4	Manitoba Maple Mineral Deciduous Swamp
SWD4-3	White Birch - Poplar Mineral Deciduous Swamp
MAS2-1	Cattail Mineral Shallow Marsh
SWT2-2	Willow Mineral Thicket Swamp
	Forest Communities
CUW1	Mineral Cultural Woodland
FOD3-1	Dry - Fresh Aspen Deciduous Forest
FOD4-2	Dry - Fresh White Ash Deciduous Forest
FOD7	Fresh - Moist Lowland Deciduous Forest
FOD7-2	Fresh - Moist Ash Lowland Deciduous Forest
FOD7-4	Fresh - Moist Black Walnut Lowland Deciduous Forest
	Cultural Communities
CUM1	Mineral Cultural Meadow
CUM1-1	Dry - Moist Old Field Meadow
CUP3-3	Scotch Pine Coniferous Plantation
CUT1	Mineral Cultural Thicket
	Other Communities
AG	Agricultural
ANT	Anthropogenic

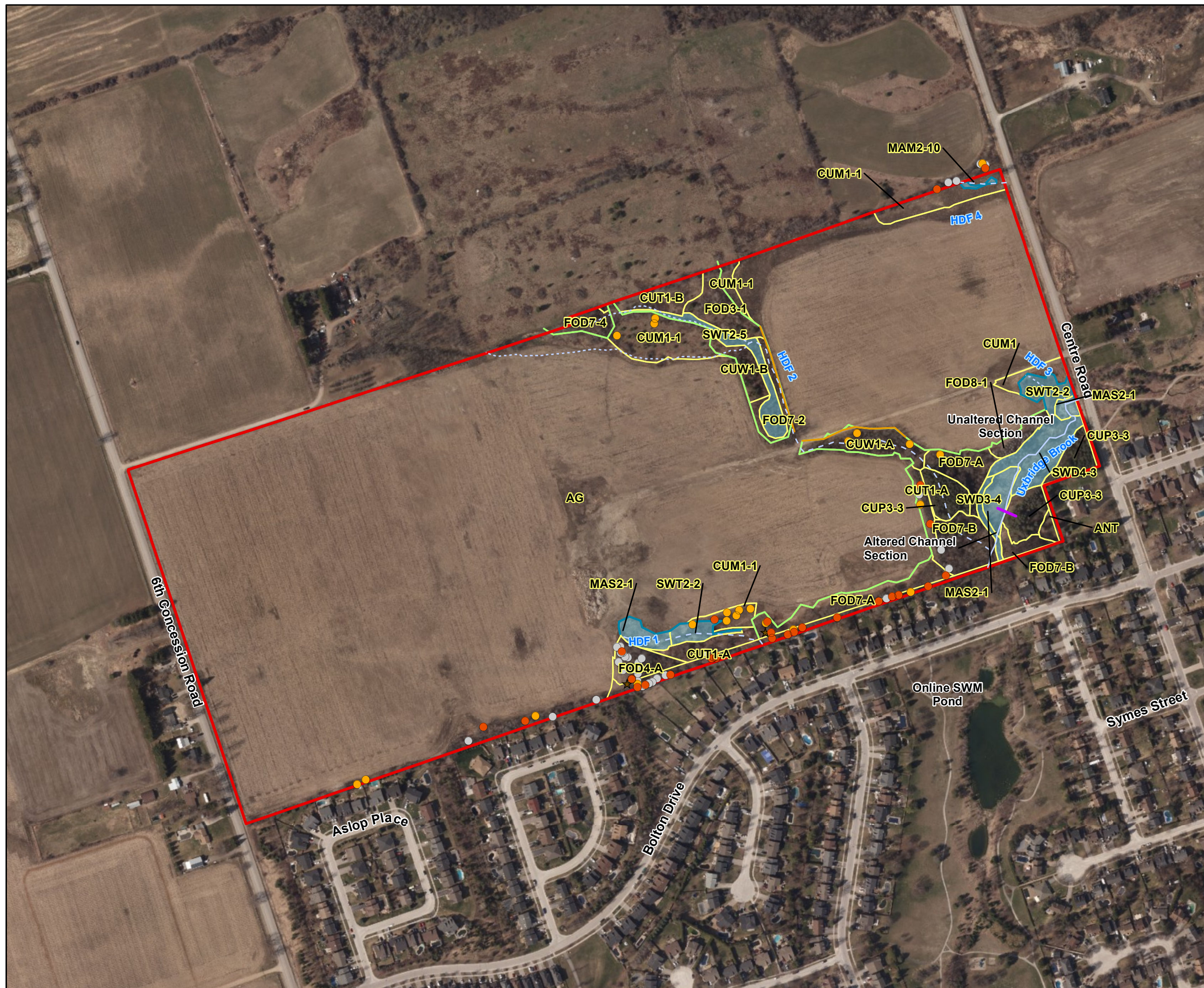
BEACON ENVIRONMENTAL Project: 217431
Last Revised: February 2021

Client: MDTR Group

Prepared by: BD
Checked by: JM



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Ontario Orthoimagery Baselayer: 2020 (FBS)



(*Juglans nigra*) and Common Apple (**Photograph 4**). All trees are less than 50 cm in diameter with mature standing snags of Green Ash. The understory layer is dense and comprised of European Buckthorn, Pagoda Dogwood (*Cornus alternifolia*), Chokecherry (*Prunus virginiana*), and Guelder Rose. The ground flora is sporadic and includes Enchanters Nightshade, Climbing Nightshade (*Solanum dulcamara*), Garlic Mustard (*Allaria petiolata*), and Wild Mock Cucumber (*Echinocystis lobata*).

CUW1-B has a very open canopy of immature Scotch Pine and Green Ash with dense shrub cover. The dominant vegetation in this community is mature Red-Osier Dogwood (*Cornus stolonifera*).



Photograph 3. Scotch Pine Coniferous Plantation (July 23, 2020)



Photograph 4. Mineral Cultural Woodland (CUW1-A; July 23, 2020)

4.3.1.2 Forest Communities

Dry-Fresh Aspen Deciduous Forest (FOD3-1)

This community has an immature canopy dominated by Trembling Aspen (*Populus tremuloides*) with Black Walnut and Scotch Pine. All trees are less than 25 cm in diameter. The understory includes Red-Osier Dogwood, Chokecherry (*Prunus virginiana*) and Multiflora Rose (*Rosa multiflora*). Ground flora is dominated by Enchanter's Nightshade with Common Strawberry (*Fragaria virginiana*), Rough-fruited Cinquefoil (*Potentilla recta*), Black-eyed Susan, and Selfheal (*Prunella vulgaris*; **Photograph 5**).



Photograph 5. Dry-Fresh Aspen Deciduous Forest (July 23, 2020)

Dry – Fresh Deciduous Forest (FOD4-A)

This community has a canopy comprised of Butternut (*Juglans cinerea*), Black Walnut, Butternut hybrid (*Juglans x sp.*), and Green Ash. The understory is dense and includes Alternate-leaved Dogwood (*Cornus alternifolia*), Black Raspberry (*Rubus alleghaniensis*), Red Raspberry, and European Buckthorn. Ground flora includes Enchanter's Nightshade, Lesser Burdock (*Arctium minus*), Urban Avens (*Geum urbanum*), and Calico Aster (*Symphyotrichum lateriflorum*).

Fresh – Moist Deciduous Lowland Forest (FOD7)

This community is associated with the staked feature limits along HDF 2 and Uxbridge Brook and has a varying composition. FOD7-A has a canopy dominated by Manitoba Maple with scattered Butternut and American Elm (*Ulmus americana*). All trees are less than 50 cm in diameter (**Photograph 6**). The understory is sparse and includes European Buckthorn, Tatarian Honeysuckle and Manitoba Maple saplings. Ground flora is dense and dominated by Garlic Mustard with Herb Robert (*Geranium robertianum*), Virginia Waterleaf (*Hydrophyllum virginianum*) and Ostrich Fern (*Matteuccia struthiopteris*).



Photograph 6. Fresh-Moist Lowland Deciduous Forest along Southern Property Limits (FOD7-A; July 23, 2020)

FOD7-B has a canopy comprised of Manitoba Maple, Black Walnut, European Mountain-Ash (*Sorbus acuparia*), Butternut, and Basswood (*Tilia Americana*). The understory is dense and comprise of Alternate-leaf Dogwood, European Buckthorn, Tartarian Honeysuckle, Chokecherry and Guelder Rose. Ground flora includes Enchanter's Nightshade, Lily of the valley (*Convallaria majalis*), Lesser Burdock, Climbing Nightshade and Wild Mock Cucumber (*Echinocystis lobata*).

Fresh-Moist Ash Lowland Deciduous Forest (FOD7-2)

This community has a canopy comprised of Green Ash with the majority of trees showing extensive canopy dieback due to Emerald Ash Borer. The majority of trees are less than 50 cm in diameter. The understory flora is dense and comprised of Hawthorn species (*Crataegus spp.*), Tartarian Honeysuckle and European Buckthorn.

Fresh-Moist Black Walnut Lowland Deciduous Forest (FOD7-4)

This community has a canopy dominated by Black Walnut with White Ash (*Fraxinus americana*) and Balsam Poplar (*Populus balsamifera*). All trees are less than 50 cm in diameter. The understory is comprised of Black Raspberry, Alternate-leaf Dogwood and Red Raspberry. The ground flora is dominated by Enchanter's Nightshade with Urban Avens, Calico Aster, Common Burdock, and Spotted Jewelweed (*Impatiens capensis*).

4.3.1.3 Wetland Communities

Manitoba Maple Mineral Deciduous Swamp (SWD3-4)

This community is associated with Uxbridge Brook and the canopy is entirely comprised of Manitoba Maple (**Photograph 7**). All trees are less than 50 cm in diameter. Associated species include Red-osier Dogwood, Pussy Willow (*Salix discolor*), Spotted Jewelweed, Panicked Aster (*Symphyotrichum lanceolatum*), and Wild Mint (*Mentha arvensis*).



Photograph 7. Manitoba Maple Deciduous Swamp along Uxbridge Brook (July 23, 2020)

White Birch – Poplar Mineral Deciduous Swamp (SWD4-3)

This community has a canopy comprised of Trembling Aspen and Balsam Poplar and the majority of trees are less than 30 cm in diameter. Associated species include Spotted Jewelweed, Spotted Joe-Pye Weed (*Eupatorium maculatum*), Rice Cut Grass (*Leersia oryzoides*), Purple-stemmed Aster (*Symphyotrichum puniceum*), and Broad-leaved Cattail (*Typha latifolia*).

Willow Mineral Thicket Swamp (SWT2-2)

This community is associated with HDF 1 and is dominated by Bebb's Willow (*Salix bebbiana*) and Pussy Willow with Red-osier Dogwood. Ground flora includes Reed Canary Grass, Panicked Aster, Tall Goldenrod, Dark Green Bulrush, Hairy Willowherb (*Epilobium hirsutum*), and Redtop.

Red-Osier Mineral Thicket Swamp (SWT2-5)

This community is associated with HDF 2 and is dominated by Red-osier Dogwood with Pussy Willow, Bebb's Willow and Green Ash saplings. Ground flora is sparse and includes Panicked Aster, Spotted Jewelweed and Wild Mint.

Cattail Mineral Shallow Marsh (MAS2-1)

This community occurs along Uxbridge Brook and HDF 1 and is dominated by Broadleaved Cattail with Reed Canary Grass, Spotted Joe-pye-weed, Bebb's Willow, Panicked Aster, Spotted Waterhemp (*Cicuta maculata*), Dark-green Bulrush, Spotted Lady's-thumb (*Persicaria maculosa*) and Blue Vervain (*Verbena hastata* ; **Photograph 8**).



Photograph 8. Cattail Mineral Shallow Marsh along Uxbridge Brook (July 23, 2020)

Forb Mineral Meadow Marsh (MAM2-10)

This community is comprised of Toad Rush (*Juncus bufonius*), Dudleys Rush (*Juncus dudleyi*), Self-heal, Dark Green Bulrush, Meadow Sedge (*Carex granularis*), Fox Sedge (*Carex vulpinoidea*), Panicked Aster, and Spotted Joe-pye Weed (*Eutrochium maculatum* ; **Photograph 9**).



Photograph 9. Forb Mineral Meadow Marsh (July 23, 2020)

4.3.2 Flora

A total of 130 species was recorded on the subject property, with native species accounting for 56% of the species recorded (**Appendix C**), which is a high value indicating that the site has been disturbed in the past. One provincially endangered species, Butternut, was recorded. All other native species recorded are provincially ranked S4 or S5, indicating they are native, common and secure in the province. One regionally rare species, Virginia Stickseed, and three regionally uncommon species, Spotted Water-Hemlock, Pearly Everlasting and Black Walnut, were recorded on the subject property.

4.3.3 Amphibian Surveys

No calling amphibians were recorded during the three rounds of amphibian surveys despite suitable survey conditions and the presence of potentially suitable habitat.

4.3.4 Breeding Bird Surveys

A total of 28 species of breeding birds were recorded on the subject property during the 2019 breeding season (**Appendix D**). This species diversity is reflective of the variable habitats on the subject property including wetlands, woodlands, meadow communities and open anthropogenic spaces.

The majority of breeding records were common generalist species regularly found in urban and urbanizing areas including the following species which had multiple territories on the subject property: Song Sparrow (*Melodia melodpiza*), American Robin (*Turdus migratorius*), Northern Cardinal (*Cardinalis cardinalis*) and House Wren (*Troglodytes aedon*). The Song Sparrow was the most abundant species across these surveys with a total of 13 territories recorded. Other abundant species

included Alder Flycatcher (*Empidonax alnorum*) American Goldfinch (*Spinus tristus*), Brown-headed Cowbird (*Molothrus ater*), Mourning Dove (*Zenaida macroura*), Gray Catbird (*Dumetella carolinensis*) and Killdeer (*Charadrius vociferus*).

As previously discussed, diverse vegetation communities were characterized and supported avian species more specialized to those habitats. Woodland species were recorded including Rose-Breasted Grosbeak (*Pheucticus ludovicianus*), Northern Flicker (*Colaptes auratus*), Red-eyed Vireo (*Vireo olivaceus*) and Eastern Wood-pewee (*Contopus virens*).

Area-sensitive birds require larger tracts of suitable habitat in which to breed, or are those that have a higher breeding success in larger areas of suitable habitat. Three such species were recorded. The American Redstart (*Setophaga ruticilla*) and Hairy Woodpecker (*Dryobates villosus*) are considered to be forest-sensitive species, requiring woodland habitat in which to breed successfully. The third bird is the Savannah Sparrow (*Passerculus sandwichensis*), a grassland-sensitive species that requires large areas of open habitat in which to breed. It is, however, a common breeder in a wide variety of such open habitats, including old-field and agricultural edge habitat.

No species ranked as S1 through S3 (Critically Imperiled through Vulnerable) by the province, or species protected under the ESA were encountered. Two Eastern Wood-pewee (*Contopus virens*) territories were observed vocalizing in the deciduous woodlands on the subject property (along Uxbridge Brook and in the northern woodland/valley). This species is special concern provincially and federally based on a declining trend over their range, however these birds remain relatively common in both urban and urbanizing woodlands. They are somewhat tolerant of forest fragmentation and will live in both edge habitats and forest interiors.

4.3.5 Endangered or Threatened Species

Following the characterization of the habitat on the subject property an assessment was completed to determine if suitable habitat was present for any of the potential regulated species under the ESA (i.e.,) endangered, Threatened known to occur in the vicinity of property. The following provides a summary of species that may be present at the site based on the presence of suitable habitat.

Table 4. Potential Regulated Species

Species	ESA ¹ Status	Habitat Present within the Study Area
Eastern Small-footed Myotis <i>Myotis leibii</i>	END	Could potentially occur in all treed communities along centre and south property areas
Little Brown Myotis <i>Myotis lucifugus</i>	END	
Northern Myotis <i>Myotis septentrionalis</i>	END	
Tricoloured Bat <i>Perimyotis subflavus</i>	END	
Butternut <i>Juglans cinerea</i>	END	Confirmed onsite, 51 trees subject to the ESA

1- ESA – Endangered Species Act, 2007

4.3.5.1 Bats

Four species of bats: Eastern Small-footed Myotis (*Myotis leibii*), Little Brown Myotis, Northern Myotis (*Myotis septentrionalis*) and Tri-colored Bat (*Perimyotis subflavus*), are listed as endangered due to the spread of White-nose Syndrome, caused by a fungus which is believed to have been inadvertently brought from Europe to North America. The fungus grows in humid cold environments, such as the caves and mines where little brown bats hibernate. Bats at more than three quarters of Ontario's hibernation sites are at high risk of disappearing due to white nose syndrome (Committee on the Status of Endangered wildlife in Canada [COSEWIC] 2013).

Little Brown Myotis roost in trees and buildings during the day, often selecting attics, abandoned buildings and barns for summer colonies where they can raise their young. They forage over water and along streams in the forest, and generally avoid large, open field or clear-cut areas (COSEWIC 2013; COSSARO [Committee on the Status of Species at Risk in Ontario] 2018a).

Northern Myotis are associated with boreal forests, choosing to roost under loose bark and in the cavities of trees, but also occur in forested areas throughout southern Ontario (COSSARO 2018b).

Tri-colored Bat forms day roosts and maternity colonies in older forests, and occasionally in barns or other structures. They forage over water and along streams in the forest and will avoid large, open field and clear-cut areas (COSEWIC 2013; COSSARO 2018c).

Bats can squeeze through very small spaces (as little as six mm across) and this is how they access many roosting areas. All these bat species hunt for insects to eat at night (including beetles, mosquitos, moths, and flies) and hibernate from October or November to March or April, most often in caves or abandoned mines that are humid and remain above freezing. It is possible the Little Brown Myotis, Northern Myotis and Eastern Small-foot Myotis will fly 100's of kilometers to get to this hibernaculum and will mate before entering (COSEWIC 2013; MNRF 2018).

There is potential that endangered species of bat could be found on the subject property potentially roosting in the treed areas associated with the watercourse corridor. Removal of any treed areas will require further consultation with MECP.

4.3.5.2 Butternut

A total of 82 Butternut trees have been identified on the subject property and nine additional Butternuts have been identified immediately adjacent to the property (**Figure 2**). This species is a provincially and nationally endangered tree species that, while still relatively common in southern Ontario, has been listed because the population has been declining due to widespread infestation by Butternut Canker, a disease which ultimately kills the tree.

Butternut is protected under the provincial *Endangered Species Act* and associated Regulation 242/08 Section 23.7. The species can be damaged or removed if the requirements under the Regulation are followed (including using the MNRF Registry) or if an ESA permit is acquired. Requirements typically involve planting, tending and monitoring replacement Butternut trees and associated companion trees.

When found, the species is assessed through a Butternut Health Assessment as either:

- Category 1 – or Non-retainable (for which no protection is given);
- Category 2 – or Retainable; or

- Category 3 – or Potentially Archivable (i.e., may be useful in determining sources of resistance to butternut canker).

A total of 53 trees were assessed as Category 2 or 3 trees, including three trees located off property but close by. Hybridity testing was completed by Precision Biomonitoring and indicated that two trees assessed as Category 3 trees were hybrids.

Therefore, a total of 51 trees were assessed as Category 2 or 3 (23 and 28 respectively) and are subject to the ESA.

The Category status of these Butternut trees is also shown in **Figure 2**. Addressing the Butternut trees will require further consultation with MECP to establish whether a compensatory permit (C-PAF) can be issued (the process is not yet established) or whether a full Overall Benefit Permit will be required.

4.3.6 Landscape Connectivity

Landscape connectivity has become recognized as an important component of natural heritage planning. Although there is not universal agreement on the net benefits of corridors, a wide range of benefits can be attributed to maintaining connectivity within the natural landscape. In essence, corridors allow organisms to move between areas of high habitat importance. Conservation of distinct habitat types to protect species may be less effective unless the corridors between them are also protected or restored.

The subject property occurs in an area where the local landscape has been altered through past and present anthropogenic use. From a wildlife perspective, the property is situated directly adjacent to existing urban land uses to the south, with a transportation corridor to the east and west that presents a terrestrial barrier to wildlife movement and a possible hazard.

On the subject land, the property is under active agriculture with only the central watercourse corridor (HDF2) and southeast corner (Uxbridge Brook) providing opportunity as a functioning wildlife corridor. However, the riparian system and associated Significant Woodland located along the southern boundary is part of a local corridor and it functions for species associated with the watercourse or species that can use "stepping-stone" type features.

5. Designated Natural Heritage Features

The subject property does support designated natural features. A further analysis of the study area significant features is provided in sections below.

5.1 Provincially Significant Wetlands

None are present on the subject property.

5.2 Significant Woodlands

The identification of significant woodlands is the responsibility of local and/or regional planning authorities based on criteria provided by the MNRF. However, MNRF have not provided such criteria although some guidance on significant woodland is provided in the *Natural Heritage Reference Manual* (MNRF 2010). The Durham Region official plan provides some general guidance but no criteria.

In the absence of criteria we have assumed that the woodlands greater than 0.5 ha and associated with a intermittent or permanent watercourse are significant woodlands with the exception of FOD7-A which is a linear feature which in our professional opinion would not meet the test of significance.

5.3 Significant Valleylands

Significant valleylands are defined by distinctive landforms, degree of naturalness, importance of ecological functions, restoration potential and historical and cultural values. On the subject property the Uxbridge Brook could be considered a significant valleyland

5.4 Habitat of Endangered or Threatened Species

As noted in previously there are 51 Butternut trees that must be resolved with MECP to ensure conformity with planning documents and prior to site alteration under penalty of law (23 Category 2 trees and 28 Category 3 trees). Further consultations will be required with MECP.

It is not yet known whether suitable bat habitat that is present in all treed areas on the subject property may have regulated bat species present. To ensure conformity with planning documents and prior to site alteration this must be addressed to the satisfaction of MECP. Further consultations will be required with MECP.

5.5 Fish Habitat

Direct fish habitat exists in Uxbridge Brook and in the downstream extent of the central HDF2.

5.6 Significant Wildlife Habitat

The PPS states that the identification of significant wildlife habitat (SWH) is the responsibility of local and/or regional planning authorities. The assessment of which areas are to be considered SWH is to be based on the existing conditions of all the lands within the jurisdiction of the planning authority. In this case, determination criteria thresholds have not been provided by the municipalities. Additional guidance on wildlife habitat features and functions that could also be considered in the analysis is provided by MNRF in the Significant Wildlife Habitat Technical Guide (MNR 2000; 2010).

Significant wildlife habitat is broadly categorized by MNRF as:

- Seasonal concentration areas;

- Rare vegetation communities or specialized habitats for wildlife;
- Habitats of species of conservation concern (i.e., provincially tracked species, listed as Special Concern or rare, that are declining, or are featured species) excluding species protected in regulation under the *Endangered Species Act*; and
- Animal movement corridors.

Although as a matter of policy there are no thresholds established locally for the designation of SWH, we have applied professional judgement to the functions and attributes noted.

A summary is provided for each potential SWH category in the following paragraphs.

5.6.1 Seasonal Concentration Areas of Animals

A type of SWH that falls within this category was identified as candidate through the studies that were completed for the subject property: Bat Maternity Colonies.

Deciduous forest and deciduous swamp features on the subject property and adjacent lands may qualify as suitable habitat for bat maternity colonies. The specific presence or absence of bat species has not been completed for wooded areas. Therefore, a conservative approach has been taken, and the deciduous forest and swamp communities are considered potential SWH for bat maternity roosting habitat.

5.6.2 Rare Vegetation Communities or Specialized Habitat for Wildlife

SWH under rare vegetation communities did not arise from the results of the field studies for the subject property. SWH under this category does arise from the presence of two pairs of Eastern Wood-Pewee which is a species of special concern. The woodlands associated with this species is potential SWH in the north central part of the subject property and in the woodland associated with Uxbridge Brook.

5.6.3 Animal Movement Corridors

Existing valley and watercourse corridors on the property include the central tributary and Uxbridge Brook at the southeast corner. During field investigations, the central tributary corridor was found to provide some north-south connectivity but based on the habitat and lack of functional connectivity off site this would not reach the test of potential SWH.

The corridor associated with Uxbridge Brook extending west is presently limited in its function due to narrow width and disturbance from the existing residential subdivision to the south, and a discontinuous natural corridor resulting from an enclosed watercourse and absence of a riparian corridor offsite and downstream of the subject property and is not considered potential SWH.

6. Summary of Key Functions and Attributes

Table 5 provides a summary of the natural heritage features that were identified by this EIS. These features will be addressed with respect to potential development impacts. The limit of these features are depicted on **Figure 2**.

Table 5. Summary of Key Functions and Attributes

Feature or Function	Sensitivity Level	Assessment of Sensitivity	Location(s)
Uxbridge Brook Corridor	High	<ul style="list-style-type: none"> • Permanent flow • Potential regulated bat habitat • Hydrologically sensitive, although channel degraded with an online SWM pond offsite to the south • Fish habitat 	Southeast extent of property
Tributary HDF2	High	<ul style="list-style-type: none"> • Associated with significant woodland and potential SWH • Provides direct fish habitat for cool and warmwater species in lower third • Existing agricultural crossing at the mid-point 	Central section of property
Tributary HDF3	Moderate	<ul style="list-style-type: none"> • Ephemeral flow regime • Associated with wetland • Supports indirect fish habitat 	Southeast section of the property
Tributary HDF4	Moderate	<ul style="list-style-type: none"> • Intermittent flow regime • Supports indirect fish habitat 	Northeast section of the property
Fish Habitat	High	<ul style="list-style-type: none"> • Uxbridge Brook • HDF 2 Provides direct fish habitat for cool and warmwater species in lower third • Sensitive to hydrological change • Storm water input 	Southeast and southcentral
Significant Woodlands	Moderate	<ul style="list-style-type: none"> • Edge effects from adjacent development • Grading effects 	Central feature and along Uxbridge Brook
Significant Valleylands	Moderate	<ul style="list-style-type: none"> • No development proposed 	Uxbridge Brook
Habitat of Endangered or Threatened Species:	Potentially High	<ul style="list-style-type: none"> • Potential for regulated bats in all treed areas • 51 regulated Butternut trees across site potential impact from removals, site grading, adjacent land use • Monitoring and consultations with MECP required for Butternuts and bats 	Central and southeast extent of property Various locations
Potential Significant Wildlife Habitat	Moderate	<ul style="list-style-type: none"> • Associated with two woodland areas – species of special concern 	North treed community along HDF 2 and wooded community along Uxbridge Brook

The majority of the subject property is represented by agricultural field and cultural hedgerows that are evident of past disturbance and reflective community types with the presence of a high number of non-native species. The natural features discussed in **Table 5** are shown on **Figure 2** with environmental constraints defining natural features and applicable buffers identified on **Figure 3**.

It is assumed that all treed ecosites could contain regulated bat habitat, which must be discussed with the MECP. The 51 Butternuts must be resolved with MECP prior to any site alterations within 50 m of each tree.

7. Proposed Development

The proposed development will involve the Draft Plan of Subdivision for the proposed development of approximately 521 low density residential units, 69 medium density residential units, and supporting parks, stormwater management, roads and laneways. The proposed development plan is shown on **Figure 4**.

7.1 Servicing

7.1.1 Sanitary Servicing

As indicated by SCS Consulting (2020) there are existing municipal sanitary sewers on Bolton Drive and Oakside Drive with potential sanitary sewer connection can be made through the future Phase 2 Mason Lands development, with allocation required from the Town.

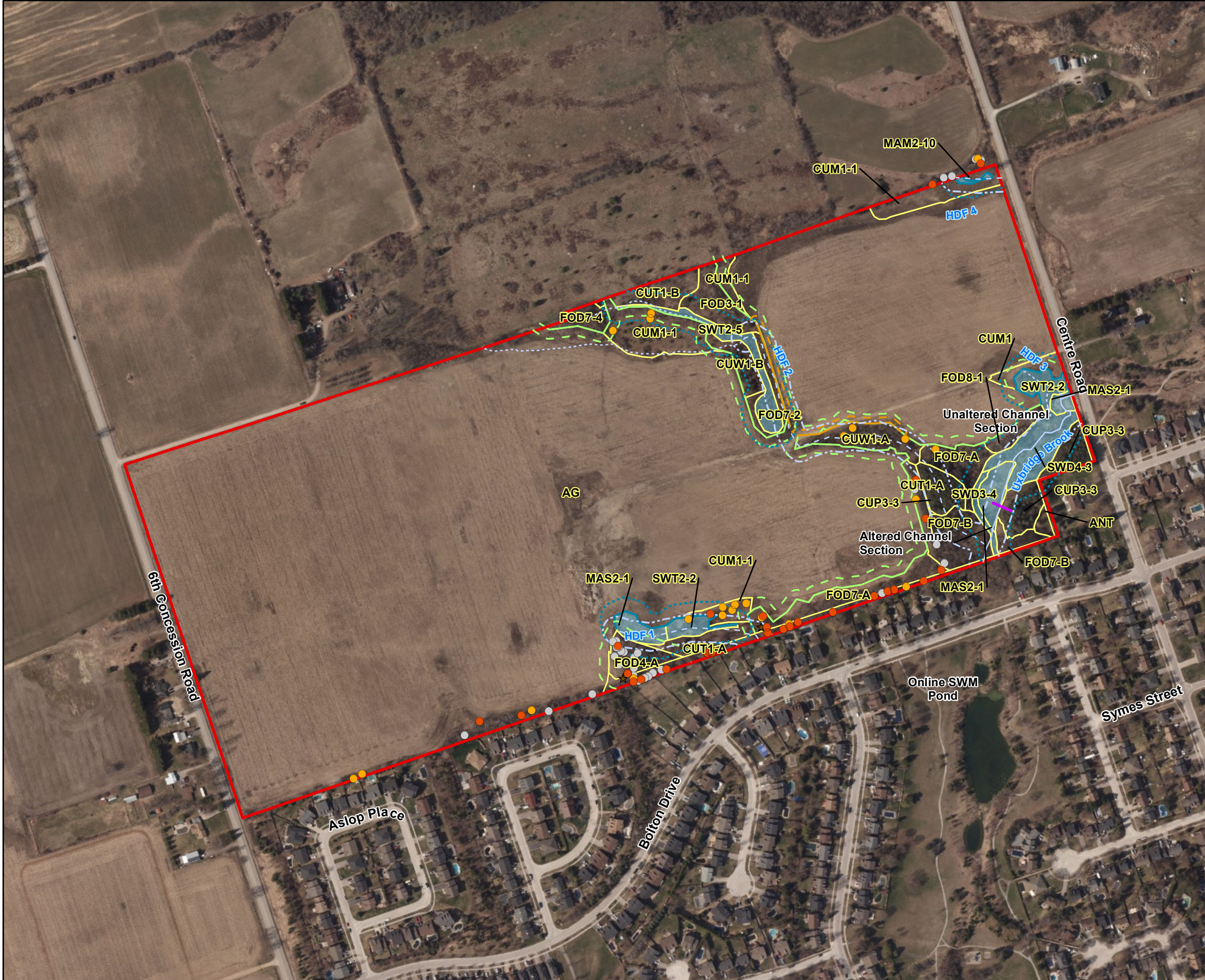
7.1.2 Water Servicing

Water servicing allocation is required from the Town, and there are existing municipal watermains on 6th Concession and Centre Road North (SCS 2020). The development is proposed to be serviced with a connection to the existing watermains on 6th Concession and Centre Road North.

7.2 Grading and Site Alteration

As detailed in the FSR (SCS 2020), the proposed development grading has been developed to match to the existing surrounding grades **Figure 5**, and provide conveyance of stormwater runoff, including external drainage. The road slope has been maximized based on Township criteria to minimize cut and fill throughout the proposed development, an exception to these criteria to increase the allowable slope is recommended and requires further discussion with Township staff. A retaining wall is indicated to be proposed in one locations with a maximum height of 3.9 m at the south end of the site, and the lot grading will be subject to further grading design at the detailed design stage.

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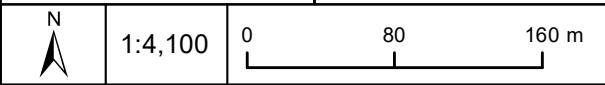
Legend

- Subject Property
 - ELC Communities
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 - Wetlands + 15 m (LSRCA)
 - Watercourse (Beacon 2020)
 - Watercourse Permanent and Intermittent) + 15 m (LSRCA)
- Headwater Drainage Feature**
- Intermittent
 - Ephemeral
- Butternut Trees**
- Category 3
 - Category 2
 - Category 1/Dead Tree
 - ★ Hybrid Tree

Code	Community Description
	Wetland Communities
SWD3-4	Manitoba Maple Mineral Deciduous Swamp
SWD4-3	White Birch - Poplar Mineral Deciduous Swamp
MAS2-1	Cattail Mineral Shallow Marsh
SWT2-2	Willow Mineral Thicket Swamp
	Forest Communities
CUW1	Mineral Cultural Woodland
FOD3-1	Dry - Fresh Aspen Deciduous Forest
FOD4-2	Dry - Fresh White Ash Deciduous Forest
FOD7	Fresh - Moist Lowland Deciduous Forest
FOD7-2	Fresh - Moist Ash Lowland Deciduous Forest
FOD7-4	Fresh - Moist Black Walnut Lowland Deciduous Forest
	Cultural Communities
CUM1	Mineral Cultural Meadow
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	Other Communities
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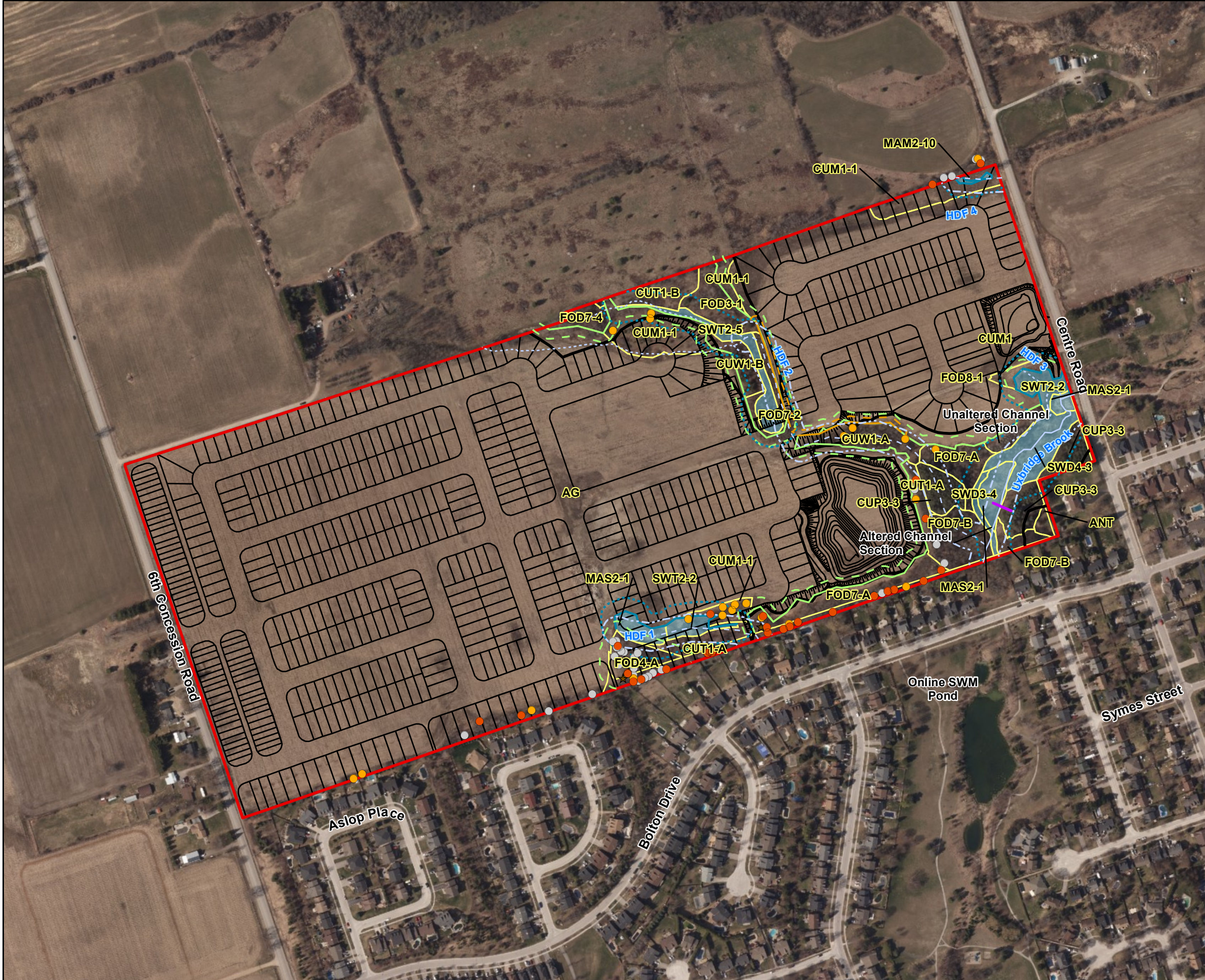
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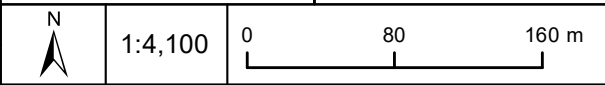
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 - Proposed Development
 - Staked Wetland (LSRCA July 24, 2020)
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 - Staked Top of Bank + 6 m (LSRCA)
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 - Wetlands + 15 m (LSRCA)
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 - Watercourse Permanent and Intermittent + 15 m (LSRCA)
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Legend

- Subject Property
- Watercourse (Beacon 2020)

Contours 1m Interval (FBS)



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7.3 Stormwater Management

A companion Functional Servicing and Stormwater Management Report for the development has been prepared by SCS Consulting Ltd. (2020). It details the following measures for the proposed development:

- **Quality Control:** MECP Enhanced (Level 1) water quality protection will be provided for the west half of the proposed development by a proposed wet SWM pond. Quality control will be provided for the east half of the proposed development by catchbasin filtration trenches in the right-of-way boulevard;
- **Erosion Control:** The runoff volume from a 40 mm rainfall event will be detained over 24 hours for the west half of the proposed development by the wet SWM pond and for the east half of the proposed development by a dry SWM pond;
- **Quantity Control:** Quantity control will be provided for the west half of the proposed development by the wet SWM pond and for the east half of the proposed development by the underground storage facility to control peak flows for the 2 through 100 year storm events;
- **Volume Control:** The combined volume provided based on the preliminary BMPs is 1,229.4 m³ which corresponds to an equivalent depth of rainfall over the total impervious area of 6.4 mm. This achieves Alternative #2 criteria for volume control. The proposed development is considered a site with restrictions due to proximity to seasonally high groundwater, and low infiltration rates;
- **Rear yard Infiltration trenches** are proposed along the central north-south drainage feature and swales along the eastern edge of the park block on the west side of the natural feature for conveyance to the proposed wet SWM pond which will provide passive infiltration as per Figure 2.3 (SCS 2021); and
- **Phosphorus Budget:** A phosphorus budget analysis was completed using the MECP phosphorus budget tool, which shows that the unmitigated phosphorus export will be reduced by approximately 90% through the use of BMPs throughout the proposed development including: rear yard at-surface infiltration trenches, catchbasin infiltration/filtration trenches, a wet SWM pond, a dry SWM pond, and a grassed filter strip.

7.4 Water Balance

The hydrogeology report prepared by Terrapex and Beacon (2021) noted that with mitigation post-development infiltration rates will be substantially exceeded from existing conditions. Similarly, run-off will be increased. It is not anticipated that wetlands and drainage features will be maintained post - development.

7.5 Fluvial Geomorphic Assessment

A geomorphic assessment of Uxbridge Brook was completed and is available under separate cover (Beacon 2020).

8. Potential Negative Effects

The following present key potential negative effects of the proposed development on the existing natural heritage features on the subject property.

8.1 During Construction

In addition to the removal of treed areas associated with grading along HDF2 and removal of HDF1 and HDF4 and associated wetland area on the subject property, potential negative effects of the development on natural features could include:

- Loss of agricultural and semi-natural habitats for flora and fauna;
- Loss of features (wetland, drainage features, woodland);
- Soil mobilization during site grading and stockpiling of material;
- Sediment-laden water runoff from the construction site entering the watercourse;
- Potential for negative effects to regulated species;
- Noise, light;
- Rear yard dumping; and
- Access into features.

8.2 Post-construction

Potential impacts following completion of construction and upon occupancy could include:

- Domestic pets venturing into the natural area, with potential predation on wildlife;
- Spread of ornamental non-native plants;
- Garbage/composting in natural areas;
- Bird strikes on glass windows;
- Effects of light and noise to the Significant Woodland features; and
- Trampling and cutting of natural vegetation by residents.

8.3 Water Quality and Quantity Effects

- Hydrological effects on wetland and watercourse (HDF2 and Uxbridge Brook);
- Temperature changes in watercourse; and
- Sedimentation of watercourse.

It is expected that in an urbanizing environment, some potential negative effects are anticipated that cannot be mitigated. This is because many effects, especially on fauna, appear to operate at the landscape level. Meaning that as the landscape urbanizes, regardless of buffers or other mitigation measures, some species simply no longer occur.

8.4 Assessment of Negative Effects

Development of the subject property will result in localized ecological disturbance, and a loss of habitat for the common species found on the subject property. Development will also result in an increase in impervious surfaces and will require stormwater management.

The following sections present the key potential negative effects of the proposed development during construction and upon occupancy and identify mitigation opportunities and compensation measures to be utilized to minimize potential adverse effects of the project.

8.5 Habitat Removal

The natural heritage features present on the property will be retained, protected and enhanced, with the exception of:

- The tributary HDF1 and associated wetland and treed areas at the southern limit of the property, which provides ephemeral drainage, is partially tiled, and drains to an existing catchbasin at the southern extent of the property. This drainage feature was assessed with a management recommendation of *Conservation* and is proposed for removal with replication of function;
- The tributary HDF4 and associated wetland will be subject to removal; and
- Removal of a small area of significant woodland at the tributary crossing of HDF2 to permit a transportation crossing at the location of an existing agricultural crossing.

Ephemeral drainage features identified for removal will have function replicated through mitigation including lot level conveyance measures (e.g. LID measures) to maintain conveyance of flow and material to the downstream features consistent with the Management Recommendation for *Mitigation*, subject to a permit from the LSRCA.

8.6 Regulated Species

A total of 51 Butternut trees on the subject property were assessed to be Category 2 or 3 trees and are subject to the ESA. The proposed development will require the removal of the Butternut trees located outside the proposed Natural Heritage System and consultation with MECP is on-going to address impacts to Butternut and related habitat and the potential for impacts to bat habitat.

9. Mitigation and Residual Impacts

The following sections detail the anticipated impacts of the proposed development and identify mitigation and compensation measures to be utilized to minimize negative effects of the project.

9.1 Buffers to Natural Heritage Features

Buffers mitigate many of the stressors mentioned in **Section 7.2**. The indicated proposed buffer areas to retained natural features will assist in mitigating noise and light effects, especially when the buffer area is naturalized. The buffer will require the preparation of an Edge Management Plan that will ensure that it is planted with native woody species and will assist in providing restoration in a part of the feature area that has been recently disturbed.

Table 6 indicates the buffer that have been proposed for each of the features that were noted as being present on the subject property as shown on **Figure 2** and **3**.

Table 6. Natural Features and Proposed Buffer

Feature/Function	On-site Description or Locations (see also Figure 2 and 3)	Buffer Proposed	Comment
Significant Valleylands	Uxbridge Brook Valley	6 m	10 m is sufficient to mitigate immediate effects of the adjacent development, grading within buffer to be restored
Significant Woodland	Uxbridge Brook and HDF 2 excluding FOD7-A, FOD4-A	10 m from dripline	10 m is sufficient to mitigate effects of adjacent development, grading within to be restored (one pinch point)
Wetland	HDF 2 HDF 3 and Uxbridge Brook	10 m to 15m variable from wetland	Grading within
Fish Habitat	Uxbridge Brook, downstream extent of HDF 2	Variable 10 m to 15 m	Grading within
Habitat of Endangered or Threatened Species	Butternuts	n/a	Need to be addressed with MECP
	Bat habitat in treed communities	n/a	Presence / absence need to be addressed If present needs to be addressed with MECP

9.2 Prevention of Soil or Sediment Mobilization, and Sediment-Laden Water Runoff from the Construction Site Entering the Watercourses

The following recommendations are provided:

- Develop and implement an Erosion and Sediment Control (ESC) Plan to the satisfaction of the Township and LSRCA to ensure adequate protection to retained features with suitable setback from natural features;
- Utilize standard Best Management Practices (BMPs) during the construction process;
- All activities, including maintenance procedures, will be controlled to prevent the entry of petroleum products, debris, rubble, concrete or other deleterious substances into the

watercourse. Vehicular refueling and maintenance will be conducted a minimum of 30 metres from the wetlands and watercourses;

- Minimize soil disturbance through timely restoration and stabilization of exposed soil, utilizing appropriate erosion and sediment control measures, such as matting on exposed slopes; and
- Preparation of a spill response plan for works in or near the watercourse or wetland and take necessary actions and notify appropriate personnel in the event of a spill (MOE Spills Action).

9.3 Noise and Light Effects

These effects are very difficult to quantify. Noise in particular may be a reason why landscape-level effects are known to occur within urban matrices even as natural areas are set aside. The effects of these stressors would be important except that this system is already heavily influenced by the light and noise of the nearby urban areas. This has resulted in a suite of species that is already fairly urban-tolerant. Based on this assessment we do not anticipate a measurable effect provided that access issues are addressed.

In addition to the buffer requirements, lighting along the interface with woodland and wetlands should be directed away from all-natural features to minimize the impact on adjacent development on the function of these areas.

9.4 Reducing Physical Intrusion by People and Companion Animals

After construction ensure that the rear of all lots that back onto natural features are fenced with sturdy fencing such as chain-link fencing to delineate property limits and restrict access to natural features. This minimizes encroachment by people, pets and yard waste into the buffer areas.

Where practical a trail system would also help focus pedestrian activity.

9.5 Timing Mitigation - Protection of Breeding Birds and Other Wildlife

To avoid disturbance of breeding birds the removal of grasses, hedgerows, shrubs and trees must be in conformity with federal and provincial laws.

In particular the federal *Migratory Bird Convention Act* (1994) protects the nests, eggs and young of most bird species from harm or destruction. Environment Canada considers the 'general nesting period' of breeding birds in southern Ontario to be between late March and the end of August. This includes times at the beginning and end of the season when only a few species might be nesting. In light of this it is recommended that during the peak period of bird nesting (i.e., between May and mid-July), no vegetation clearing or disturbance to nesting bird habitat should occur. In the 'shoulder' seasons of April 1 to May 01, and July 16 to August 31, vegetation clearing could occur, but only after an ecologist with appropriate avian knowledge has surveyed the area to confirm lack of nesting. If nesting is found, then vegetation clearing (in an area around the nest, the size of which depends on the specific circumstances) has to wait until nesting has concluded. From September 1 through to March 31,

vegetation clearing can occur without nest surveys, but the need to ensure nest protection still applies (i.e., if an active nest is known it must be protected).

As some bats may overwinter and breed in trees, trees should be removed in April prior to breeding in May, or in the fall after mid-August and prior to the onset of hibernation (mid-October). Prior to the removal of buildings or structures conformity with the ESA will need to be confirmed.

Regarding the timing of the wetland area removals, construction activities for removal are recommended to occur in the winter (as overwintering habitat is not present) or in late summer during dry conditions and after the breeding bird season is completed.

9.6 Bird-Friendly Design

Glass windows located closer than 20 m to significant woodland or contiguous woody vegetation to wetlands that includes vegetation taller than 2 m, should comprise of non-reflective glass (up to tree canopy height) to minimize bird strikes.

9.7 Feature Compensation

The removal of the wetland units, drainage features, and non-significant woodland and significant woodland will be subject to discussion with LSRCA and the Town of Uxbridge regarding compensation that may be required.

In addition to the removal of cultural hedgerows, a number of treed areas are identified for removal (that may be regulated bat habitat), as well as Butternuts subject to consultation with MECF. Compensation plantings within the buffer to natural features is recommended.

9.8 Storm Water Outfall

The storm water outfall will be addressed at detailed design.

9.9 Residual Impacts

The primary net impacts at the site level and after mitigation is applied, will be a reduction in the number and diversity of species of wildlife associated with the agricultural fields. Some species may be able to use the new residential development area. There will also be an increase in plant species diversity and associated function through the development of a landscape plan for the planting of native trees and shrubs within buffer areas that will create additional wildlife habitat adjacent to the natural features.

In an urbanizing environment, the total landscape effect is generally what controls wildlife use of a particular area. This landscape level effect cannot be mitigated by site-specific mitigation measures.

The reduction in buffers to a minimum 10 m for wetlands and 10 m for fish habitat/watercourse is likely to result in minor negative effects (generally 15 m is the minimum to mitigate effects of urbanization on

wetlands and fish habitat). The 10 m buffer for woodlands is appropriate. It has been determined by LSRCA that 6 m to the staked valley limits and 15 m to the watercourse is sufficient to address the valleyland functions. The minor loss of function that is postulated for any reductions to these buffers will need to be addressed with the LSRCA through compensation

It is our professional opinion that while reaching a compensatory agreement should be possible, until compensation is determined and agreed that addresses the loss of features and reductions in buffer widths, it not possible to conclude that there are no net negative effects on features or functions.

9.10 Summary of Areas Gain/Loss

Based on review of the existing conditions relative to the proposed development concept plan, the following reflects an evaluation of the location and extent of areas gained and lost for the subject development.

A summary of natural areas that will be removed and agreed buffers that will be removed or reduced is provided on **Figure 6**. These areas total approximately 2.21 ha of natural, semi-natural or cultural areas and include cultural woodland, headwater drainage features and wetland areas and areas of buffers required by policy or typical practices. There are areas where buffers exceed the agreed minimums these comprise approximately 0.31 ha (**Figure 6**). This leaves a deficit of approximately 1.9 ha.

Compensation for the loss of these areas will require further discussion with the Township and LSRCA.

10. Policy Conformity

Beacon has reviewed the existing policy documents pertaining to the subject property in order to address the applicable provisions of the natural heritage policies and regulations of the Provincial Policy Statement, Greenbelt Plan, Durham Region Official Plan, Township of Uxbridge Official Plan, the LSRCA and the *Endangered Species Act*.

Section 2 of this report provided an overview of the natural heritage policies and regulations. This section examines conformity with those specific policies and regulations.

10.1 Provincial Policy Statement

The limits of significant valleyland and significant woodlands have been staked with LSRCA to delineate the boundaries, with adjacent lands to the features assessed to determine an appropriate buffer (with grading within most woodland buffers). A small area of significant woodland will need to be removed to accommodate the internal east-west road.

Potential significant wildlife habitat has been protected within woodland areas.

One provincially endangered species, Butternut, is present on the subject property and suitable habitat is present in all treed areas for regulated bats, some parts of which are proposed for removal.

Consultation with MECP is on-going and will be required for both species as it may affect development limits.

All direct fish habitat is all being protected.

The MNR has not identified any provincially significant wetlands or ANSIs within the study area.

10.2 Regional Municipality of Durham Official Plan

According to the Durham Region Official Plan, most of the east portion of the subject property associated with the Uxbridge Brook and associated valleylands are designated as part of the Key Natural Heritage and Hydrological Features (Schedule B). The natural features were delineated through site specific field study in coordination with the regulatory agencies to determine precise limits at the time of assessment. These features have been protected.

Permanent and intermittent streams and woodlands have been identified on the subject property and will be protected where indicated.

One intermittent watercourse is proposed for removal. The removal of non-evaluated wetlands are to be addressed by the Township in conjunction with LSRCA. A small area of significant woodland is to be removed to accommodate the east-west internal road.

10.3 Township of Uxbridge Official Plan

This EIS has been prepared to address the requirements of the Town as part of a development application for Draft Plan of Subdivision. The subject property has been identified as 'future residential area' within the Secondary Plan Area on Schedule A, with the corridor of the Uxbridge Brook and Tributary HDF2 identified as Watercourse and Environmental Potential Area. An identified headwater drainage feature and wetland areas are proposed for removal with hydrological mitigation through lot level conveyance measures.

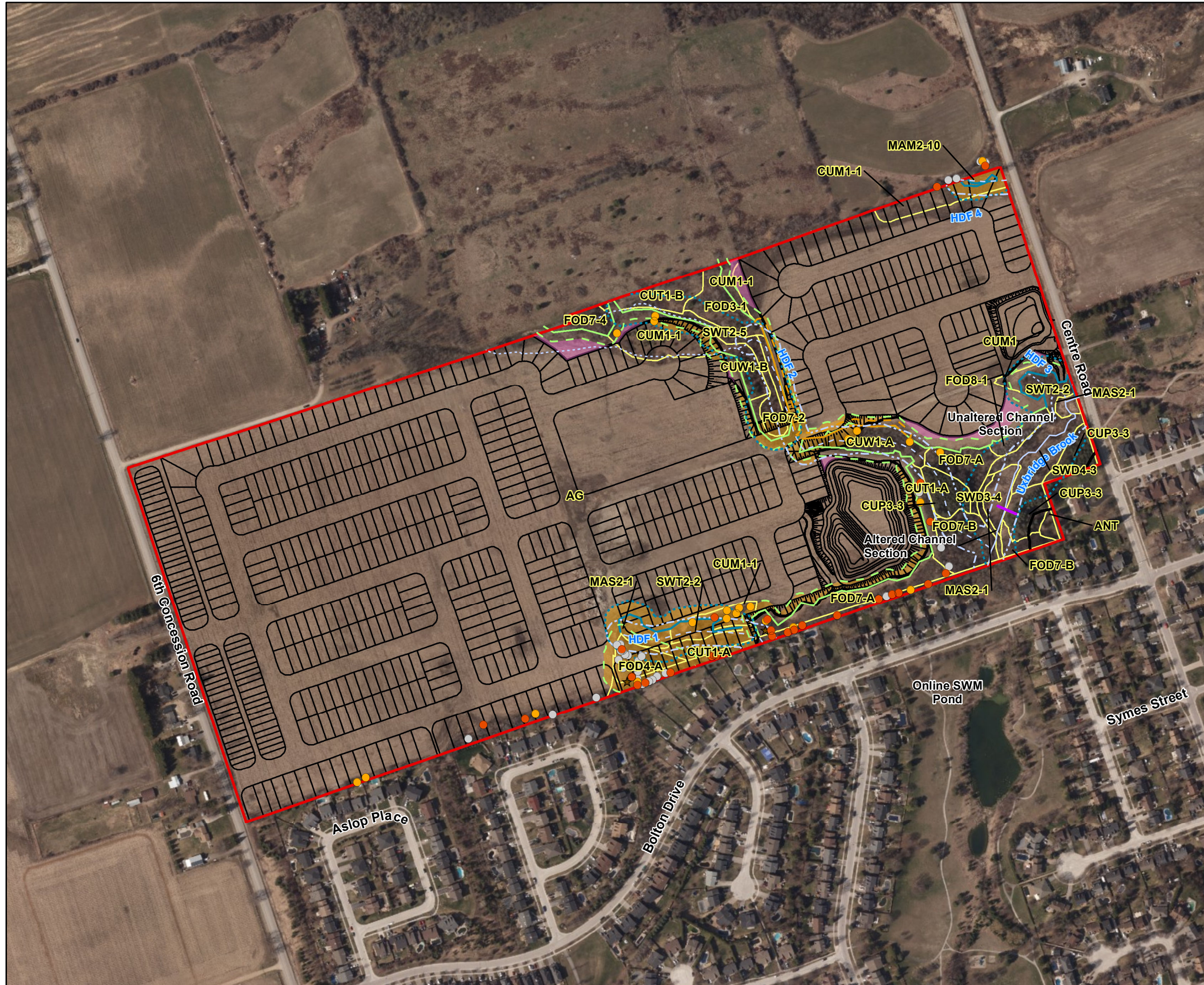
Through development of this EIS, Key Natural Heritage Features including wetlands; significant valleylands; significant woodlands and stream corridors; fish and wildlife habitat and habitat of endangered or threatened species (and potential habitat) have been identified.

Buffers to wetlands and watercourses are proposed and are consistent with LSRCA requirements for this property (valleyland 6 m watercourse 15 m and woodland 10 m). There are some proposed reductions from these values detailed in this report and grading (and subsequent restoration) within buffers is also proposed.

Where woodlands and wetlands on the property are identified for removal, compensation requirements will be subject to discussion and resolution with LSRCA and the Township.

Matters related to habitat for endangered or threatened species (i.e., bats and Butternuts) are not yet resolved with MECP.

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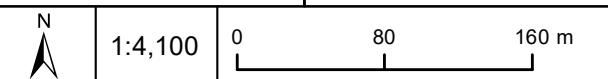
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 - Watercourse Permanent and Intermittent + 15 m (LSRCA)
 - Area Loss (2.21 ha)
 - Area Gained (0.31 ha)
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 - Category 2
 - Category 1/Dead Tree
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10.4 Lake Simcoe and Region Conservation Authority Regulations and Policies

Consultation with LSRCA was completed in preparation of this report, including staking of the feature limits, and discussion on varying buffers to retained features, and consideration of removal of wetland areas on the subject property.

Further consultation with LSRCA is required to determine compensation for removal of regulated features on the property and reduction of buffers where applicable and this is subject to a permit.

10.5 *Endangered Species Act*

Consultation with MECP is required to address the impacts to Butternut and potential habitat for bats and this will or may be subject to a permit(s).

10.6 *Federal Fisheries Act*

No harm to fish is anticipated by the proposed development.

11. Summary

A background review, detailed seasonal field investigations and the staking of the top of bank, wetlands and dripline with LSRCA, were undertaken as part of a development application for the subject property. An analysis of features and functions was undertaken on the subject property with potential impacts identified.

The identified features and their approximate buffers are treated as follows:

- The staked top of bank with a minimum 6 m buffer (with grading within);
- A variable 10 m to 15 m buffer or greater from a watercourse for Uxbridge Brook and the downstream two thirds reach of Tributary HDF2 (with grading within);
- A 10 m buffer to significant woodland (with grading within) (one pinch point);
- A 10 m to 2 m variable buffer to non-significant woodland (FOD7-A);
- A variable buffer of 10 m to 15 m to wetlands (with grading within);
- Minor losses of significant woodland at the east-west road crossing of the feature;
- Removal of non-significant woodland in the southwest corner of the subject property; and
- Removals of wetlands and associated drainage features (intermittent and ephemeral) at HDF4 and HDF1.

The proposed development is also subject to LSRCA review and permitting, as is standard for development applications within LSRCA regulated area. As well, MECP discussion and authorization will be necessary related to Butternuts and potential bat habitat.

Currently the proposed Plan of Subdivision removes several classes of features (non-significant woodland, significant woodland, wetland and two watercourses - one ephemeral and one intermittent).

In addition, some buffers have been reduced from the values requested by LSRCA. Compensation will be required to address feature loss, reduction of buffers and regulated species in order to meet an overall test of no negative impact and conformity with policy documents.

Report prepared by:
Beacon Environmental



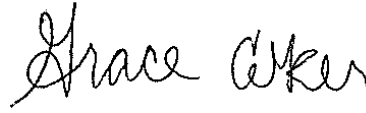
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Julianna MacDonald, B.Sc.(Hons.), M.E.S. (PI)
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Report prepared by:
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Grace Coker, B.Sc., CISEC
Ecologist, Surface Water Technician

Report reviewed by:
Beacon Environmental



Brian E. Henshaw
CEO, Senior Ecologist

12. Literature Cited

- Beacon Environmental Limited. 2020.
7370 Centre Road Geomorphic Assessment, Tributary of Uxbridge Brook, Township of Uxbridge. Draft. June 2019.
- Bird Studies Canada. 2009.
Marsh Monitoring Program Participant's Handbook for Surveying Amphibians. 2009 Edition. Bird Studies Canada, Environment Canada, U.S. Environmental Protection Agency. February 2009.
- Chapman, Lyman John and Donald F. Putnam. 1984.
The Physiography of Southern Ontario (Third Edition). Ontario Geological Survey Special Volume 2. Ontario Ministry of Natural Resources, Toronto.
- Coker, G. A., C. B. Portt, and C. K. Minns. 2001. Morphological and ecological characteristics of Canadian freshwater fishes. Canadian Manuscript Report of Fisheries Aquatic Sciences 2554.
- Committee on the Status of Endangered Wildlife in Canada. 2013.
COSEWIC assessment and status report on the Little Brown Myotis *Myotis lucifugus*, Northern Myotis *Myotis septentrionalis* and Tri-colored Bat *Perimyotis subflavus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxiv + 93 pp. (www.registrelep-sararegistry.gc.ca/default_e.cfm).
- Committee on the Status of Species at Risk in Ontario. 2018a.
Little Brown Myotis (*Myotis lucifugus*). Updated June 28, 2018. Available at: <https://www.ontario.ca/page/little-brown-myotis>
- Committee on the Status of Species at Risk in Ontario. 2018b.
Northern Myotis (*Myotis septentrionalis*). Updated June 28, 2018. Available at: <https://www.ontario.ca/page/northern-myotis>
- Committee on the Status of Species at Risk in Ontario. 2018c.
Northern Myotis (*Myotis septentrionalis*). Updated June 28, 2018. Available at: <https://www.ontario.ca/page/tri-colored-bat>
- Coker, G. A., C. B. Portt, and C. K. Minns. 2001.
Morphological and ecological characteristics of Canadian freshwater fishes. Canadian Manuscript Report of Fisheries Aquatic Sciences 2554.
- Government of Canada. 1994.
Migratory Birds Convention Act, 1994 (S.C. 1994, c.22).
- Government of Canada. n.d.
Species at Risk Status Reports. Committed on the Status of Endangered Wildlife in Canada. Ottawa. Available at: https://wildlife-species.canada.ca/species-risk-registry/sar/assessment/status_e.cfm

- Government of Ontario. n.d.
Species at Risk. Ontario Ministry of Natural Resources and Forestry. Available at:
<http://www.mnr.gov.on.ca/en/Business/Species/index.html>.
- Government of Canada. 2007.
Endangered Species Act.
- Lee, H.T., W.D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig and S. McMurray. 1998.
Ecological Land Classification for Southern Ontario: First Approximation and Its Application.
Ontario Ministry of Natural Resources. SCSS Field Guide FG-02. 225 pp.
- LSRCA. 2016. Lake Simcoe Watershed.
- LSRCA. 2018. Lake Simcoe Watershed Report Card.
- Ministry of Natural Resources and Forestry. 2015.
Significant Wildlife Habitat Criteria for Ecoregion 7E and 6E. January 2015.
- Ministry of Natural Resources and Forestry. 2017.
Survey Protocol for Species at Risk Bats within Treed Habitats: Little Brown Myotis, Northern Myotis and Tri-Colored Bat. Guelph District, April 2017, 13 p.
- Ministry of Natural Resources and Forestry. 2018.
Eastern small-footed myotis. Retrieved from the Ministry of the Environment Conservation and Parks website: <https://www.ontario.ca/page/eastern-small-footed-myotis>.
- Ontario Ministry of Municipal Affairs. 2014.
Provincial Policy Statement. Queen's Printer for Ontario, Toronto.
- Regional Municipality of Durham.
Durham Region Official Plan – 1993 (2017 Office Consolidation).
- SCS Consulting Ltd. 2020.
Functional Servicing Report, 7370 Centre Road, Uxbridge. December 2020.
- Terrapex. 2020.
Additional Work: Wetland Function Assessment. 7370 Centre Rd., Uxbridge, ON. November 27, 2020.
- Terrapex and Beacon Environmental Limited. 2021.
Hydrogeological Investigation, Water Balance and Catchment-Based Water Balance 7370 Centre Road, Uxbridge, Ontario.
- Toronto and Region Conservation Authority and Credit Valley Conservation (TRCA and CVC). 2014.
Evaluation, Classification and Management of Headwater Drainage Features Guidelines.
Approved July 2013, Finalized January 2014.
- Town of Uxbridge. 2014.
Town of Uxbridge Official Plan- 2014 Office Consolidation.

Varga, S., D.Leadbetter, J. Webber, J. Kaiser, B. Crins, J. Kamstra, D. Banville, E. Ashley, G. Miller, C. Kingsley, C.Jacobsen, K. Mewa, L. Tebby, E. Mosley, E. Zajc. 2005.

Draft. Distribution and Status of the Vascular Plants of the Greater Toronto Area. Ontario Ministry of Natural Resources. Aurora District. 96 pp

Appendix A

Agency Correspondence

7370 Centre Road, Uxbridge – LSRCA Ecological Offsetting Potential Meeting Minutes

Aug. 17, 2020 | 2:00 PM to 3:00 PM

Attendees: Dave Ruggle (LSRCA), Jessica Chan (LSRCA), Julianna MacDonald (Beacon), John Spina (Bridgebrook), Lindsay Chen (Bridgebrook), Tina Fang (Bridgebrook)

Summary:

1. Northeast wetland / Area A
 - a. Wetland is low valued and marginal as it is only 0.016ha and not connected with any features.
 - i. LSRCA support removal but compensation for buffer and wetland needed so long as policies are met in support of removing this feature
 - b. If this feature does not qualify as a wetland, there will not be any compensation.
 - i. Julianna: more hydrogeological analysis will be done to verify whether it qualifies
 - c. Julianna confirms with LSRCA that buffers for 15m for wetlands and 10m for woodland
2. East Wetland / Area C
 - a. Dave: SWM pond should be located outside the buffer, but can have some encroachment as long as:
 - Encroachment is minimal
 - Function of wetland is not affected by the encroachment
 - b. Keep the encroachment within 5m from setback/buffer if possible
 - c. Note some areas of the SWM pond can be “merged” with the wetland's buffers
3. South Wetland / Area H
 - a. John: The wetland cannot survive the development since it is between two subdivisions. SCS also says the wetland is not natural and is a result of block drainage due to the Quaker Village subdivision. Water flows into a catchbasin in Quaker Village. There is also an ownership issue with this feature. It can later turn into a mosquito breeding ground.
 - b. Jessica/Dave: This wetland is connected with the Natural Heritage System; hence justifications need to be provided for the removal. We need to make sure there is sufficient compensation so that Natural Heritage System can end up with net gain.
 - i. John: However, water flows into a catchbasin in Quaker Village and does not connect to a watershed via surface watercourse. Without a connection, this feature cannot contribute to a watershed and does not meet part b) of the LSRCA's definition of a wetland.
 - c. Jessica: Enhancement to an existing feature or buffer receives 50% compensation (i.e. if 3 ha of compensation area is required overall, 1.5 ha could be applied to enhancement of an existing feature or buffer if warranted).

Standards for plantings within buffers are generally are 5m between each tree, and for every 100m², no less than 5 trees and 25 shrubs

- d. Julianna confirms with LSRCA that compensation ratio is 3:1 for wetlands, 2:1 for woodlands and 1:1 for the applicable buffer as indicated in LSRCA's Ecological Offset Policy (2019).
4. South Woodlands (SWM Facility) / Area G
 - a. Need to determine if woodland in this area is significant based on Greenbelt Plan. If significant, cannot be removed.
 5. East-West Road Connection / Area D:
 - a. Dave: There are not too many alternatives in this region for this East-West road. Location of this road makes sense to me.
 - i. Note that the Greenbelt Plan permits essential infrastructure, such as road crossings, within key natural and hydrological features where there is no other reasonable alternative.
 - b. So long as Geotech. agrees that top of bank is not disturbed, LSRCA is fine with proposed development here
 - c. Correction to mapping required, as top of bank staked separately on either side of existing road crossing/culvert.
 6. Northern Woodlands / Area B:
 - a. Keep the encroachment within 10m buffer
 - b. Jessica: An average buffer of 10m between the north and south portions of this area is doable.
 - c. So long as Geotech. agrees that top of bank is not disturbed, LSRCA is fine with proposed development here
 7. Western Woodland and Wetland (SWM Facility) / Areas E and F:
 - a. See points for "2. East Wetland / Area C"
 - b. Focus on the 10m setback/buffer.
 - c. Keep the encroachment within 5m.
 8. Inquiry from Resident of 22 Galloway Circle:
 - a. Jessica: Resident (Tom) reported that there is a possible area of spring and seepage.
 - b. John: This spring and seepage area is likely created due to the natural topography of this site. Construction of this subdivision will redirect flow to properly contain the water.
 - c. Beacon to address this issue through HDF assessment to determine presence and function of feature or if it is only surface water.
 9. Drainage blocks
 - a. Vertical blocks below the south property boundary in Quaker Village are drainage blocks

Next Steps:

- Bridgebrook
 - o Update base plan of proposed development for Steve (SCS)
- Beacon
 - o Determine if Areas G and H are significant and if not, assess potential for removal and indicate areas of net gain for removal of Area H
 - o Assess whether the feature(s) in each Area will be truly a wetland or woodland of significance
 - o Assess whether the functions of these features will be negatively impacted based on proposed development
- SCS
 - o Assess whether top of bank in Areas B and D is a constraint on development as needed

Supplementary Information:

Greenbelt Plan (2017)

Significant Means:

a) in regard to wetlands and life science areas of natural and scientific interest, an area identified as provincially significant using evaluation procedures established by the Ministry of Natural Resources and Forestry, as amended from time to time;

b) in regard to woodlands, an area which is ecologically important in terms of features such as species composition, age of trees and stand history; functionally important due to its contribution to the broader landscape because of its location, size or due to the amount of forest cover in the planning area; or economically important due to site quality, species composition, or past management history. The Province (Ministry of Natural Resources and Forestry) identifies criteria relating to the forgoing;

c) in regard to other features and areas in section 3.2.5 of this Plan, ecologically important in terms of features, functions, representation or amount, and contributing to the quality and diversity of the Natural Heritage System. The Province (Ministry of Natural Resources and Forestry) identifies criteria relating to the forgoing; and

While some significant resources may already be identified and inventoried by official sources, the significance of others can only be determined after evaluation (p.71-72).

LSRCA – Watershed Development Guidelines

“wetland” means land that,

(a) is seasonally or permanently covered by shallow water or has a water table close to or at its surface,

(b) directly contributes to the hydrologic function of a watershed through connection with a surface watercourse,

(c) has hydric soils, the formation of which has been caused by the presence of abundant water, and

(d) has vegetation dominated by hydrophytic plants or water tolerant plants, the dominance of which has been favoured by the presence of abundant water,

but does not include periodically soaked or wet land that is used for agricultural purposes and no longer exhibits a wetland characteristic referred to in clause (c) or (d). (“terre marécageuse”) 1998, c. 18, Sched. I, s. 12. (p.99)

DRAFT

March 23, 2020

BEL 217431

Lake Simcoe and Region Conservation Authority
120 Bayview Pkwy
Newmarket, ON L3Y 3W3

Township of Uxbridge
51 Toronto Street South
Uxbridge, ON L9P 1T1

Regional Municipality of Durham
Attn: Lori Riviere-Doersam
Planning and Economic Development Department
605 Rossland Road East, 4th Floor
Whitby, ON L1N 6A3

Re: Draft Terms of Reference for Environmental Impact Study for Proposed Development at 7370 Centre Road, Uxbridge, Regional Municipality of Durham

Beacon Environmental Limited (Beacon) has prepared the following Draft Terms of Reference for an scoped Environmental Impact Study (EIS) in support of the proposed development at 7370 Centre Road (Part of Lot 33, Concession 6), in the Township of Uxbridge, Regional Municipality of Durham (**Figure 1**). Based on the provided constraints mapping, the subject property is 40.2 hectares in area and extends between 6th Concession Road and Centre Road.

The subject property is located within the *Protected Countryside – Towns and Villages* lands of the *Greenbelt Plan* area and is therefore subject to the corresponding policies of the *Greenbelt Plan* as well as the Regional Municipality of Durham and Township of Uxbridge Official Plans and Lake Simcoe Region Conservation Authority (LSRCA) regulations.

Beacon will prepare an EIS report which will identify:

- Existing site conditions;
- An impact assessment relative to the proposed development;
- Identification of opportunities and mitigation measures for the proposed development;
- A discussion of net impacts on the existing features on the site; and
- Relevant policy as it pertains to this proposed development.

In preparing the scoped EIS, Beacon proposes to undertake the following tasks:

Background and Policy Review

Existing information will be compiled and reviewed for the area, including available aerial photographs, area mapping, data from LSRCA and the Ministry of Natural Resources and Forestry (MNR) Natural Heritage Information Centre, and any other relevant information that is available. Review of any updated or new policy documents will be completed in the context of the proposed undertaking. These will include but will not be limited to the *Greenbelt Plan*, Durham Region and Township of Uxbridge Official Plans and LSRCA's regulations and policies.

Feature Staking

Staking of natural feature limits, including dripline of contiguous vegetation will be completed with the Town and LSRCA and evaluated through the EIS.

Field Investigations

Amphibian Breeding Survey (Completed)

Breeding amphibian surveys were conducted on three (3) evenings from late March/early April to late June in 2019 using established field protocols to survey amphibians and identify presence/absence of breeding amphibians. The surveys consisted of evening visit to survey calling males. If breeding amphibians were present, chorus locations (concentrations of calling animals) and approximate numbers of calling animals (using the provincial Marsh Monitoring protocol) were noted.

Aquatic Resources (Completed)

An assessment of aquatic resources was completed for the subject property to confirm previous findings of the constraints analysis and identify the presence of watercourses, ponds, water flow regimes and the presence/absence of fish. Any evident drainage features were assessed in accordance with the document entitled: *Evaluation, Classification and Management of Headwater Drainage Features* (TRCA/CVC, 2014). This included three (3) site visits by an aquatic ecologist to document seasonal conditions.

Fish community sampling was conducted to confirm the presence/absence and species composition of fish within the identified features.

Ecological Land Classification and Flora (Completed)

A site visit was undertaken to review the existing conditions with respect to natural heritage features on and within 120 m the subject property. Vegetation investigations included Ecological Land Classification (ELC) for southern Ontario and mapping to "Vegetation Type" (the highest level of detail) for the entire study area. A plant species list was created based on one (1) seasonal visit to provide an inventory of flora.

The field investigation included the completion of detailed mapping to define the limit of natural features, as well as an evaluation of impact to existing natural features that would result from the proposed site alteration.

Breeding Birds (Completed)

Breeding bird surveys were undertaken for the entire study area, and to address the presence/absence of Species at Risk. Three (3) early morning roving surveys were initially proposed, and following review of existing conditions and an absence of suitable meadowland habitat for relevant species at risk, two (2) surveys were completed, in which the entire site is walked to within 50 m of its edge and all representative habitats were sampled. Surveys occurred in the early morning hours when bird activity is greatest and focused on the vegetation communities adjacent to the headwater drainage features. An annotated species list was created indicating provincial breeding status (S-ranks), as well as any provincial and federal endangered or threatened species that were encountered. Fieldwork was completed in May and June of 2019.

ESA Species

The vegetation mapping and species inventory included a search for Butternut, an endangered species of tree known to occur in the area. The locations of any Butternut were flagged in the field, recorded by GPS and indicated in the mapping. A qualified Butternut Health Assessor from Beacon examined the trees to determine whether they are retainable or not based on the criteria in accordance with the *Endangered Species Act* Guidelines for Butternut. This assessment was partially completed in 2019 and will be continued in 2020.

Subject to consultation with the Ministry of Environment, Conservation and Parks (MECP), bat surveys may be required within the areas of proposed tree removal for communities that qualify as potential habitat. The extent of field work may include snag surveys as well as acoustic monitoring to determine the presence or absence, and species composition.

Tree Inventory

A tree inventory will be completed in 2020, which will include an assessment of all on and immediately adjacent to the subject property. The EIS will reference the findings of an Arborist Report and Tree Inventory and Preservation Plan (TIPP) prepared by Beacon.

EIS Report

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

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

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

Policy Review – The report will include a summary of applicable provincial, municipal and conservation authority natural heritage policies and legislation, and their relevance to the property, including the *Greenbelt* Plan, Provincial Policy Statement, Town of Uxbridge Official Plan, and LSRCA policies and regulations.

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

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

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

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

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

We propose that the approach described above be used to as Terms of Reference for the EIS. Should you have any comments or questions, please do not hesitate to contact the undersigned at (905) 201-7622 x 225 (MacDonald).

Prepared by:
Beacon Environmental

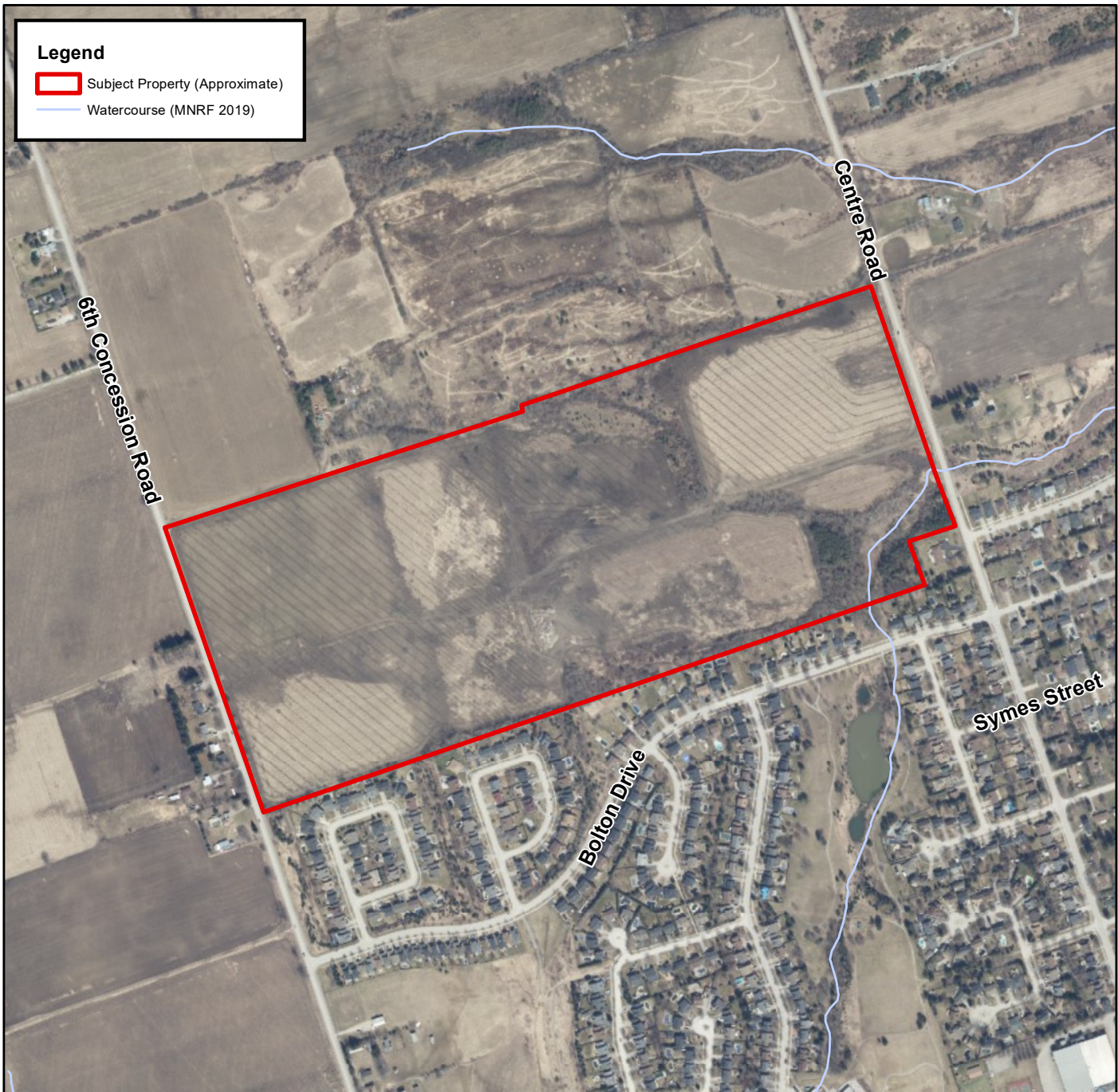
DRAFT

Grace Coker, B.Sc., CISEC
Ecologist, Surface Water Technician

Prepared and reviewed by:
Beacon Environmental

DRAFT



Julianna MacDonald, B.Sc., MES (PI)
Senior Planning Ecologist



Legend

- Subject Property (Approximate)
- Watercourse (MNRF 2019)



Site Location		Figure 1
7370 Centre Road Uxbridge		
		Project: 217431 Last Revised: March 2020
Client: Mediterra Corp.		Prepared by: BD Checked by: TDH
	1:8,100	Inset Map: 1:50,000
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DRAFT

March 23, 2020

BEL 217431.2

Lake Simcoe and Region Conservation Authority
120 Bayview Pkwy
Newmarket, ON L3Y 3W3

Township of Uxbridge
51 Toronto Street South
Uxbridge, ON L9P 1T1

Regional Municipality of Durham
Attn: Lori Riviere-Doersam
Planning and Economic Development Department
605 Rossland Road East, 4th Floor
Whitby, ON L1N 6A3

**Re: Draft Terms of Reference – Hydrogeological Study and Water Balance
Proposed Development at 7370 Centre Road, Uxbridge, Regional Municipality of
Durham**

Beacon Environmental Limited (Beacon) has prepared the following Draft Terms of Reference (ToR) for a hydrogeological study in support of the proposed development at 7370 Centre Road (Part of Lot 33, Concession 6), in the Township of Uxbridge, Regional Municipality of Durham (hereafter also referred to as the “subject property”). It is understood that the proposed development will be connected to municipal water and sewer services.

A site location figure has been appended for reference (**Figure 1**). Based on the provided constraints mapping, the subject property is 40.2 hectares in area and extends between 6th Concession Road and Centre Road.

It is understood that the subject property is located within the *Protected Countryside – Towns and Villages* lands of the *Greenbelt Plan* area and is therefore subject to the corresponding policies of the *Greenbelt Plan* as well as the Regional Municipality of Durham and Township of Uxbridge Official Plans and Lake Simcoe Region Conservation Authority (LSRCA) regulations. A tributary of Uxbridge Brook traverses the south-east corner of the subject property and is bound on either bank by recognized wetland area (Ministry of Natural Resources and Forestry; MNRF). Publicly available Ministry of Environment, Conservation and Park (MECP) mapping indicates that the subject property area is designated Wellhead Protection Area (WHPA) Q1.

The following ToR is therefore being provided to the LSRCA in relation to the proposed development of the subject property. This hydrogeological work is intended to provide further information toward the development process.

Beacon will prepare a hydrogeological assessment report which will include the findings of:

- A hydrogeological investigation;
- A global site water balance assessment for the subject property; and
- A feature-based water balance assessment (FBWB).

The following work plan is proposed to address the tasks above.

Desktop Review and Health & Safety

The local hydrogeological setting of the Site will be characterized, based on the review of provided and public information sources. Published resources will include topographic and geological mapping, aerial photography, and the MECP (previously MOECC) Water Well Record database. As well, Beacon will review available climate and water surplus data from Environment Canada for the nearest known precipitation gauge to the subject property, and any relevant reports provided to Beacon concerning features in the vicinity of the Site.

Prior to commencing with the general work plan, a project-specific health and safety plan will be developed and approved by the project manager. The plan will include a hazard assessment analysis, and can be provided upon request.

Field Program

It is understood that seven groundwater monitoring wells were constructed on the subject property in 2018 by Soil Engineers Ltd. and will be made accessible to Beacon staff. These wells are designated BH3, BH6, BH7, BH9, BH10, BH11 and BH13, respectively. Soil Engineers Limited has been measured groundwater levels in the existing groundwater monitoring wells between January and December of 2018. It is noted that one groundwater monitoring well, designated BH3, has been destroyed.

- A hydrogeologist will carry out a Site walk-over to visually assess the Site area, drainage features, areas of potential recharge and groundwater seepage/discharge, areas of closed drainage, etc., to provide information to the hydrogeological conceptual model;
- A 'windshield reconnaissance' will be completed concurrent to the Site walk-over to assess areas of potential potable groundwater use, potential groundwater-dependant natural heritage features, and potential contaminant sources, based on visual observations;
- A qualified Beacon technician will install a self-contained water level logger in each of three (3) select monitoring wells and one (1) barometric pressure logger as part of the groundwater monitoring program;

- A qualified Beacon technician will install a staff gauge equipped with a self-contained water level logger at the creek entrance and at the creek exit from the property;
- A qualified Beacon technician will install a mini-piezometer equipped with a self-contained water level logger adjacent to each of the two staff gauges described above;
- Water level loggers will be downloaded, and groundwater levels will be monitored in all accessible on-Site monitoring well locations at seasonal monitoring events conducted over a twenty-four month period, for a total of eight (8) monitoring events;
- *In situ* hydraulic testing will be carried out at three (3) existing groundwater monitoring wells, using accepted rising head or falling head testing procedures, to estimate the hydraulic conductivity of the screened geological units;
- Field-saturated hydraulic conductivity potential will be estimated at soils located approximately 1.5 metres below ground level (5 feet; mbgl) at three (3) locations using a Pask Permeameter instrument. Permeameter testing will only be carried out if weather permits and cannot be completed when soils are frozen or saturated; and
- Beacon will carry out a geometric survey for the installed wells, including top of pipe (TOP), top of monument/casing (TOC), and ground level elevations.

Laboratory Program

As part of the hydrogeological assessment we have provided a provisional allowance in the estimate for hydrochemical testing for a single (1) groundwater sample for water quality. The sample will be collected from a select groundwater monitoring well by a qualified Beacon technician using accepted low-flow methods for analytical laboratory analyses and comparison to the Provincial Water Quality Objectives (PWQO). Tested parameters will include metals and inorganics, volatile organic compounds (VOCs), total dissolved solids (TDS), and turbidity.

Analyses and Reporting

On completion of the above investigations and laboratory testing, our findings will be summarized in a hydrogeological report that will address the following existing Site-specific subsurface conditions, in accordance with the LSRCA and the Regional Municipality of Durham.

- Characterize the site-specific subsurface conditions based on the available information on conditions encountered by Beacon and reported by others;
- Characterize the site-specific subsurface conditions and develop a hydrogeological conceptual Site model, including aquifers and aquitards, depth to water table, hydraulic conductivity, and groundwater flow direction; and

- (PROVISIONAL) Comment on sampled groundwater quality, as compared to the criteria outlined in the Provincial Water Quality Objectives (PWQO), and provide a turbidity/total dissolved solids (TSS) co-efficient to provide information toward dewatering operations monitoring.

As part of the comprehensive and feature-based water balance assessments:

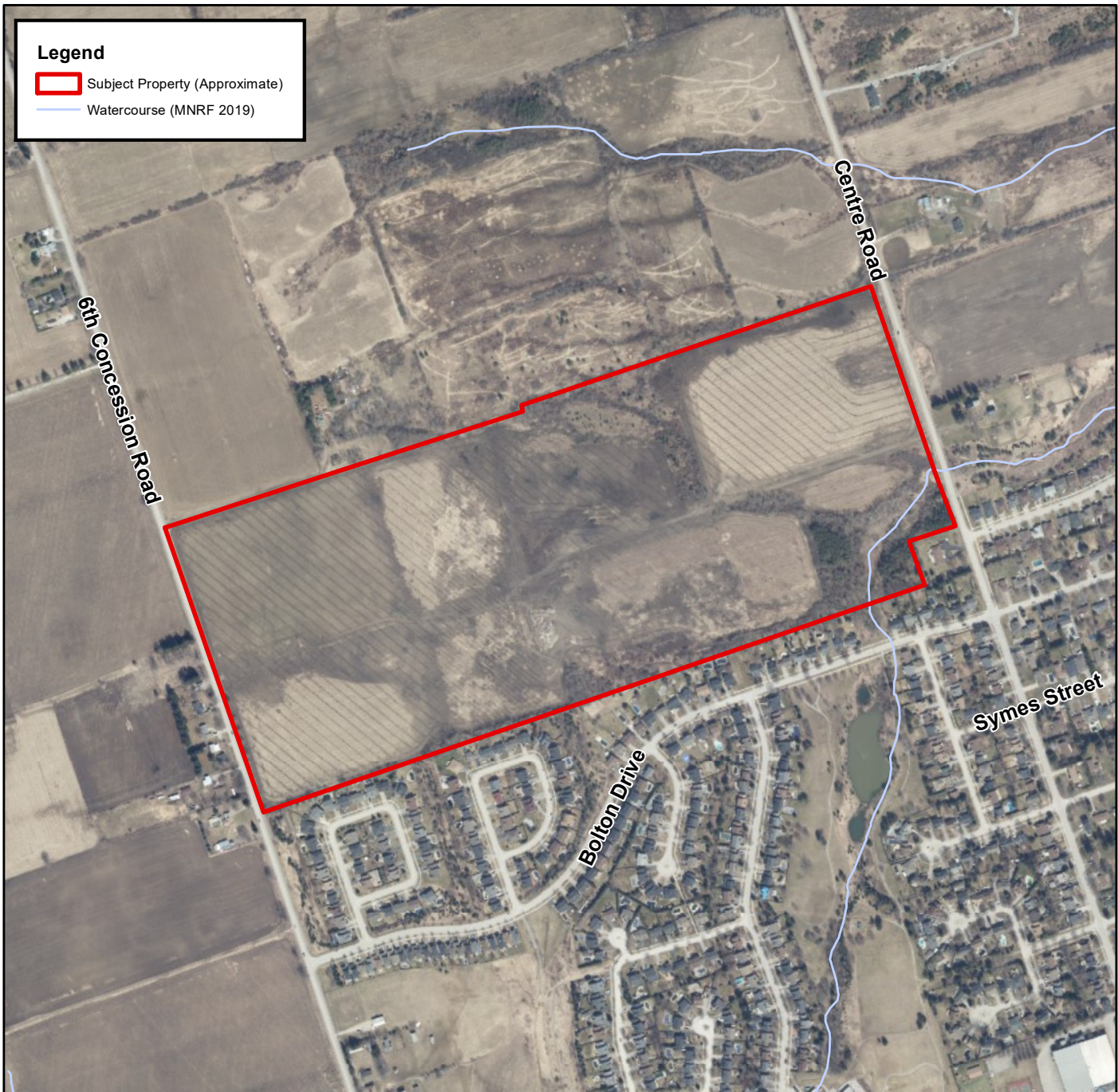
- The estimated soil infiltration rates of existing native soils will be calculated using the permeameter results. The estimate will be based on the method presented in the Low Impact Development Stormwater Management Planning and Design Guide (TRCA and Credit Valley Conservation, 2010);
- Prepare an average annual pre-development and post-development hydrologic (water) budget based on provided development plans, on the physical hydrogeological information gained through the on-Site investigation, and on the climate and water surplus data obtained from Environment Canada. The hydrologic budget will be prepared after the method outlined in the Stormwater Management Planning and Design Manual (Thorntwaite and Mather, 2003);
- Assess the potential hydrogeological impacts of the proposed development with respect to post-development groundwater infiltration rates, including potential impacts to groundwater-dependent resources;
- Provide comparative comment on collected baseline hydroperiod curves with theoretical post-development hydroperiod curves for select features;
- The feasibility of subsurface Low Impact Development (“LID”) features, in particular subsurface infiltration structures, will be assessed; and
- Prepare a report to summarize the methods, data and findings of this investigation.

We propose that the approach described above be used to as Terms of Reference for the hydrogeological assessment. Should you have any comments or questions, please do not hesitate to contact the undersigned at (705) 760-3416.

Prepared by:
Beacon Environmental

DRAFT



Zen Keizars, P.Geo.
Senior Hydrogeologist



Legend

- Subject Property (Approximate)
- Watercourse (MNRF 2019)



Site Location		Figure 1
7370 Centre Road Uxbridge		
		Project: 217431 Last Revised: March 2020
Client: Mediterra Corp.		Prepared by: BD Checked by: TDH
	1:8,100	Inset Map: 1:50,000
Contains information licensed under the Open Government License—Ontario Orthoimagery Baselayer: 2019 (FBS)		

Appendix B

Headwater Drainage Feature Assessment Photo Log



Photograph 1. Condition of HDF 1 on April 17, 2019



Photograph 2. Condition of HDF 1 on April 17, 2019



Photograph 3. Condition of HDF 2 on April 17, 2019



Photograph 4. Condition of HDF 2 on April 17, 2019



Photograph 5. Condition of HDF 3 on April 17, 2019



Photograph 6. Condition of HDF 3 on April 17, 2019



Photograph 7. Condition of HDF 4 on June 3, 2019



Photograph 8. Condition of HDF 4 on June 3, 2019



Photograph 9. Condition of Uxbridge Brook – Unaltered Section on June 3, 2019



Photograph 10. Condition of Uxbridge Brook – Altered Section on June 3, 2019



Photograph 11. Culvert Outlet Under Bolton Drive—April 17, 2019



Photograph 12. Online SWM Pond on Uxbridge Brook South of Bolton Drive on April 17, 2019

Appendix C

Floral Inventory

Appendix C

Floral Inventory

Family	Scientific Name	Common Name	COSEWIC	SARO	SRank	DURHAM (Varga 2005)
Aceraceae	<i>Acer negundo</i>	Manitoba Maple			S5	
Aceraceae	<i>Acer saccharum</i>	Sugar Maple			S5	
Aceraceae	<i>Acer x freemanii</i>	(<i>Acer rubrum</i> X <i>Acer saccharinum</i>)			SNA	
Anacardiaceae	<i>Rhus typhina</i>	Staghorn Sumac			S5	
Anacardiaceae	<i>Toxicodendron radicans</i> var. <i>radicans</i>	Eastern Poison Ivy			S5	
Apiaceae	<i>Cicuta maculata</i>	Spotted Water-hemlock			S5	U
Apiaceae	<i>Daucus carota</i>	Wild Carrot			SE5	
Apocynaceae	<i>Apocynum cannabinum</i> var. <i>cannabinum</i>	Hemp Dogbane			S5	
Apocynaceae	<i>Asclepias syriaca</i>	Common Milkweed			S5	
Apocynaceae	<i>Vincetoxicum rossicum</i>	European Swallowwort			SE5	
Asteraceae	<i>Achillea millefolium</i>	Common Yarrow			SE5?	
Asteraceae	<i>Ambrosia artemisiifolia</i>	Common Ragweed			S5	
Asteraceae	<i>Anaphalis margaritacea</i>	Pearly Everlasting			S5	U
Asteraceae	<i>Arctium lappa</i>	Great Burdock			SE5	
Asteraceae	<i>Arctium minus</i>	Common Burdock			SE5	
Asteraceae	<i>Artemisia annua</i>	Annual Wormwood			SE1	
Asteraceae	<i>Bidens frondosa</i>	Devil's Beggarticks			S5	
Asteraceae	<i>Centaurea stoebe</i>	Spotted Knapweed			SE5	
Asteraceae	<i>Cirsium arvense</i>	Canada Thistle			SE5	
Asteraceae	<i>Erigeron annuus</i>	Annual Fleabane			S5	
Asteraceae	<i>Eutrochium maculatum</i> var. <i>maculatum</i>	Spotted Joe Pye Weed			S5	
Asteraceae	<i>Leucanthemum vulgare</i>	Oxeye Daisy			SE5	
Asteraceae	<i>Rudbeckia hirta</i>	Black-eyed Susan			S5	
Asteraceae	<i>Solidago altissima</i> var. <i>altissima</i>	Eastern Tall Goldenrod			S5	

Family	Scientific Name	Common Name	COSEWIC	SARO	SRank	DURHAM (Varga 2005)
Asteraceae	<i>Solidago rugosa</i>	Rough-stemmed Goldenrod			S5	
Asteraceae	<i>Sonchus arvensis</i>	Field Sow-thistle			SE5	
Asteraceae	<i>Symphyotrichum lanceolatum</i> ssp. <i>lanceolatum</i>	Eastern Panicked Aster			S5	
Asteraceae	<i>Symphyotrichum lateriflorum</i> var. <i>lateriflorum</i>	Calico Aster			S5	
Asteraceae	<i>Symphyotrichum puniceum</i>	Purple-stemmed Aster			S5	
Asteraceae	<i>Taraxacum officinale</i>	Common Dandelion			SE5	
Asteraceae	<i>Tragopogon dubius</i>	Yellow Goatsbeard			SE5	
Asteraceae	<i>Tussilago farfara</i>	Coltsfoot			SE5	
Balsaminaceae	<i>Impatiens capensis</i>	Spotted Jewelweed			S5	
Betulaceae	<i>Betula papyrifera</i>	Paper Birch			S5	
Boraginaceae	<i>Hackelia virginiana</i>	Virginia Stickseed			S5	R4
Boraginaceae	<i>Lithospermum officinale</i>	European Gromwell			SE5	
Boraginaceae	<i>Myosotis scorpioides</i>	True Forget-me-not			SE5	
Brassicaceae	<i>Alliaria petiolata</i>	Garlic Mustard			SE5	
Campanulaceae	<i>Campanula rapunculoides</i>	Creeping Bellflower			SE5	
Caprifoliaceae	<i>Lonicera morrowii</i>	Morrow's Honeysuckle			SE3	
Caprifoliaceae	<i>Lonicera tatarica</i>	Tatarian Honeysuckle			SE5	
Caprifoliaceae	<i>Sambucus canadensis</i>	Common Elderberry			S5	
Caprifoliaceae	<i>Sambucus racemosa</i>	Red Elderberry			S5	
Caprifoliaceae	<i>Viburnum opulus</i> ssp. <i>opulus</i>	Cranberry Viburnum			SE3?	
Caryophyllaceae	<i>Silene latifolia</i>	White Campion			SE5	
Caryophyllaceae	<i>Silene vulgaris</i>	Bladder Campion			SE5	
Chenopodiaceae	<i>Chenopodium album</i>	Common Lamb's-quarters			SE5	
Clusiaceae	<i>Hypericum perforatum</i>	Common St. John's-wort			SE5	
Cornaceae	<i>Cornus alternifolia</i>	Alternate-leaved Dogwood			S5	
Cornaceae	<i>Cornus sericea</i>	Red-osier Dogwood			S5	
Cucurbitaceae	<i>Echinocystis lobata</i>	Wild Cucumber			S5	
Cyperaceae	<i>Carex gracillima</i>	Graceful Sedge			S5	
Cyperaceae	<i>Carex granularis</i>	Limestone Meadow Sedge			S5	
Cyperaceae	<i>Carex intumescens</i>	Bladder Sedge			S5	
Cyperaceae	<i>Scirpus atrovirens</i>	Dark-green Bulrush			S5	
Dryopteridaceae	<i>Matteuccia struthiopteris</i>	Ostrich Fern			S5	

Family	Scientific Name	Common Name	COSEWIC	SARO	SRank	DURHAM (Varga 2005)
Dryopteridaceae	<i>Onoclea sensibilis</i>	Sensitive Fern			S5	
Equisetaceae	<i>Equisetum arvense</i>	Field Horsetail			S5	
Fabaceae	<i>Medicago lupulina</i>	Black Medick			SE5	
Fabaceae	<i>Melilotus albus</i>	White Sweet-clover			SE5	
Fabaceae	<i>Trifolium pratense</i>	Red Clover			SE5	
Fabaceae	<i>Vicia cracca</i>	Tufted Vetch			SE5	
Fagaceae	<i>Quercus rubra</i>	Northern Red Oak			S5	
Geraniaceae	<i>Geranium robertianum</i>	Herb-Robert			S5	
Grossulariaceae	<i>Ribes rubrum</i>	European Red Currant			SE5	
Hydrophyllaceae	<i>Hydrophyllum virginianum var. virginianum</i>	Virginia Waterleaf			S5	
Juglandaceae	<i>Juglans cinerea</i>	Butternut	END	END	S2?	
Juglandaceae	<i>Juglans nigra</i>	Black Walnut			S4?	U
Juglandaceae	<i>Juglans x bixbyi</i>	(<i>Juglans ailantifolia</i> X <i>Juglans cinerea</i>)			SNA	
Juncaceae	<i>Juncus articulatus</i>	Jointed Rush			S5	
Juncaceae	<i>Juncus bufonius</i>	Toad Rush			S5	
Juncaceae	<i>Juncus dudleyi</i>	Dudley's Rush			S5	
Juncaceae	<i>Juncus tenuis</i>	Path Rush			S5	
Lamiaceae	<i>Leonurus cardiaca</i>	Common Motherwort			SE5	
Lamiaceae	<i>Mentha canadensis</i>	Canada Mint			S5	
Lamiaceae	<i>Nepeta cataria</i>	Catnip			SE5	
Lamiaceae	<i>Prunella vulgaris ssp. vulgaris</i>	Common Self-heal			SE3	
Liliaceae	<i>Convallaria majalis</i>	European Lily-of-the-valley			SE5	
Oleaceae	<i>Fraxinus americana</i>	White Ash			S4	
Oleaceae	<i>Fraxinus pennsylvanica</i>	Red Ash			S4	
Onagraceae	<i>Circaea canadensis</i>	Broad-leaved Enchanter's Nightshade			S5	
Onagraceae	<i>Epilobium ciliatum ssp. ciliatum</i>	Northern Willowherb			S5	
Onagraceae	<i>Epilobium hirsutum</i>	Hairy Willowherb			SE5	
Onagraceae	<i>Oenothera biennis</i>	Common Evening-primrose			S5	
Oxalidaceae	<i>Oxalis stricta</i>	Upright Yellow Wood-sorrel			S5	
Pinaceae	<i>Picea glauca</i>	White Spruce			S5	
Pinaceae	<i>Picea pungens</i>	Blue Spruce			SE1	

Family	Scientific Name	Common Name	COSEWIC	SARO	SRank	DURHAM (Varga 2005)
Pinaceae	<i>Pinus sylvestris</i>	Scots Pine			SE5	
Plantaginaceae	<i>Plantago lanceolata</i>	English Plantain			SE5	
Plantaginaceae	<i>Plantago major</i>	Common Plantain			SE5	
Poaceae	<i>Agrostis stolonifera</i>	Creeping Bentgrass			SE5	
Poaceae	<i>Dactylis glomerata</i>	Orchard Grass			SE5	
Poaceae	<i>Leersia oryzoides</i>	Rice Cutgrass			S5	
Poaceae	<i>Phalaris arundinacea</i>	Reed Canarygrass			S5	
Poaceae	<i>Phleum pratense</i>	Common Timothy			SE5	
Poaceae	<i>Phragmites australis</i>	Common Reed			S4?	
Poaceae	<i>Poa palustris</i>	Fowl Bluegrass			S5	
Polygonaceae	<i>Persicaria lapathifolia</i>	Pale Smartweed			S5	
Polygonaceae	<i>Rumex crispus</i>	Curled Dock			SE5	
Ranunculaceae	<i>Ranunculus acris</i>	Common Buttercup			SE5	
Rhamnaceae	<i>Rhamnus cathartica</i>	European Buckthorn			SE5	
Rosaceae	<i>Crataegus monogyna</i>	English Hawthorn			SE4	
Rosaceae	<i>Fragaria virginiana</i>	Wild Strawberry			S5	
Rosaceae	<i>Geum urbanum</i>	Wood Avens			SE3	
Rosaceae	<i>Malus pumila</i>	Common Apple			SE4	
Rosaceae	<i>Potentilla anserina ssp. anserina</i>	Common Silverweed			S5	
Rosaceae	<i>Potentilla recta</i>	Sulphur Cinquefoil			SE5	
Rosaceae	<i>Prunus serotina</i>	Black Cherry			S5	
Rosaceae	<i>Prunus virginiana</i>	Chokecherry			S5	
Rosaceae	<i>Rosa multiflora</i>	Multiflora Rose			SE5	
Rosaceae	<i>Rubus allegheniensis</i>	Allegheny Blackberry			S5	
Rosaceae	<i>Rubus idaeus ssp. idaeus</i>	European Red Raspberry			SE1	
Rosaceae	<i>Sorbus aucuparia</i>	European Mountain-ash			SE4	
Salicaceae	<i>Populus balsamifera</i>	Balsam Poplar			S5	
Salicaceae	<i>Populus tremuloides</i>	Trembling Aspen			S5	
Salicaceae	<i>Salix alba</i>	White Willow			SE4	
Salicaceae	<i>Salix bebbiana</i>	Bebb's Willow			S5	
Salicaceae	<i>Salix discolor</i>	Pussy Willow			S5	
Salicaceae	<i>Salix petiolaris</i>	Meadow Willow			S5	
Salicaceae	<i>Salix x fragilis</i>	(<i>Salix alba</i> X <i>Salix euxina</i>)			SNA	
Scrophulariaceae	<i>Verbascum thapsus</i>	Common Mullein			SE5	

Family	Scientific Name	Common Name	COSEWIC	SARO	SRank	DURHAM (Varga 2005)
Solanaceae	<i>Solanum dulcamara</i>	Bittersweet Nightshade			SE5	
Tiliaceae	<i>Tilia americana</i>	Basswood			S5	
Typhaceae	<i>Typha angustifolia</i>	Narrow-leaved Cattail			SE5	
Typhaceae	<i>Typha latifolia</i>	Broad-leaved Cattail			S5	
Ulmaceae	<i>Ulmus americana</i>	White Elm			S5	
Verbenaceae	<i>Verbena hastata</i>	Blue Vervain			S5	
Verbenaceae	<i>Verbena urticifolia</i>	White Vervain			S5	
Vitaceae	<i>Parthenocissus quinquefolia</i>	Virginia Creeper			S4?	
Vitaceae	<i>Vitis riparia</i>	Riverbank Grape			S5	

Appendix D

Breeding Bird List

Appendix D

Breeding Bird List

Common Name	Scientific Name	Status		Provincial breeding season SRANK ^b	Area-sensitive (OMNR) ^c	Breeding Pairs/ Territories
		National Species at Risk COSEWICa	Species at Risk in Ontario Listing a			
Wild Turkey	<i>Meleagris gallopavo</i>			S5		1
Killdeer	<i>Charadrius vociferus</i>			S5		2
Mourning Dove	<i>Zenaida macroura</i>			S5		2
Hairy Woodpecker	<i>Dryobates villosus</i>			S5	A	1
Northern Flicker	<i>Colaptes auratus</i>			S4		1
Eastern Wood-Pewee	<i>Contopus virens</i>	SC	SC	S4		2
Alder Flycatcher	<i>Empidonax alnorum</i>			S5		6
Eastern Kingbird	<i>Tyrannus tyrannus</i>			S4		1
Blue Jay	<i>Cyanocitta cristata</i>			S5		2
Black-capped Chickadee	<i>Poecile atricapillus</i>			S5		1
House Wren	<i>Troglodytes aedon</i>			S5		3
American Robin	<i>Turdus migratorius</i>			S5		3
Gray Catbird	<i>Dumetella carolinensis</i>			S4		3
Cedar Waxwing	<i>Bombycilla cedrorum</i>			S5		1
European Starling	<i>Sturnus vulgaris</i>			SE		1
Red-eyed Vireo	<i>Vireo olivaceus</i>			S5		1
Yellow Warbler	<i>Setophaga petechia</i>			S5		2
American Redstart	<i>Setophaga ruticilla</i>			S5	A	3
Common Yellowthroat	<i>Geothlypis trichas</i>			S5		3
Northern Cardinal	<i>Cardinalis cardinalis</i>			S5		3
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>			S4		2
Chipping Sparrow	<i>Spizella passerina</i>			S5		1

Common Name	Scientific Name	Status		Provincial breeding season SRANK ^b	Area-sensitive (OMNR) ^c	Breeding Pairs/ Territories
		National Species at Risk COSEWICa	Species at Risk in Ontario Listing a			
Savannah Sparrow	<i>Passerculus sandwichensis</i>			S4	A	2
Song Sparrow	<i>Melospiza melodia</i>			S5		13
Common Grackle	<i>Quiscalus quiscula</i>			S5		1
Brown-headed Cowbird	<i>Molothrus ater</i>			S4		3
Baltimore Oriole	<i>Icterus galbula</i>			S4		1
American Goldfinch	<i>Spinus tristis</i>			S5		2

Field Work Conducted On: May 29 & June 7, 2019

Number of Species: 28

Number of (provincial and national) Species at Risk: 1

Number of S1 to S3 Species: 0

Number of Area-sensitive Species: 3

KEY

a COSEWIC = Committee on the Status of Endangered Wildlife in Canada

a Species at Risk in Ontario List (as applies to ESA) as designated by COSSARO (Committee on the Status of Species at Risk in Ontario)

END = Endangered, THR = Threatened, SC = Special Concern

^b SRANK (from Natural Heritage Information Centre) for breeding status if:

S1 (Critically Imperiled), S2 (Imperiled), S3 (Vulnerable), S4 (Apparently Secure), S5 (Secure)

SNA (Not applicable... 'because the species is not a suitable target for conservation activities'; includes non-native species)

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