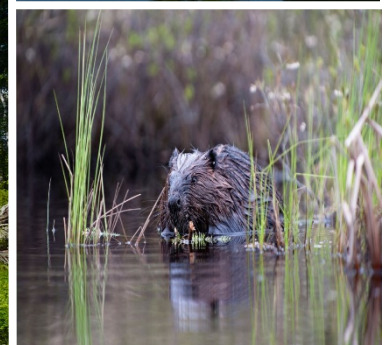
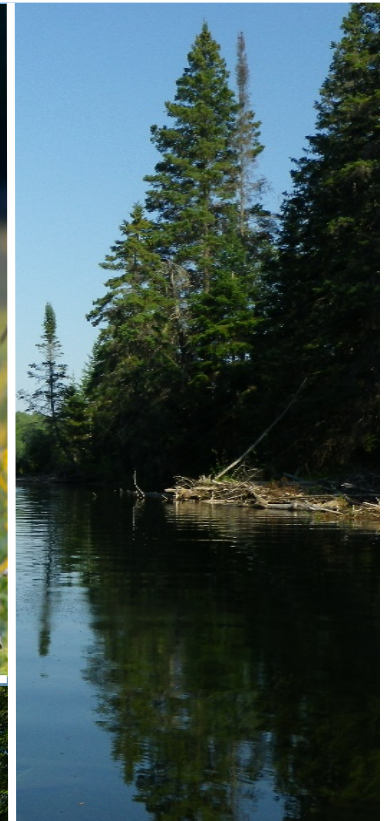




Natural Heritage Evaluation

Plan of Subdivision
150 Cemetery Road
Township of Uxbridge,
Regional Municipality of Durham

1093560 Ontario Limited





Executive Summary

GHD Limited was retained by 1093560 Ontario Limited (Coral Creek Homes) to complete a Natural Heritage Evaluation (NHE) for the proposed plan of subdivision/condominium on a lot located at 150 Cemetery Road in the Town of Uxbridge. The proposed 'development' is located within the Oak Ridges Moraine Conservation Plan Area. Development in this area requires the completion of a Natural Heritage Evaluation. This report has been prepared to meet the requirements of the Oak Ridges Moraine Conservation Plan (ORMCP 2017), Township of Uxbridge, and Durham Region's Official Plan.

A pre-consultation meeting was held with the Lake Simcoe Region Conservation Authority (LSRCA) on July 9, 2020. Minutes of the meeting outlined the need for supporting studies including a Natural Heritage Evaluation.

The proposed development will include 23 townhouse units constructed in the area between Cemetery Road and the existing house. The homes will be accessed from a freehold road originating from Cemetery Road and ending in a cul-de-sac. Homes will be connected to municipal services.

A total of nine (9) vegetation communities were identified within the study area. Each community is described below and illustrated on Figure 1.

A total of 98 plant species were identified during field surveys. The dominant species in each community are described below and a complete plant list is found in Appendix I.

Natural features on the property and within 120 metres included a provincially significant wetland, coldwater creek, manmade pond, fencerows and woodland.

Based on our analysis, the current/future construction envelope is located in an area that would create the least amount of impact on the Oak Ridges Moraine key natural heritage features and functions, including the woodland, wetland and watercourse. Our recommendations were made to minimize potential impacts on this feature during all phases of the project.

No negative impacts on the Oak Ridges Moraine and the key natural heritage features is anticipated, if our recommendations are implemented.



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Appendix I	Plant Species by Community
Appendix II	Bird Status Report
Appendix III	Fish Community Summary



1. Introduction

1.1 Background

GHD Limited was retained by 1093560 Ontario Limited (Coral Creek Homes) to complete a Natural Heritage Evaluation (NHE) for the proposed plan of subdivision/condominium on a lot located at 150 Cemetery Road in the Town of Uxbridge. The proposed 'development' is located within the Oak Ridges Moraine Conservation Plan Area. Development in this area requires the completion of a Natural Heritage Evaluation. This report has been prepared to meet the requirements of the Oak Ridges Moraine Conservation Plan (ORMCP 2017), Township of Uxbridge, and Durham Region's Official Plan.

A pre-consultation meeting was held with the Lake Simcoe Region Conservation Authority (LSRCA) on July 9, 2020. Minutes of the meeting outlined the need for supporting studies including a Natural Heritage Evaluation.

The applicant proposes to retain the existing single detached dwelling and the land behind it to the west for future resale. The lands to the east of the house will be developed for condominiums.

1.2 Location and Study Area

Approximately ten acres in size the property is located at 150 Cemetery Road in the town of Uxbridge. Also known as Part of Lot 27 Concession 6, Uxbridge Twp. this roughly rectangular-shaped parcel of land is located in the south west corner of the town of Uxbridge. Access to the property is from an existing driveway on Cemetery Road. The study area included the entire property and the adjacent lands, where access was permitted.

FIGURE 1.1 - NATURAL FEATURES, VEGETATION COMMUNITIES, SURVEYS & CONSTRAINTS



ELC TYPES - 1ST APPROXIMATION
Ecological Land Classification for Southern Ontario: First Approximation and its Application

ELC CODE	ECOSITE/VEG TYPE DESCRIPTION
FOC	Coniferous forest
FOM	Mixed forest
SWC1-2	White cedar-conifer mineral coniferous swamp

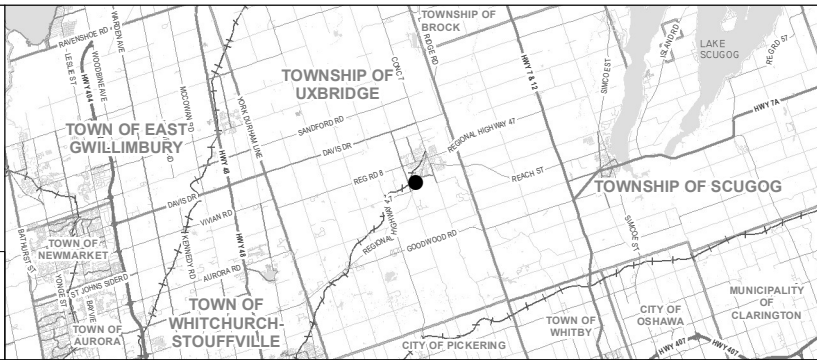
GEOPDF ENABLED FOR MOBILE USE

LEGEND

- Surface Water Quality Survey
- Study Area Limit
- Setback, Wetland
- Drip Line (H.F. Granger Co. Ltd.)
- Watercourse
- Aquatic Habitat Zones**
 - Zone 1 (HZ-01)
 - Zone 2 (HZ-02)
- Vegetation Community
 - Wetland Community
 - Forest Community
- Wetland, Provincially Significant (MNR, Last Updated 2020-10-13)
- Development Footprint (H.F. Granger Co. Ltd.)

CITATIONS

- Composite imagery obtained via Google, 2021.
- 8052_MGP_1 [8052-MGP], H.F. Granger Co. Ltd 2020.
- 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, Southcentral Science Section, Science Development and Transfer Branch. SCS Field Guide FG-02.



REVISION & WORK HISTORY

REV	BY	DATE	DESCRIPTION	REQUEST
rev-0	W.P.	2020-11-11	Initial map creation.	J.B.
rev-1	W.P.	2020-11-12	Added wetland community with adjustment as well as setback.	C.T.
rev-2	W.P.	2021-01-06	Added drip lines, condo plan, Changed symbology.	C.E.
rev-3	W.P.	2021-04-06	Changed vegetation communities. Added hedgerow.	C.T.

CONTACT: Will Pridham / GIS Specialist PROJECT NO: CA-PET-11218170 RECENT DATE: 2021-04-06

EMAIL: will.pridham@ghd.com PROJECT: Cemetery Road Condos- NHE CLIENT: Fabio Furlan

UTM ZONE 17N

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FIGURE 1.1 - NATURAL FEATURES, VEGETATION COMMUNITIES, SURVEYS & CONSTRAINTS

150 Cemetery Road, Pt Lot 27, Con 6, Town of Uxbridge
Uxbridge Township, Region of Durham
Lake Simcoe Region Conservation Authority (LSRCA)

SCALE
1 cm : 8 meters
1 inch : 67 feet



1.3 Study Rationale

This section identifies federal, provincial and other regulatory legislation, policies, official plans (OP) and OP amendments that are applicable and relevant to the study area and the immediate vicinity. This includes policies that triggered the study. These documents may identify natural features, Species at Risk and other habitat as well as other features relevant to this study.

1.3.1 Federal Legislation

Migratory Birds Convention Act

The purpose of the Migratory Birds Convention Act (MBCA 1994) is to implement the Convention by protecting and conserving migratory birds — as populations and individual birds — and their nests.

No work is permitted to proceed that would result in the destruction of active nests (i.e., nests with eggs or young birds), or the wounding or killing of bird species protected under the MBCA and/or Regulations under that Act.

Fisheries Act

The purpose of the Fisheries Act, Fish and Fish Habitat Program is to help conserve and protect fisheries and aquatic ecosystems. Specifically, the fish and fish habitat protection provisions are intended to prevent projects taking place in and around fish habitat from causing the death of fish or the harmful alteration, disruption or destruction of fish habitat. In addition, the Act administers relevant provision of the Species at Risk Act.

If death of fish or the harmful alteration, disruption or destruction of fish habitat are likely to result from a project, an authorization is required from the Minister of Fisheries, Oceans and the Canadian Coast Guard as per Paragraph 34.4(2)(b) or 35(2)(b) of the Fisheries Act Regulations.

1.3.2 Provincial Legislation

Endangered Species Act, 2007

The purposes of Ontario Endangered Species Act (ESA 2007) are:

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

To protect species that are at risk and their habitats, and to promote the recovery of species that are at risk.

To promote stewardship activities to assist in the protection and recovery of species that are at risk. 2007, c. 6, s. 1. (Government of Ontario, 2019)

The ESA clearly defines the five classifications of species status as extinct, extirpated, endangered, threatened, or special concern, and provides guidelines on the process of species status determination.

Regulations made under this act include: Ontario Regulation 230/08 and 242/08.



Ontario Regulation 230/08 provides the list of Species at Risk (SAR) in Ontario, which is updated regularly. This list was most recently consolidated on August 1, 2018 (Government of Ontario, 2018). Species status provided in the list is assessed by an independent body, the Committee on the Status of Species at Risk in Ontario (COSSARO), based on the best-available science and Aboriginal Traditional Knowledge.

General habitat protection is afforded to all species listed as endangered or threatened. General habitat descriptions are technical, science-based documents that have been developed for some of the species that are most likely to be affected by human activity (Government of Ontario 2020). Further information including a Recovery Strategy or Management Plan is required for each listed species, on a timeline dictated by the species status.

Ontario Regulation 242/08 explains possible exemptions to the ESA and details on how the purpose of the ESA is to be carried out.

Provincial Policy Statement

The Provincial Policy Statement, 2020 (herein referred to as PPS 2020) was issued under Section 3 of the Planning Act and came into effect May 1, 2020. It replaces the Provincial Policy Statement that was issued April 30, 2014. The PPS 2020 provides overall policy direction on matters of provincial interest related to land use planning and development (Government of Ontario, 2020). It applies province-wide, except in those cases where the PPS 2020 or another provincial plan state otherwise (Government of Ontario, 2020).

Provincial plans, such as the Greenbelt Plan (2017) and A Place to Grow: Growth Plan for the Greater Golden Horseshoe (2019) build upon the policy foundation provided by the PPS 2020 (Government of Ontario, 2020). These provincial plans provide additional policies to address issues in certain geographic areas of Ontario (Government of Ontario, 2020). Where the policy of a provincial plan addresses the same, similar, related or overlapping matters as the PPS 2020, the specific policies of the provincial plan may be used to satisfy the PPS 2020. However, where matters in the PPS 2020 and the provincial plan policies are not overlapping, the PPS 2020 must be independently satisfied (Government of Ontario, 2020).

Portions of Section 2.1.5 – 2.1.8 of the Provincial Policy Statement 2020 may apply to this project and thus acted as triggers for the preparation of this EIS.

2.1.5 Development and site alteration shall not be permitted in:

- b) significant woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);*
- d) significant wildlife habitat; unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.*

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

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



Oak Ridges Moraine Conservation Plan 2017

The property is located within the boundaries of the Oak Ridges Moraine. The Oak Ridges Moraine Conservation Act (ORMCA) and the Oak Ridges Moraine Conservation Plan (ORMCP 2017) (Ministry of Municipal Affairs and Housing, 2017) have defined the limits of the moraine and the key natural heritage features (KNHF). A portion of the property is located within the Natural Linkage Area of the ORMCP 2017 and is identified as a Category 2 ORM Landform Conservation Area (Township of Uxbridge, Schedule K).

The ORMCP 2017 requires the completion of a Natural Heritage Evaluation when there is an application for development or site alteration within a key natural heritage feature or within the area of influence (120 m).

Section 7.0. *Nothing in this Plan applies to prevent the use, erection or location of a single dwelling if,*

1. The use, erection and location would have been permitted by the applicable zoning by-law on November 15, 2001; and
2. The applicant demonstrates, to the extent possible, that the use, erection and location will not adversely affect the ecological integrity of the Plan Area.

Sections 23 and 30 of the ORMCP 2017 also apply to the subject property.

Section 23 (1) states that a natural heritage evaluation shall,

- a) demonstrate that the development of site alteration applied for will have no adverse effects on the key natural heritage feature or on the related ecological functions;
- b) identify planning, design and construction practices that will maintain, and, where possible, improve or restore the health, diversity and size of the KNHF and its connectivity with other KNHFs and key hydrologic features;
- c) in the case of an application relating to land in a Natural Core Area, Natural Linkage Area or Countryside Area, demonstrate how connectivity within and between KNHFs and key hydrologic features will be maintained, and where possible, improved or restored before, during and after construction...
- f) in the case of a key natural heritage feature that is fish habitat, ensure compliance with the requirements of the Department of Fisheries and Oceans (Canada).

Section 30 states the following with regard to landform conservation areas:

- 5) An application for development or site alteration with respect to land in a landform conservation area (Category 2) shall identify planning, design and construction practices that will keep disturbance to landform character to a minimum, including,
 - a) maintaining significant landform features such as steep slopes, kames, kettles, ravines and ridges in their natural undisturbed form;
 - b) limiting the portion of the net developable area of the site that is disturbed to not more than 25 per cent of the total area of the site; and



- c) limiting the portion of the net developable area of the site that has impervious surfaces to not more than 15 per cent of the total area of the site.

1.3.3 Local and Other Regulatory Bodies

Durham Region Official Plan (2017)

Schedule A-Map A2 identifies the subject property within the Oak Ridges Moraine Area. As such sub-section 10B (Oak Ridges Moraine) of the Durham Regional Official Plan applies to the subject property.

Township of Uxbridge Official Plan (2014)

Schedule A, Land Use and Transportation Plan of the Township's Official Plan (Office Consolidation January 2014) identifies the property as being within the Oak Ridges Moraine Conservation Plan Area. More specifically it shows the eastern portion of the subject property as residential area while the western portion is classified as Natural Hazard Area.

Schedule B, Natural Heritage System and Supportive Uses Uxbridge Urban Area of the Township's Official Plan identifies the entire subject property lies within the Oak Ridges Moraine. The western portion of the subject property is designated 'wetlands' with a required minimum vegetation protection zone (VPZ). Significant woodlands are also identified in this area of the property.



Lake Simcoe Region Conservation Authority

Under the Conservation Authorities Act, Ontario Regulations 179/06 *Development, Interference with Wetlands and Alterations to Shorelines and Watercourses* is applicable. A permit is required from LSRCA for regulated areas to complete any works that are within 120 m of a Provincially Significant Wetland or within 30 m of a watercourse or waterbody.

In the pre-consultation minutes, LSRCA stated that: A **Natural Heritage Evaluation** that identifies all key natural heritage features and key hydrologic features as defined in the Oak Ridges Moraine Conservation Plan (ORMCP) within, and adjacent to these lands and demonstrates conformity with all relevant policies identified above. In addition, Ecological Offsetting Strategy and Vegetation Protection, Enhancement and Restoration plans should be included.

1.4 Other Resources Referenced

Prior to field surveys, background information for the study area and surrounding lands from a variety of sources were reviewed to provide context for the setting and sensitivity of the site. Background information sources include:

1.4.1 Data Sources

- Aerial imagery
- MNRF Land Information Ontario (LIO) database mapping and Natural Heritage Information Centre (NHIC) Make-a-map tool (2020)
- Ontario Breeding Bird Atlas data (Bird Studies Canada (BSC) 2001-2005 field data)
- Ontario Ministry of Natural Resources Aquatic Resource Area, Fish Species List (OMNR, 2012);
- Department of Fisheries and Oceans (DFO) Aquatic Species at Risk Mapping (DFO, 2019)

1.4.2 Literature and Resources

- Natural Heritage Reference Manual (MNRF, 2010)
- Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E. Peterborough, 38pp. (OMNRF, 2015)

1.5 Description of Development

The proposed development will include 23 townhouse units constructed in the area between Cemetery Road and the existing house. The homes will be accessed from a freehold road originating from Cemetery Road and ending in a cul-de-sac. Homes will be connected to municipal services.



1.6 Scope of Report

The main scope of this NHE report are: to confirm the boundaries of key natural heritage features on the property; to confirm and identify the ecological function of any features present; to determine whether any Species at Risk and/or their habitats occur on the subject property; and, to recommend appropriate buffers and mitigation measures to prevent impacts of the development on these key natural heritage features and their functions.

As the development proposed will entail grading, and construction of new buildings, measures to limit disturbance during construction and to protect the adjacent natural features have been included as the site does have some topography.



2. Study Methods

2.1 General Approach

Our approach to preparation of the NHE consisted of three distinct phases. In the first phase, GHD collected and reviewed available information about the study area. Information sources included air photography, Township of Uxbridge Official Plan, key natural heritage features GIS mapping, MNRF GIS database mapping, Oak Ridges Moraine Conservation Act, and other correspondence or files.

The second phase consisted of site visits by GHD biologists to collect new site-specific data, verify the information that was collected during the literature review and delineate the boundaries of natural features in the study area. Surveys included:

- Botanical inventory and vegetation community mapping (according to the Ecological Land Classification System for Southern Ontario), Rare and significant plants;
- General surveys for wildlife (including amphibians, reptiles and mammals);
- Habitat assessments for wildlife including wildlife linkages;
- Assessments of the ecological function of natural features on site;
- Surveys for presence of significant species or their habitat (including Species at Risk).
- Confirm drainage feature and aquatic habitat assessments.

The third phase was the preparation of the NHE that includes specific mitigation measures for protecting any sensitive species and other natural features on or adjacent to the study site and recommendations regarding the water course and woodland, including buffers and setbacks. This report includes a figure that shows the location of all of the natural features in the study area as well as any recommended setbacks/buffers.

The final phase will be a review of our NHE report by the Township, Region and the Lake Simcoe Region Conservation Authority (LSRCA).

2.2 Site Study Methodology

2.2.1 Physical Site Characteristics

Site characteristics were assessed during visits to the study area. Documented characteristics included existing disturbances, current use of the site, age of vegetation cover, trails, general topography and soils.

2.2.2 Biophysical Inventory

2.2.2.1 Vegetation

ELC Survey Method

All vegetation in the study area was inventoried during the site visit. Delineation and classification of the vegetation community types was based on the Ecological land Classification for Southern Ontario (Lee et al., 1998). Rare, significant or unusual species were searched for. Species



significance or status on a national, provincial, regional and local level was based on published literature and standard status lists. These included SARA (2020), COSEWIC (2019), COSSARO (2018) and Varga et.al (2000).

2.2.2.2 Birds and other Wildlife

While GHD biologists were on site conducting surveys of vegetation communities, incidental observations of any wildlife (including birds, mammals, amphibians and reptiles) on the site were recorded. Documentation included notes about the species detected, their location and the type of encounter (i.e., direct sightings and indirect evidence such as calls, tracks, scat, burrows, dens, trails and browse). Logs and debris were lifted to check for salamanders, snakes, and frogs. The search area for these surveys included all of the vegetation communities within the study area.

2.2.2.3 Significant Wildlife Habitat (SWH)

SWH Site Assessment

The identification of Significant Wildlife Habitat is completed in several stages. As part of the background review, aerial photography was used to examine natural areas on and adjacent to the subject property. A candidate list of SWH features was then developed based on the Significant Wildlife Criteria Schedules for Ecoregion 6E (Ontario Ministry of Natural Resources and Forestry, January 2015) and the natural areas that appeared to be present.

During the field visit, searches were made for evidence of the candidate features (i.e., presence/absence) and, where present, the features were assessed (e.g., notes are made of their geographic location, size and function). For this particular property, GHD biologists looked for rock piles, and other evidence of reptile hibernacula, habitat for species at risk, bat roosting trees, and seeps and springs. After the field inventories had been completed, GHD biologists analyzed the information collected and determined which SWH features could be confirmed based on the habitats on site and any additional surveys.

2.2.2.4 Key Natural Heritage Feature Locations and Boundaries

Wetlands

Biologists first reviewed recent aerial photographs and available wetland mapping, including MNRF GIS database layers in search of potential wetlands on or near the property. Subsequently, they walked the entire property, checking plant species, soil type, and soil moisture to ground truth digital research. The boundary of any wetlands found were then delineated in the field using a handheld GPS unit by staff certified to conduct wetland evaluations under the Ontario Wetland Evaluation System for Southern Ontario, Third Edition, version 3.3 (OMNR, 2014).

Significant Woodland

The boundary of the woodland was confirmed using the definitions and protocols in the ORMCP. The outer limit of the woodlands as defined on the key natural heritage features mapping was verified.



2.2.2.5 Fish and Aquatic Habitat

Aquatic Habitat

Aquatic habitat assessments were conducted using standardized provincial aquatic protocols (OSAP, MTO). Aquatic habitat was quantified and characterized based on local substrate composition, vegetation, flow influence and condition, sediment transport, cover, channel morphology, groundwater indicators, riparian habitat, barrier presence and form, land use and landscape influences, human modifications and unique features.

Surface water quality was collected by GHD biologists during assessments. Measured parameters included dissolved oxygen (mg/L), conductivity (us/cm), total dissolved solids (mg/L) and water temperature (°C) using a handled YSI Pro2030 System. The pH was recorded with a handheld waterproof pH meter and turbidity was recorded with a handheld LaMotte2020.

The Canadian Water Quality Guidelines for the Protection of Aquatic Life (Canadian Council of Ministers of the Environment, 2002) and the Provincial Water Quality Objectives (PWQO) were used to interpret water quality data (Energy, 1994).

Fish Community

Due to the presence of existing fish community data GHD did not conduct fish community sampling. A fish species list was obtained from the Ontario Ministry of Natural Resources and Forestry (OMNR, 2012).



3. Survey Results

3.1 Physical Site Characteristics

3.1.1 General Site Characteristics

The subject property was highest in the middle with a steeper slope down to the pond, creek and wetland to the west, but gently sloping topography from the existing house towards the east (Cemetery Road), and to the south (Newly constructed condominiums). Cedar and mixed forest covered the western half of the property while a large area around the existing dwelling contained manicured lawns, stone paths, formal gardens, a swimming pool and a tennis court. A tributary of Uxbridge Brook flowed south to north through the western area of the property. A small manmade pond was fed by a portion of this tributary in this location as well. Surrounding land uses include greenspace (woodlands, wetland, old fields) agriculture, transportation, business district, and residential housing.

3.2 Biological Inventories

3.2.1 Vegetation

3.2.1.1 Level of Effort

The vegetation communities were delineated within the study area by GHD biologists according to methodologies outlined in Section 2.2.2.1. A summary of the level of effort and environmental conditions have been provided in Table 3.1.

Table 3.1 Vegetation Surveys – Level of Effort

Survey Date	Survey Type	Weather	Start Time	Effort (person hrs.)
September 16, 2020	Ecological Land Classification	20°C, Cloud cover 50%, Beaufort Wind Scale 1, no precipitation	9:00am	4.5 hours

3.2.1.2 ELC Code Descriptions

A total of nine (9) vegetation communities were identified within the study area. Each community is described below and illustrated on Figure 1.

A total of 98 plant species were identified during field surveys. The dominant species in each community are described below and a complete plant list is found in Appendix I.



Community 1 Tree Line (ELC Code: Not applicable)

Community 1 was identified as the tree line running along the southern boundary of the property. A mix of coniferous and deciduous trees were found here and included white spruce (*Picea glauca*), Scot's pine (*Pinus sylvestris*), Norway maple (*Acer platanoides*), and Freeman's maple (*Acer freemanii*). Ground cover here was mainly weedy-type species among them was broad-leaved plantain (*Plantago major*), swallow-wort (*Cynanchum rossicum*), and common dandelion (*Taraxacum officinale*).



Photo 1: Community 1 Tree line in background (Photo date: September 2, 2020)

Community 2 Fresh-Moist Poplar-Mixed forest Type (FOD5-8-1)

Located adjacent to the community 1 this community was a mixed forest type.), trembling aspen (*Populus tremuloides*), Eastern white pine (*Pinus strobus*), Sugar maple (*Acer saccharum*), and white ash (*Fraxinus Americana*) were several of the many trees species growing here. Forbs were numerous on the forest floor and included white and red baneberry (*Actaea pachypoda*), (*Actaea rubra*), as well as Deptford pink (*Dianthus armeria*), Canada enchanter's nightshade (*Circaea lutetiana* L. ssp. *canadensis*.), and motherwort (*Leonurus cardiac*).



Photo 2: Community 2 (Photo date: September 16, 2020)

Community 3 *Fresh-Moist White Birch Mixed Forest Type (ELC Code: FOM8-2)*

Community 3 was located just south of the existing dwelling on the site. Removed from the main woodlot by a cleared laneway this “island” was maintained for use as storage by the homeowner. Tree species diversity was high here with Eastern white cedar (*Thuja occidentalis*), Eastern white pine (*Pinus strobus*)

Scot's pine (*Pinus sylvestris*), Eastern hemlock (*Tsuga Canadensis*), red oak (*Quercus rubra*), and white birch (*Betula papyrifera*) represented. Swallow-wort (*Cynanchum rossicum*) and lily-of-the-valley (*Convallaria majalis*) were the main ground cover species here.



Photo 3: Community 3 (Photo date: September 16, 2020)

Community 4 Fresh-Moist White Cedar Coniferous Forest Type (ELC Code: FOC4-1)

Dominated by Eastern white cedar this forest community was very shaded resulting in few ground cover species. Shade tolerant species that were found here included ferns such as bulbet bladder fern (*Cystopteris bulbifera*) and ostrich fern (*Matteuccia struthiopteris*). Alternate-leaf dogwood (*Cornus alternifolia*) was found in small clearings alongside wild red raspberry (*Rubus idaeus*).



Photo 4: Community 4 (Photo date: September 16, 2020)

Community 5 Pond Edge (ELC Code: None Applicable)

The thin band of vegetation along the eastern edge of the pond was delineated as community 5. Comprised primarily of hydrophilic species this edge community contained broad-leaved cattail (*Typha latifolia*), sensitive fern (*Onoclea sensibilis*) whorled and purple loosestrife (*Lysimachia quadrifolia*), (*Lythrum salicaria*), and blue vervain (*Verbena hastata*).



Photo 5: Community 5 (Photo date: September 16, 2020)



Community 6 White Cedar Mineral Coniferous Swamp Type (ELC Code: SWT1-2)

Part of the larger Provincially Significant Wetland - Uxbridge Brook Headwater Complex, this community was dominated by Eastern White Cedar with a few balsam fir (*Abies balsamea*) trees scattered throughout. Three species of fern; ostrich fern (*Matteuccia struthiopteris*) sensitive fern (*Onoclea sensibilis*), and bulbet bladder fern (*Cystopteris bulbifera*) were identified here. Other shade tolerant herbaceous species observed here included wood nettle (*Laportea canadensis*), moneywort (*Lysimachia nummularia*), and black nightshade (*Solanum nigrum*).



Photo 6: Community 6 (Photo date: September 16, 2020)

Community 7 Dry-Fresh White Cedar Coniferous Forest Type (ELC Code: FOC2-2)

Located along a portion of the northern section of the property community 7 was also dominated by Eastern White Cedar. Other coniferous species such as white spruce, Scot's pine, and Eastern white pine were also found here. A few species of deciduous trees grew among the conifers including red oak (*Quercus rubra*), and black cherry (*Prunus serotina*). The dense tree canopy here provided little light on the forest floor resulting in sparse ground cover here.



Photo 7: Community 7 (Photo date: September 16, 2020)

Community 8 Hedgerow (ELC Code: N/A)

Serving as the eastern boundary of the property community 8 was a hedgerow of trembling aspen and Scot's pine. Freeman's maple, and green ash (*Fraxinus pennsylvanica*) were also encountered in this border stand. European buckthorn (*Rhamnus cathartica*) was prevalent in the understory here. Ground cover species included white baneberry, celandine (*Chelidonium majus*), and herb Robert (*Geranium robertianum*).

NO PHOTO AVAILABLE

Community 9 Lawn and Gardens (ELC Code: None Applicable)

Comprising a significant area of the property, the lawns and gardens here made up community 9. Manicured and maintained this community hosted many cultivated garden shrubs and plants as well as the weedy species that favor this type of habitat. Kentucky blue grass (*Poa pratensis*) was the dominate lawn grass and was accompanied by large crab grass (*Digitaria sanguinalis*) and acuminate panic grass (*Panicum acuminatum*). Common weed species here included ox-eye daisy (*Chrysanthemum leucanthemum*), narrow-leaved plantain (*Plantago lanceolate*), and leafy spurge (*Euphorbia esula*).



Photo 8: Community 9 (Photo date: September 16, 2020)

3.2.2 Birds and Other Wildlife

3.2.2.1 Level of Effort

Breeding birds were identified within the study by GHD biologists according to the methodologies outlined in Section 2.2.2.3. A summary of the level of effort and environmental conditions have been provided in Table 3.2.

Table 3.2 Bird/Wildlife Observations – Level of Effort

Survey Date	Survey Type	Weather	Start Time	Effort (person hrs.)
September 16, 2020	Incidental Observations	20°C, Cloud cover 50%, Beaufort Wind Scale 1, no precipitation	9:00 am	4.5 hours

3.2.2.2 Birds and Other Wildlife

Seventeen species of bird were detected on or near the property during the site visit on September 16, 2020. Species such as the bay-breasted warbler (*Setophaga castanea*), yellow rumped warbler (*Setophaga coronate*), and common yellowthroat (*Geothlypis trichas*) were some of the species migrating through the area on the date of our site visit. While black capped chickadee (*Poecile atricapillus*), northern cardinal (*Cardinalis cardinalis*), and blue jay (*Cyanocitta cristata*) were several of the resident species observed on the property. A complete list of the birds observed during the site visit is found in Appendix II.

GHD biologists also kept records of any mammal and/or herpetofauna species (or signs thereof) encountered during their visit to the study area. Two species of mammal were recorded while performing the field visit, eastern grey squirrel (*Sciurus carolinensis*), and star-nosed mole (*Condylura cristata*). Northern leopard frog (*Lithobates pipens*) was the only herptile species observed on the site.



3.2.2.3 Wetlands

Portions of the Uxbridge Brook Headwater Wetland Complex are found on the property. This Provincially significant wetland (PSW) is associated with several low order streams that comprise the upper Uxbridge Brook catchment area. One such tributary flows south to north through the western portion of the property. A manmade but naturalized pond in this area also receives water from this stream. Community 6 (SWC1-2) on the property was also delineated and inventoried (Figure 1).

3.2.2.4 Woodland

Woodland cover is present in the western portions of the property and extend south and north off the property. The woodland is part of the Natural Heritage System and the core area. The contiguous woodland includes coniferous and mixed forest and further afield, pine plantations and deciduous forest cover. The dripline was staked by LSRCA prior to GHD being retained and was tied in by H.F. Grander surveying.

3.2.2.5 Significant Wildlife Habitat

During our review of candidate significant wildlife habitat, the following were identified as potentially present on site, seeps and springs, bat cavity trees, and habitat for special concern and rare wildlife species. None of these features were found to be present on the property during the site survey.

3.2.3 Fish and Aquatic Habitat

3.2.3.1 Level of Effort

The aquatic habitat was assessed on October 22nd, 2020 on an unnamed tributary Uxbridge Brook and an online pond which runs through the subject property. Surveys were conducted following the methodologies outlined in Section 2.2.2.6. The level of effort and environmental conditions have been provided in Table 3.3.

Table 3.3 Fish and Aquatic Habitat Surveys – Level of Effort

Survey Date	Survey Type	Weather	Start Time	Effort (person hrs.)
October 22 nd 2020	Aquatic Habitat Assessment and Surface Water Quality	100% cloud cover, BWS 0-1, light precipitation, air temperature 10.9 °C and water temperature 8.1 °C.	09:00am	2.25 (x 2 staff)

*Note: BWS Beaufort wind scale (Government of Canada, 2017).

3.2.3.2 Aquatic Habitat Assessments

The study area was classified into two habitat zones. Habitat zones are determined and differentiated based on presence of barriers, substrate composition, channel morphology, riparian habitat, percent in-stream cover, hydrological connection and unique features. The first habitat zone was an unnamed tributary of Uxbridge Brook that was located on the subject property running west of the pond. The unnamed tributary will from here on will be referred to as “watercourse”. The



second habitat zone was located in the pond which was east of the watercourse. The habitat zone location has been illustrated in Figure 1.1 and attributes have been provided in Table 3.4.

3.2.3.3 Habitat Zone Descriptions

Habitat Zone 1 was a 148 m section of the watercourse which originated from the south and flows north through the middle of the subject property (Figure 1.1). The in-water substrate was dominated by sand with an average water depth of 0.3 m and average wetted width of 1.25 m. The in-stream cover was considered low and was comprised of large and small woody debris. The watercourse morphology was dominated by run habitat. The canopy cover was considered high covering 50-74% of the water's surface. The overhead cover was comprised of trees, shrubs, woody debris and a bridge/crossing (Table 3.4). Refer to Section 3.2.1 Vegetation Communities for full riparian details.

This habitat zone also contained an old concrete dam (Photo 10) at the southern portion of the habitat zone. The dam was perched approximately 0.5 m acting as a barrier to fish movement. During the time of assessments a juvenile Brook Trout (*Salvelinus fontinalis*) was observed in the plunge pool directly below the old dam

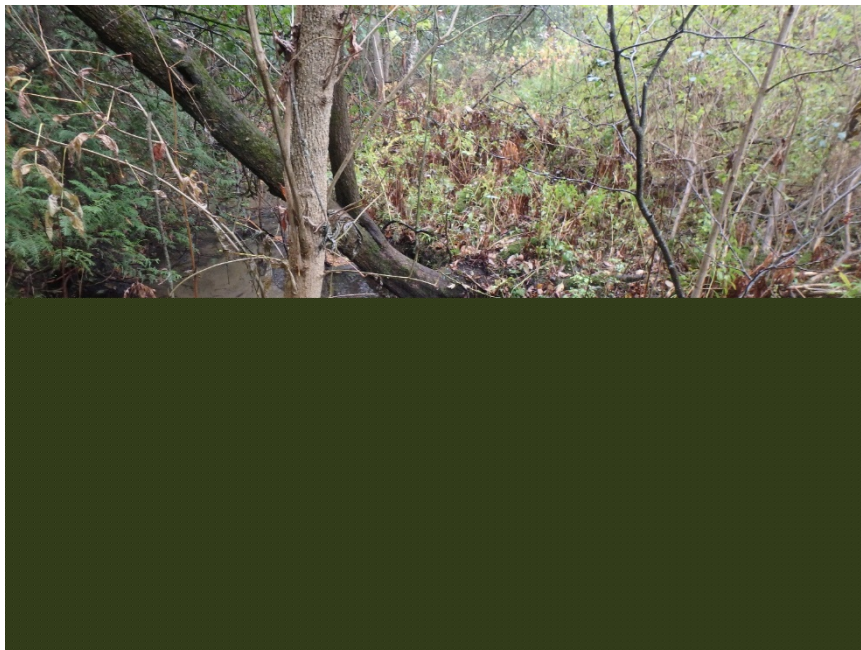


Photo 9: Habitat Zone 1, photo showing watercourse and riparian habitat, photo facing downstream (south). (Photo Date: Oct 22nd, 2020).



Photo 10: Photo showing the old dam located in Habitat Zone 1 near the inlet to the pond showing the dam and plunge pool.

(Photo Date: Oct 22nd, 2020).

Habitat Zone 2 was located within an online pond that had a total area of approximately 3,000 m² just east of Habitat Zone 1 (Figure 1.1). It appeared the inlet to the pond was piped at the old dam located within Habitat Zone 1, the outlet was a corrugated steel culvert (CSP) that was perched approximately 0.3 m acting as a barrier to fish movement.

The in-water substrate was dominated by fine organics with a water depth ranging from 0.2 m to ± 1 m and an average wetted width of 26 m. The in-stream cover was considered high and consisted of submergent aquatic vegetation, large and small woody debris. It should be noted that as assessments were conducted in the fall additional cover from leaf debris was also present. The canopy cover was low, covering 0-24% of the waters' surface. The overhead cover was comprised of trees, shrubs, docks and bridge/crossing along the shoreline (Table 3.1). Refer to Section 3.2.1 Vegetation Communities for full riparian details. During the site assessments an adult Brook Trout was observed directly downstream of the inlet to the pond (Photo 13).



**Photo 11: Habitat Zone 2, photo showing the pond and riparian habitat.
(Photo Date: Oct 22nd, 2020).**



**Photo 12: Photo showing the perched CSP and plunge pool at the pond outlet
(Photo Date: Oct 22nd, 2020).**



Photo 13: Photo showing the adult Brook Trout (*Salvelinus fontinalis*) (outlined in red) observed on the downstream side of the inlet pipe to Habitat Zone 2. (Photo Date: Oct 22nd, 2020).



Table 3.4 Aquatic Habitat Observations

Habitat Zone	Substrate Composition	In-Stream Cover	Canopy Cover (%)	Watercourse Morphology	Overhead Cover	Average Water Depth (m)	Average Wetted Width (m)	Zone Length/Area (m or m2)
01	80% sand 10% gravel 10% fine organics	15% large woody debris 10% small woody debris	50-74	85% run 10% pool 1% riffle 3% flats 1% inside culvert	30% trees 20% shrubs 15% woody debris 1% bridges/crossings	0.3	1.25	148
02	50% fine organics 35% silt 10% gravel 5% sand	60% submergent vegetation 5% large woody debris 5% small woody debris	0-24	5% culvert 95% flats	5% trees 5% shrubs 1% docks 1% bridges/crossings	0.2 to ±1	26	3,000



Surface water quality was collected in Habitat Zone 1 downstream of the pond channel and watercourse confluence (Figure 1.1) approximate 0.3 m below the surface of the water. A summary of results and information on the parameter specifics has been provided in Table 3.5.

Table 3.5 Surface Water Quality Results

Water Quality Parameters	Sample Number	Accepted Parameter Range
	01	
Date (dd/mm/yy)	20/10/22	N/A
Time (hh:mm)	09:43	N/A
Weather Conditions	Cool, light precipitation and BWS 0-1.	N/A
Sample Depth (m)	0.2	N/A
Air Temperature (°C)	10.6	N/A
Water Temperature	8.1	N/A
Dissolved Oxygen (mg/L)	11.09	6-7(Coldwater)**
Total Dissolved Solids (mg/L)	429	N/A
Conductivity (SPC us/cm)	659.2	N/A
Salinity (ppt)	0.32	N/A
pH	8.23	6.5-8.5**
Turbidity (NTU)	0.15	Normal**

Note: BWS=Beaufort wind scale (Government of Canada, 2017), N/A= not applicable and/or specific guidelines not available. ** Provincial Water Quality Objectives (PWQO) (Energy, 1994).

3.2.3.4 Fish Community

As discussed in Section 2.2.2.6 fish community sampling was not conducted by GHD staff, existing fish Community for the study area was obtained from MNR (OMNR, 2012).



4. Discussion and Analysis

4.1 Species and Communities

4.1.1 Vegetation

GHD biologists did not find any plant species that are considered to be federally or provincially rare in the study area (SARA 2020; COSEWIC 2019; COSSARO 2018). No regionally rare species (Varga 2000) were detected on site). None of the ecological communities (i.e., ELC ecosites or vegetation communities) found in the study are considered provincially rare (NHIC, 2020).

Records obtained from the Ontario Natural Heritage Information Centre (2020), 1km² square that overlaps the property (i.e., 17PJ4983) showed no species at risk identified in the immediate area.

4.1.2 Birds and Other Wildlife

None of the bird species detected during GHD's breeding bird survey are considered significant at the national and/or provincial level (SARA 2020; COSEWIC 2019; COSSARO 2018). One species, the red-breasted nuthatch (*Sitta canadensis*), observed on the property is considered to be area sensitive. Area-sensitive species are those that require a minimum area of suitable habitat to successfully breed.

Records obtained from the Ontario Natural Heritage Information Centre (2020), indicate that no species at risk occurred within the 1km x 1 km square overlapping the property (17PJ4983).

Records obtained from the 10km² Ontario Breeding Bird Atlas square that overlaps the study area (17PJ48) indicates that (8) significant species (i.e., at the national or provincial level) were detected in the vicinity of the subject property either between 1981-1985 (1st Atlas) or 2001-2005 (2nd Atlas). These species were the whip-poor-will (*Antrostomus vociferous*), eastern wood-pewee (*Contopus virens*), bank swallow (*Riparia riparia*), barn swallow (*Hirundo rustica*), wood thrush (*Hylocichla mustelina*) grasshopper sparrow (*Ammodramus savannarum*), bobolink (*Dolichonyx oryzivorus*) and eastern meadowlark (*Sturnella magna*).

A review of the species habitat preferences and the vegetation community types (woodland and open disturbed area) identified on the site found that none of these species would find suitable habitat on the site. The exception being possible habitat for eastern wood-pewee and wood thrush in the woodlands below the top of bank on the west side of the property.

The eastern wood-pewee (*Contopus virens*) is listed federally and provincially as a Special Concern species (COSEWIC 2018; COSSARO 2018). This species lives in the mid-canopy layer of forest clearings as well as at the edges of deciduous and mixed forests. There is some habitat that could potentially be suitable for this species on the property. This habitat is outside of the development envelope and will not be disturbed by the project.

No other at-risk fauna species were observed on the property.



4.1.3 Key Natural Heritage Feature Locations and Boundaries

4.1.3.1 Woodlands

Staff from Lake Simcoe Region Conservation Authority on an earlier visit to the property had staked the dripline of the woodlands on the site. GHD Biologists confirmed these boundaries of the woodland on the subject property. These boundaries represent the edges of Communities 2,4 and 7 are illustrated on Figure 1.1. These communities are part of the contiguous woodland and are considered significant. Community 8 was also delineated by LSRCA, however GHD does not consider this narrow strip of wooded area to be a part of the contiguous woodland and therefore not significant. Community 8 serves a hedgerow and is highly impacted by existing development in the area.

4.1.3.2 Wetlands

Uxbridge Brook Headwater Complex (PSW)

A portion of this wetland complex is found on the subject property. The Uxbridge Brook Headwater Complex serves important ecological services for flood attenuation and water quality downstream. In addition, the area provides important nesting and feeding habitat for wildlife species, including turtles. The boundary of this feature is illustrated in Figure 1.

4.1.3.3 Fish and Aquatic Habitat

Aquatic Habitat

The watercourse to Uxbridge Brook (Habitat Zone 1) and the pond (Habitat Zone 2) provide direct and indirect fish habitat within the subject study area to the fish community. Specifically, the habitat provides sources of hydrological and groundwater connections, cover and feeding habitat, nutrients, spawning and rearing habitat as well as food supply to fish. These attributes are important for the sustainability of the coldwater fish community of Uxbridge Brook.

Fish habitat in Ontario is managed federally by the Minister of Fisheries and Oceans Canada and therefore, the Fisheries Act applies to the subject lands. No critical habitat for Aquatic Species at Risk (DFO, 2019) or sensitive spawning habitat was identified within the study area (OMNR, 2012).

The surface water quality parameters collected within the subject lands were within the above acceptable range listed above. The data obtained can be used as baseline and compared to construction and post construction monitoring results to ensure all parameters are maintained within an acceptable range. As a result of this consideration, the water quality sampling was taken just downstream of the pond and where it outlets into Uxbridge Brook.

As discussed in Section 3.2.3.2 the substrate in Uxbridge Brook and the pond were dominated by a mixture of sand, fine organics, gravel and silt and during the time of assessments the water colour was clear.

Fish Community

The fish community has been provided in Appendix III to provide context for fish habitat value and was obtained from the OMNRF (OMNR, 2012). Generally, Uxbridge Brook supports sport and bait



fish species that prefer warm to and coldwater thermal regimes. Cumulatively, 27 fish species have been documented in the creek and are composed of the following families; *Catostomidae*, *Centrarchidae*, *Cottidae*, *Cyprinidae*, *Gasterosteidae*, *Ictaluridae*, *Percidae*, *Salmonidae* and *Umbridae*. The fish community found in Uxbridge Brook are common and widely distributed throughout southern Ontario (Appendix III).



5. Impact Assessment and Recommendations

The following section provides a description of the predicted impacts that may result from the proposed development. It also identifies mitigation measures to be implemented to avoid and/or minimize adverse effects to the natural environment features within or near the project.

5.1 ORMCP Requirements

5.1.1 Impact Assessment

The Township of Uxbridge OP and ORMCP outline the components of a Natural Heritage Evaluation. These requirements are assessed in the following paragraphs.

a) *no adverse effects on the key natural heritage features or related ecological functions.*

The proposed project was analyzed in terms of their location relative to the key natural heritage features and an analysis of ecological function of each feature conducted. As well the proposed construction including timing, disturbed area and the design were considered in our determination of potential impacts and mitigation measures.

5.1.2 Significant Wetland (PSW)

The proposed new construction envelope will be entirely outside of the 30 m buffer/VPZ from the wetland (Figure 1.1). The wetland is located outside of the development envelope. With silt fencing and other sediment and erosion control measures, no impacts on wetland features or functions will occur.

5.1.3 Significant Woodland

The area around the property, particularly to the west, and northwest and is largely forested (woodland and wetland).

The boundary of the woodland is defined by the edge of the disturbed areas containing the dwelling and maintained lawn areas. The entire dripline was staked by LSRCA in the fall of 2020. This included the dripline of the trees between this lot and the one to the north, as well as trees between Cemetery Road and the maintained lawn. GHD does not consider the staked dripline area directly to the north (Community 8) to be part of the contiguous significant woodland, owing to its narrow (less than 20 meters wide) hedgerow functions.

The forest extends onto adjacent lots in all three directions and is associated with the rolling hills of this part of the Oak Ridges Moraine. Woodlands in the ORM are considered significant woodlands and the policies applicable include a minimum vegetation protection zone (VPZ).

While the woodland is a feature, the development in the existing cleared/disturbed area of the eastern portion of the property would not have a significant impact on the woodland. The function of the woodland does include a diversity of species, wildlife habitat and wildlife corridor functions. These functions will not be impacted by the construction, provided mitigative measures are in place.



The minimum vegetation protection zone requirements are described in section d). There are also a number of recommendations provided in Section 9.0 to minimize disturbance and other impacts.

The disturbed portion of the site defines the woodland edge. The proposed construction of new condominiums would be restricted to the existing disturbed area for the most part. This may include the cutting of some trees growing close to the property lines to limit hazards to the new units and vehicles.

The property is located in a Category 2 landform feature. The ORMCP recommends that grading be limited in those areas to maintain the natural topography. The proposed development of the site includes the construction of 23 new town homes and associated municipal services. The construction will entail grading the portion of the property that is currently being used as lawn and gardens located east of the retained house. Any sandy soils removed should be replaced with use of engineered fill to support these new condominiums.

The remainder of the property will be left unchanged. The construction envelope is outside of all buffers. A preliminary site plan is shown on Figure 1. The balance of the lands, woodland, wetland, buffers, and retained house will be left as is for future re-sale.

5.1.4 Fish and Aquatic Habitat

The tributary to Uxbridge Brook provides direct and indirect fish habitat to the fish community. The natural feature form and function will be protected by a 30 m naturally vegetative buffer from the high-water mark for any new developments from the pond and tributary of the Uxbridge Brook.

A detailed sediment and erosion control plan must be prepared for all construction activities to ensure disturbed soils are not transported off-site into the negatively impacting aquatic life, fish and fish habitat.

To protect the pond and Uxbridge Brook and to ensure the project complies with the PPS and Fisheries Act, recommendations have been provided in Section 7.0 for incorporation into the final site plan.

No significant impacts to fish or fish habitat are anticipated from the proposed development provided the 30 m setback from all fish habitat is respected and the mitigation measures and recommendations are implemented as outlined in this report. Any future redevelopment of the site needs to respect a minimum 30 m setback from the normal high-water mark of the watercourse.

b) identify planning, design and construction practices that will maintain or improve feature and its connectivity

The construction envelope would be limited to the current disturbed areas east of the retained dwelling. Removal or limbing of some trees may be required to allow easier access for construction equipment to the building site and to allow for proper grading. Removal of these trees in the areas shown will not have a significant impact on the overall woodland or wildlife habitat. It is recommended that where possible, limbing of branches of trees to improve access to the site be preferred over total removal of the trees.

Grading of the site will be required to begin this project. Prior to construction it is important to isolate the construction envelope and install silt fencing around the site. This will minimize the chances of



direct impacts to the trees or their root zones during the construction period and limit movement of sandy soils downslope into the woodland, wetland and neighbouring property. Grading will also have an impact on trees along the north, south and east sides of the property. Retention of those trees and maintaining their health would be difficult, as a result. We are recommending ecological offsetting for any treed areas that require removal.

Upon completion of the construction phase, there are opportunities to enhance the vegetation on the property. Plantings of native shrubs and perennials and removal of invasive species such as periwinkle, garlic mustard and dog-strangling vine will improve the overall diversity of the woodlands.

c) *how the connectivity within and between key natural heritage features will be maintained or improved.*

The property is located in an area adjacent to residential and business areas to the east and south east. In addition, several well-travelled roads such as Highway 47 a major arterial road, are located to the east/south east also. The western portion of the property is currently a mix of habitats that provides habitat for a diversity of wildlife and is open to wildlife movement north to south and east to west. The construction of the town homes and occupation of the eastern portion property will not impact on the connectivity between the key natural heritage features including the wetland to the west or the woodlands adjacent to the property.

d) *minimum vegetation protection zones*

The key natural heritage features within 120 metres of the property (zone of influence) include an ESA, PSW and significant woodland. The minimum vegetation protection zone for those key natural heritage features is 30 metres.

The Township OP, section 6.2 (f) states that *development will not be approved* where an NHE identifies unacceptable negative impacts on the natural heritage system and that a protection zone is a minimum of 30 metres and is *established to achieve and be maintained as natural self-sustaining vegetation*.

The wooded area immediately adjacent to the existing house (north and west) is a mixed woodland with deciduous trees, including several large specimens.

The majority of the new development would be within the existing disturbed area with the surrounding area being protected by implemented buffer zones. The vegetation within the construction zone is primarily consistent with non-native and ornamental garden species and former lawn with a few mature ornamental specimen trees.

Although the contiguous treed area meets the definition of significant woodland as per the ORMCP Technical Paper No. 7, identification and protection of significant woodlands, a buffer is not being recommended from all of the treed fencerows and other woodland pockets. The contiguous woodland to the west of the development envelope and retained house will be left in its natural state with the development envelope entirely outside of this the woodland feature. The treed property line on the northern property line and the treed area on the eastern edge of the property is recommended for removal. The fencerow on the south side is also recommended for removal.

The development of the property will not result in an *unacceptable negative impact* on the natural heritage system. Opportunities to enhance the woodland on site can be achieved by managing the



spread of invasive species including garden escapees, removal of European buckthorn, swallow-wort and other invasive species from the woodland understory. Re-establishment of vegetation will/can occur in retained disturbed areas located on the property outside of the construction envelope. Stabilization of all disturbed areas surrounding the house, the fill slope and around the access road also allow natural regeneration and plantings to establish.

e) *Aquifer Vulnerability Calculation and Landform Conservation*

The ORMCP and the Township policies require that any development within a Category 1 or 2 Aquifer vulnerability area and Landform Conservation area as identified in these documents must include calculations to show that the proposed development will not exceed certain thresholds. The proposed development envelope encompasses an area of 4.3768 hectares. The net developable area is the area left outside of key natural heritage features and key hydrologic features and the applicable VPZ areas. The net development area for this site would encompass most of the open lawn area.

With the grading proposed most of that area will be disturbed or regraded. There is little natural self-sustaining vegetation in that area.

The impervious surface area will be the roadway, driveways, house footprints. The retained house and the land associated with it is approximately 3.55 hectares in size. This includes the valley, creek, pond, woodland and wetland. The buildings will occupy 0.6128 ha, Block 7 will be 0.03 ha and the Street A will occupy 0.18 ha. This equals approximately 0.823 ha or 18.8 % of the entire property.



6. Policies and Legislative Compliance

The following section describes how the proposed development will be in conformance with the relevant federal, provincial and other regulatory legislation, policies, official plans and OP amendments that are applicable and relevant to the study area and the immediate vicinity.

6.1.1 Federal Legislation

Migratory Birds Convention Act

The core breeding period in Ontario for migratory birds under the MBCA for Bird Conservation Region 13 (i.e., the one the subject property lies within) extends from April 15th to August 15th (Environment and Climate Change Canada, 2014). As such clearing of the trees and other vegetation for the development cannot occur during this timing window.

Fisheries Act

The project will comply with the Fisheries Act protective provisions of the Fisheries Act by implementing the DFO Measures to Protect Fish and Fish Habitat and avoiding all work in and around water. All project undertaking will: prevent the death of fish, maintain riparian vegetation, carry out work on land only, maintain fish passage, ensuring property sediment control, and preventing entry of deleterious substances in water.

6.1.2 Provincial Legislation

Endangered Species Act

As no provincially listed species at risk were detected in the study area, there is no constraint to development under the Endangered Species Act (2007)

Provincial Policy Statement (2020)

The subject property does contain a provincially significant wetlands (PSWs), but does not included a significant coastal wetlands, significant valleylands, and significant areas of natural and scientific interest or fish habitat. As a result, Section 2.1.4, Section 2.1.5 1) c) e) f) and Section of 2.1.6 of the Provincial Policy Statement does apply to the proposed development. Section 2.1.5b) of the PPS prohibits development and site alteration in significant woodlands unless it has been demonstrated there will be no negative impacts on the feature or its ecological functions. Sections 5.2 and 7 of this report provide recommendations that allow the proposed development to proceed in a manner consistent with the Provincial Policy Statement. Section 2.1.5d) of the Provincial Policy Statement protects significant wildlife habitat from negative impacts. Sections 5.3 and 7 of this EIS report provide recommendations that allow the proposed development to proceed while remaining compliant with the PPS.



Oak Ridges Moraine Conservation Plan 2017

The property is located within the Natural Linkage Area of the ORMCP 2017. It is identified as a Category 2 ORM Landform Conservation Area and is within a High Aquifer vulnerability area (ORMCP, 2017).

Recommendations have been made regarding the key natural heritage features, buffers and mitigation measures as per the requirements for an NHE report.

This NHE includes recommendations for limiting impacts on the landform conservation area and the aquifer vulnerability.

6.1.3 Local and Other Regulatory Bodies

Durham Region Official Plan and Township of Uxbridge Official Plan

Recommendations in Section 7.0 of this report outlines how the ORMCP policies have been satisfied and impacts minimized in order to be in compliant with the official Plans of Durham Region and the Township of Uxbridge.

This NHE outlines those policies and includes measures to limit impacts on the landform conservation area and the High aquifer vulnerability.



7. Summary of Recommendations

7.1 General

1. The development limit (construction envelope) must be clearly defined and delineated and a line be staked and clearly marked in the field prior to any development activities occurring on the site. Grading of the site and removal or addition of fill shall be restricted to the proposed work area.
2. Functioning erosion and sediment control measures shall be installed along the development limit prior to the commencement of any site preparation activities (e.g., grading, placement of fill). The silt fence should be inspected and maintained throughout the construction phase and remain in place until the soils are stabilized and re-vegetated. The silt fence also serves as a visual and physical barrier for construction crews.
3. The overall existing drainage patterns for the lot will be maintained.
4. Removal of vegetation within the building envelope shall be done outside of the peak breeding bird season (April 15th – August 15th) as per Environment and Climate Change Canada's guidelines.
5. Any areas outside of buildings and built infrastructure shall be vegetated as soon as possible after construction to stabilize the soils and re-establish vegetation cover.
6. Where feasible, native trees, shrubs, grasses and/or wildflower seed mixes shall be used.
7. Client to obtain relevant permits from the Township and LSRCA.
8. An ecological offsetting plan and calculations be completed for any wooded areas or buffers that are within the development envelope.
9. No near or in-water work. In the event that the site plan changes to include any works near or in-water the site plan shall be reviewed by a professional biologist. Additional field work and permitting may be required by the Department of Fisheries and Oceans, LSRCA, MNRF and the township.
10. The development limit shall be situated as per the site plan and silt fencing and/or temporary snow fence be installed along that construction envelop prior to any site preparation activities.
11. Removal of vegetation within the construction envelope be removed outside the peak breeding bird season (May 1 to July 31st).
12. Grading of the site and removal or addition of fill be restricted to the proposed work areas. Functioning sediment control measures must be in place prior to and during the construction phase, and remain in place until all bare or exposed soils have become stabilized (i.e., vegetated).
13. An active invasive species management program be conducted to contain the spread of invasive species into the woodlands.



14. Any areas disturbed by construction be vegetated as soon as possible after construction to stabilize the soils and reestablish vegetation cover. Where it is feasible, native grasses or wildflower seed mixes should be used.
15. Planting of native trees, where possible, in currently disturbed areas outside of structures, along road and pathways.
16. Downspouts should outlet onto grassed surfaces to allow for infiltration and recharging the groundwater. Use of soakaway pits, infiltration galleries or other methods are recommended

7.2 Groundwater Discharge and Recharge Functions

1. Proposed buildings shall be designed to ensure much of the precipitation captured by the roofs will be infiltrated back into the ground on-site to maintain the recharge and discharge functions of the area. For example, buildings could include downspouts that spill out onto grassed or gravel surfaces off the roofs. This would convey the rainfall captured by the roof away from hard surfaces and permit on-site infiltration.

7.3 Sediment and Erosion Control

1. A heavy-duty reinforced silt fence will be installed and maintained along development envelope boundary. This line should be surveyed and staked in the field prior to any site preparation activities.
2. All sediment and erosion control products will be selected for the site based on the manufacturer's product specifications. Product installation and maintenance will follow the manufactures guidelines.
3. All sediment and erosion control measures shall be inspected daily during the construction phase and periodically afterwards to ensure they are functioning properly. The sediment and erosion control measures must be maintained and upgraded as required. Sediment fence shall be checked regularly to ensure they are maintained and working properly. Accumulated silt and debris will be removed from the fence and site after every precipitation event.
4. Construction will be undertaken during normal weather conditions, to the extent possible, and will avoid large precipitation events to minimize the risk of sedimentation off-site.
5. In the event that sediment and erosion control measures are not functioning, the construction supervisor shall order the work to be stopped. No further work shall be carried out until the construction methods and/or the sediment control plan is adjusted to address the sediment/erosion problem(s). Such occurrences should be document by the site inspector and provided to a qualified biologist.

7.4 Fish and Fish Habitat (DFO measures to protect fish and fish habitat)

1. No work in or near water to avoid killing fish by means other than fishing.



2. Any new development (houses, garage) locations will not exceed the 30 m buffer. The existing buffer will maintain riparian vegetation between areas of land activity and the high watermark of the creek.
3. No use of explosives in or near water.
4. Respect MNRF fish timing windows to protect fish.
5. Should work conditions change such that it is possible that fish or fish habitat may potentially be negatively impacted, all works shall cease until the problem has been corrected or authorization has been obtained from the appropriate authorities.
6. Maintain riparian vegetation.
7. Carry out all works and activities by avoiding all work in or near water. No placement of fill or the temporary or permanent structures below the high water mark.
8. No disturbance of bank material or building structures in the area than may result in erosion or scouring.
9. Always maintain fish passage.
10. Prevent soil compaction using mats and pads.
11. The Project Manager/Contractor shall not allow any deleterious substances as defined in the Canadian Fisheries Act (such as silt), caused by the work, to enter or re-enter the watercourse or lake. See Sediment and Erosion Control.
12. If any future development plans include work near or in water, it is recommended that the project be reviewed by the Department of Fisheries and Oceans (DFO) to ensure it complies with the Fisheries Act.

7.5 Concrete Leachate

1. Concrete leachate is alkaline and highly toxic to fish and aquatic life. Measures will be taken to prevent any incidence of concrete or concrete leachate from entering any waterbody.
2. Ensure that all works involving the use of concrete, cement, mortars, and other Portland cement or lime-containing construction materials (concrete) will not deposit, directly or indirectly, sediments, debris, concrete, concrete fines, wash or contact water into any waterbody.
3. All concrete, sealants or other compounds used for this project shall be utilized according to the appropriate Product Technical Data Sheet, stating guidelines and methods for proper use, and provided by the manufacturer of the product.

7.6 Operation of Machinery

1. Check heavy equipment, machinery and tools prior to entering the work site to ensure they are clean, free of leaks, invasive species and noxious weeds.
2. All heavy equipment, machinery, and tools required for the work will be regularly inspected and maintained to avoid leakage of fuels and liquids and will be stored in a manner that prevents any deleterious substance from entering the soil, or nearby any waterbody.



3. All heavy equipment, machinery, and tools used or maintained for the purpose of this project will be operated in a manner that prevents any deleterious substance from entering soil, or nearby any waterbody.
4. Vehicle and equipment refuelling and/or maintenance shall be conducted within a defined staging area 30 m from any waterbody. If 30 m is not achievable a portable spill containment berm may be used. Portable spill containment berms can be rented by companies such as Wise Environmental Solution Inc (W.I.S.E, 2017).
5. Machinery will not enter any waterbody.

7.7 Refueling and Spill Response

1. Construction should be undertaken during normal weather conditions, to the extent possible, and the project shall be designed to appropriate specifications to withstand variable weather conditions.
2. Vehicle and equipment refueling shall be conducted on impermeable pads/pans within a defined staging area.
3. An emergency spill kit shall be kept at the site in case of fluid leaks or spills from machinery, kit shall be employed immediately should a spill occur. Once a spill (regardless of severity) has been identified, it is the responsibility of the Site Supervisor to ensure that MOE is notified through the Ontario Spill Action Center at 1-800-268-6060, all provincial and federal regulations are to be adhered to. Maintain an adequate supply of clean up materials (spill kits, MSDS, absorbents, containers, caution signs/tape, etc.) readily available on-site.
4. Maintain an adequate supply of clean-up materials on-site. Construction crews should be fully trained in their use to ensure timely and effective responses to spill incidents.
5. Refueling and maintenance of equipment shall be conducted off slopes and away from water bodies on impermeable pads to allow full containment of spills at a recommended distance of a minimum of 30 meters from the waterway.
6. Materials classified as potential contaminants (e.g., paint, primers, gas, oil, degreasers, grout, or other chemicals) will be used a minimum of 30 m from the watercourse



8. Conclusion

GHD has prepared this Natural Heritage Evaluation to address potential environmental issues associated with the construction of 23 new Townhomes and associated infrastructure.

Based on our analysis, the current/future construction envelope is located in an area that would create the least amount of impact on the Oak Ridges Moraine key natural heritage features and functions, including the woodland, wetland and watercourse. Our recommendations were made to minimize potential impacts on this feature during all phases of the project.

No negative impacts on the Oak Ridges Moraine and the key natural heritage features is anticipated, if our recommendations are implemented.



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All of which is Respectfully Submitted,
GHD

A handwritten signature in blue ink, appearing to read 'C. Ellingwood'.

Chris Ellingwood
Sr Terrestrial and Wetland Biologist

A handwritten signature in blue ink, appearing to read 'Jon Boxall'.

Jon Boxall
Terrestrial and Wetland Technician

A handwritten signature in blue ink, appearing to read 'Stacey Zwiers'.

Stacey Zwiers
Aquatic Biologist



about GHD

GHD is one of the world's leading professional services companies operating in the global markets of water, energy and resources, environment, property and buildings, and transportation. We provide engineering, environmental, and construction services to private and public sector clients.

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Appendices

Appendix I

Plant Species by Community

APPENDIX I - A Plant Species by Community

Families and genera for the plant species found in this appendix are listed in taxonomic order. The species are listed alphabetically by scientific name within each genus.

Three standard reference works were used for the botanical nomenclature and taxonomy (Newmaster et. al., 1998; Gleason and Cronquist 1991; Voss 1980; 1985). Other published works for botanical names included; ferns (Cody and Britton 1989); grasses (Dore and McNeill 1980); orchids (Whiting and Catling 1986); shrubs (Soper and Heimburger 1982) and trees (Farrar 1995).

Total: Number of communities where plant species was recorded
X : Plant species recorded

Common Name	Scientific Name	Total	COMMUNITY NUMBER								
			1	2	3	4	5	6	7	8	9
STONEWORT FAMILY			CHARACEAE								
stonewort	<i>Chara spp.</i>	1					X				
WOOD FERN FAMILY			DRYOPTERIDACEAE								
bulbet bladder fern	<i>Cystopteris bulbifera</i>	2				X		X			
evergreen wood-fern	<i>Dryopteris intermedia</i>	1		X							
ostrich fern	<i>Matteuccia struthiopteris</i>	2				X		X			
sensitive fern	<i>Onoclea sensibilis</i>	3				X	X	X			

Common Name	Scientific Name	Total	COMMUNITY NUMBER								
			1	2	3	4	5	6	7	8	9
PINE FAMILY	PINACEAE										
balsam fir	<i>Abies balsamea</i>	1						X			
white spruce	<i>Picea glauca</i>	4	X		X	X			X		
Colorado spruce	<i>Picea pungens</i>	1	X								
eastern white pine	<i>Pinus strobus</i>	3		X	X				X		
Scot's pine	<i>Pinus sylvestris</i>	4	X		X				X	X	
eastern hemlock	<i>Tsuga canadensis</i>	1			X						
CYPRESS FAMILY	CUPRESSACEAE										
eastern white cedar	<i>Thuja occidentalis</i>	5		X	X	X		X	X		
BUTTERCUP FAMILY	RANUNCULACEAE										
white baneberry	<i>Actaea pachypoda</i>	2		X						X	
red baneberry	<i>Actaea rubra</i>	1		X							
virgin's bower	<i>Clematis virginiana</i>	1					X				
tall meadow rue	<i>Thalictrum pubescens</i>	2					X	X			
POPPY FAMILY	PAPAVERACEAE										
celandine	<i>Chelidonium majus</i>	3		X		X				X	
NETTLE FAMILY	URTICACEAE										
wood nettle	<i>Laportea canadensis</i>	1						X			
BEECH FAMILY	FAGACEAE										
red oak	<i>Quercus rubra</i>	4		X	X				X	X	
BIRCH FAMILY	BETULACEAE										
white birch	<i>Betula papyrifera</i>	2		X	X						
PINK FAMILY	CARYOPHYLLACEAE										
Deptford pink	<i>Dianthus armeria</i>	1		X							
bouncing bet	<i>Saponaria officinalis</i>	1									X
bladder campion	<i>Silene vulgaris</i>	1									X
LINDEN FAMILY	TILIACEAE										
American basswood	<i>Tilia americana</i>	1		X							

Common Name	Scientific Name	Total	COMMUNITY NUMBER								
			1	2	3	4	5	6	7	8	9
MALLOW FAMILY		MALVACEAE									
dwarf mallow	<i>Malva rotundifolia</i>	1									X
WILLOW FAMILY		SALICACEAE									
eastern cottonwood	<i>Populus deltoides</i>	1	X								
trembling aspen	<i>Populus tremuloides</i>	2		X						X	
MUSTARD FAMILY		BRASSICACEAE									
watercress	<i>Nasturtium officinale</i>	1						X			
PRIMROSE FAMILY		PRIMULACEAE									
moneywort	<i>Lysimachia nummularia</i>	1						X			
whorled loosestrife	<i>Lysimachia quadrifolia L.</i>	1				X					
ROSE FAMILY		ROSACEAE									
common strawberry	<i>Fragaria virginiana</i>	1									X
yellow avens	<i>Geum aleppicum</i>	1				X					
black cherry	<i>Prunus serotina</i>	4	X		X	X			X		
wild red raspberry	<i>Rubus idaeus</i>	2		X		X					
European mountain ash	<i>Sorbus aucuparia</i>	1						X			
PEA FAMILY		FABACEAE									
black medick	<i>Medicago lupulina</i>	1									X
alfalfa	<i>Medicago sativa ssp. Sativa</i>	1	X								
low hop clover	<i>Trifolium agrarium</i>	1									X
red clover	<i>Trifolium pratense</i>	1									X
white clover	<i>Trifolium repens</i>	1									X
LOOSESTRIFE FAMILY		LYTHRACEAE									
purple loosestrife	<i>Lythrum salicaria</i>	1					X				
EVENING PRIMROSE FAMILY		ONAGRACEAE									
Canada enchanter's nightshade	<i>Circaea lutetiana L. ssp.canadensis</i>	2		X		X					
DOGWOOD FAMILY		CORNACEAE									
alternate-leaf dogwood	<i>Cornus alternifolia</i>	1				X					

Common Name	Scientific Name	Total	COMMUNITY NUMBER								
			1	2	3	4	5	6	7	8	9
SPURGE FAMILY		EUPHORBIACEAE									
cypress spurge	<i>Euphorbia cyparissias</i>	2								X	X
leafy spurge	<i>Euphorbia esula</i>	1									X
BUCKTHORN FAMILY		RHAMNACEAE									
European buckthorn	<i>Rhamnus cathartica</i>	5	X			X		X	X	X	
GRAPE FAMILY		VITACEAE									
Virginia creeper	<i>Parthenocissus inserta</i>	3	X	X	X						
wild grape	<i>Vitis riparia</i>	2	X								X
MAPLE FAMILY		ACERACEAE									
Manitoba maple	<i>Acer negundo</i>	3	X		X			X			
Norway maple	<i>Acer platanoides</i>	5	X	X	X	X			X		
silver maple	<i>Acer saccharinum</i>	1						X			
sugar maple	<i>Acer saccharum ssp.saccharum</i>	2		X	X						
Freeman's maple	<i>Acer x freemanii</i>	2	X							X	
WOOD-SORREL FAMILY		OXALIDACEAE									
common yellow wood-sorrel	<i>Oxalis dillenii</i>	1	X								
European wood-sorrel	<i>Oxalis stricta</i>	1									X
GERANIUM FAMILY		GERANIACEAE									
herb Robert	<i>Geranium robertianum</i>	4	X	X		X				X	
TOUCH-ME-NOT FAMILY		BALSAMINACEAE									
spotted jewelweed	<i>Impatiens capensis</i>	1						X			
GINSENG FAMILY		ARALIACEAE									
wild sarsaparilla	<i>Aralia nudicaulis</i>	1				X					
CARROT FAMILY		APIACEAE									
bulbous water-hemlock	<i>Cicuta bulbifera</i>	1					X				
Queen-Anne's lace	<i>Daucus carota</i>	1		X							
MILKWEED FAMILY		ASCLEPIADACEAE									
swallow-wort	<i>Cynanchum rossicum</i>	5	X	X	X	X				X	

Common Name	Scientific Name	Total	COMMUNITY NUMBER								
			1	2	3	4	5	6	7	8	9
NIGHTSHADE FAMILY	SOLANACEAE										
bitter nightshade	<i>Solanum dulcamara</i>	1		X							
black nightshade	<i>Solanum nigrum</i>	2		X				X			
LOPSEED FAMILY	PHRYMACEAE										
lopseed	<i>Phryma leptostachya</i>	1				X					
VERVAIN FAMILY	VERBENACEAE										
blue vervain	<i>Verbena hastata</i>	1					X				
MINT FAMILY	LAMIACEAE										
motherwort	<i>Leonurus cardiaca</i>	1		X							
wild mint	<i>Mentha arvensis</i>	1					X				
PLANTAIN FAMILY	PLANTAGINACEAE										
narrow-leaved plantain	<i>Plantago lanceolata</i>	1									X
broad-leaved plantain	<i>Plantago major</i>	2	X								X
OLIVE FAMILY	OLEACEAE										
white ash	<i>Fraxinus americana</i>	1		X							
green ash	<i>Fraxinus pennsylvanica var. subinteg</i>	4		X				X	X	X	
FIGWORT FAMILY	SCROPHULARIACEAE										
butter-and-eggs	<i>Linaria vulgaris</i>	1									X
common mullein	<i>Verbascum thapsus</i>	1									X
purslane speedwell	<i>Veronica peregrina ssp.peregrina</i>	1									X

Common Name	Scientific Name	Total	COMMUNITY NUMBER									
			1	2	3	4	5	6	7	8	9	
ASTER FAMILY	ASTERACEAE											
common ragweed	<i>Ambrosia artemisiifolia</i> L.	1		X								
ox-eye daisy	<i>Chrysanthemum leucanthemum</i>	1										X
horseweed	<i>Conyza canadensis</i> L.	1		X								
Philadelphia fleabane	<i>Erigeron philadelphicus</i> ssp. <i>philadel</i>	2	X	X								
spotted joe-pyeweed	<i>Eupatorium maculatum</i>	1					X					
boneset	<i>Eupatorium perfoliatum</i>	1					X					
grass-leaved goldenrod	<i>Euthamia graminifolia</i>	1					X					
Canada goldenrod	<i>Solidago canadensis</i>	3	X	X								X
spiny-leaved sow thistle	<i>Sonchus asper</i>	2		X								X
panicked aster	<i>Symphyotrichum lanceolatum</i> ssp. <i>he</i>	2					X	X				
calico aster	<i>Symphyotrichum lateriflorum</i> var. <i>late</i>	2								X		X
New England aster	<i>Symphyotrichum novae- angliae</i>	2		X			X					
common dandelion	<i>Taraxacum officinale</i>	2	X									X
goat's-beard	<i>Tragopogon dubius</i>	1							X			
PONDWEED FAMILY	POTAMOGETONACEAE											
common floating pondweed	<i>Potamogeton natans</i>	1					X					
RUSH FAMILY	JUNCACEAE											
common rush	<i>Juncus effusus</i>	1					X					
SEDGE FAMILY	CYPERACEAE											
wool-grass	<i>Scirpus cyperinus</i>	1					X					
GRASS FAMILY	POACEAE											
large crab grass	<i>Digitaria sanguinalis</i>	1										X
rice cut grass	<i>Leersia oryzoides</i>	1					X					
acuminate panic grass	<i>Panicum acuminatum</i> var. <i>acuminatu</i>	1										X
Kentucky blue grass	<i>Poa pratensis</i>	2	X									X

Common Name	Scientific Name	Total	COMMUNITY NUMBER										
			1	2	3	4	5	6	7	8	9		
LILY FAMILY	LILIACEAE												
lily-of-the-valley	<i>Convallaria majalis L.</i>	3			X					X	X		
Canada mayflower	<i>Maianthemum canadense</i>	2		X						X			
false Solomon's seal	<i>Smilacina racemosa</i>	2	X							X			

Total Number of Plant Species 98

21 31 14 17 18 17 13 13 25

Number of Plant Species Per Community

Appendix II Bird Status Report

APPENDIX II - B Bird Status Report - Comprehensive

Bird species observed by GHD are listed in the order followed the American Ornithologists' Union (AOU) Check-list of North American birds (7th edition, 1999, 47th Supplement). Common and scientific nomenclature are based on those used by AOU. Breeding status and breeding evidence code are listed when observed. Any significant status for a species on national and provincial lists is displayed as well as those from relevant regional lists.

List Status :	END - endangered	A wildlife species facing imminent extirpation or extinction.
	END-R -endangered regulated	A wildlife species facing imminent extirpation or extinction in Ontario which has been regulated under Ontario's Endangered Species Act (ESA).
	THR - threatened	A wildlife species likely to become endangered if limiting factors are not reversed.
	SC - special concern	A wildlife species that may become threatened or an endangered species because of a combination of biological characteristics and identified threats.
	YES - Area Sensitive	A wildlife species that requires large areas of suitable habitat in order to sustain their population numbers.

*** Other status levels are not displayed**

List Sources:		
	COSEWIC	The Committee on the Status of Endangered Wildlife in Canada, May 2018.
	COSSARO	The Committee on the Status of Species at Risk in Ontario, June 2018.
	SARA	Species At Risk Act, Schedule 1, Government of Canada, 2018.
	Area Sensitive	Significant Wildlife Technical Guide, Appendix C, OMNR, Oct. 2000

Breeding Status: (Observed By NEA)	B -species observed in breeding season in suitable habitat with some evidence of breeding (confirmed, probable or possible as per Ontario Breeding Bird Atlas, 2002).
	F -species observed in breeding season but no evidence of breeding or suitable nest sites available on the study site (includes flyovers, migrants and foraging colonial breeders).
	M -species observed outside of breeding season for that species and in area outside of the known breeding range for that species.

**Breeding Evidence Code:
(Observed By NEA)**

OBSERVED

X -species observed in its breeding season (no evidence of breeding).

POSSIBLE BREEDING

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

S -singing male present, or breeding calls heard, in its breeding season in suitable nesting habitat

PROBABLE BREEDING

P -pair observed in their breeding season in suitable nesting habitat

T -permanent territory presumed through registration of territorial song on at least 2days,
a week or more apart, at the same place

D -courtship or display between a male and a female or 2 males, including courtship feeding or copulation

V -visiting probable nest site

A -agitated behaviour or anxiety calls of an adult

B -brood patch on adult female or cloacal protuberance on adult male

N -nest-building or excavation of nest hole

CONFIRMED BREEDING

DD -distraction display or injury feigning

NU -used nest or egg shell found (occupied or laid within the period of study)

FY -recently fledged young or downy young, including young incapable of sustained flight

AE -adults leaving or entering nest site in circumstances indicating occupied nest

FS -adult carrying fecal sac

CF -adult carrying food for young

NE -nest containing eggs

NY -nest with young seen or heard

SOURCE: Ontario Breeding Bird Atlas March 2001

AOU Code	Common Name	Scientific Name	Observed Breeding Status	Breed Evidence Code	COSEWIC	COSSARO	SARA	Area Sensitive				
			M					No				
TOTAL SPECIES OBSERVED:	0	BREEDING SPECIES OBSERVED:	0		0	0	0	0	0	0	0	0

Appendix III

Fish Species List for Uxbridge Brook

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Fish Species List for Uxbridge Brook

Family	Common Name	Scientific Name	Thermal Regime	Spawning Season
<i>Catostomidae</i>	Northern Hog Sucker	<i>Hypentelium nigricans</i>	Warmwater	Spring (April-May)
	White Sucker	<i>Catostomus commersonii</i>	Coolwater	Spring (April-June)
<i>Centrarchidae</i>	Largemouth Bass	<i>Micropterus salmoides</i>	Warmwater	Spring (May-June)
	Pumpkinseed	<i>Lepomis gibbosus</i>	Warmwater	Spring-summer (May-August)
	Rock Bass	<i>Ambloplites rupestris</i>	Coolwater	Spring (May-June)
<i>Cottidae</i>	Mottled Sculpin	<i>Cottus bairdii</i>	Coolwater	Spring (April-May)
	Slimy Sculpin	<i>Cottus cognatus</i>	Coldwater	Spring (April-May)
<i>Cyprinidae</i>	Blacknose Dace	<i>Rhinichthys obtusus</i>	Coolwater	Spring (May-June)
	Bluntnose Minnow	<i>Pimephales notatus</i>	Warmwater	Summer (June-August)
	Brassy Minnow	<i>Hybognathus hankinsoni</i>	Coolwater	Spring-Summer (May-July)
	Common Shiner	<i>Luxilus cornutus</i>	Coolwater	Spring (May-June)
	Creek Chub	<i>Semotilus atromaculatus</i>	Coolwater	Spring (May-June)
	Fathead Minnow	<i>Pimephales promelas</i>	Warmwater	Spring (May-August)
	Finescale Dace	<i>Chrosomus neogaeus</i>	Coolwater	Spring (April-May)
	Goldfish	<i>Carassius auratus</i>	Warmwater	Spring- Summer (May-July)
	Hornyhead Chub	<i>Nocomis biguttatus</i>	Coolwater	Spring-summer (May-July)
	Longnose Dace	<i>Rhinichthys cataractae</i>	Coolwater	Spring-summer (May-July)
	Northern Redbelly Dace	<i>Chrosomus eos</i>	Coolwater	Spring-summer (May-July)
	Pearl Dace	<i>Margariscus nachtriebi</i>	Coolwater	Spring (May-June)
	River Chub	<i>Nocomis micropogon</i>	Coolwater	Spring (May-June)
<i>Gasterosteidae</i>	Brook Stickleback	<i>Culaea inconstans</i>	Coolwater	Spring-summer (May-July)
<i>Ictaluridae</i>	Brown Bullhead	<i>Ameiurus nebulosus</i>	Warmwater	Spring (May-June)

Family	Common Name	Scientific Name	Thermal Regime	Spawning Season
<i>Percidae</i>	Yellow Perch	<i>Perca flavescens</i>	Coolwater	Spring (April-May)
<i>Salmonidae</i>	Brook Trout	<i>Salvelinus fontinalis</i>	Coldwater	Fall (September-November)
	Brown Trout	<i>Salmo trutta</i>	Coldwater	Fall (October-November)
	Rainbow Trout	<i>Oncorhynchus mykiss</i>	Coldwater	Spring (March-May)
<i>Umbridae</i>	Central Mudminnow	<i>Umbra limi</i>	Coolwater	Spring (April-May)

Note: Fish species listed under OMNR 2012 obtained from the Aquatic Resource Area Survey (OMNR, 2012). Fish species spawning season obtained from the *Ontario Freshwater Fishes Life History Database* (Eakins, 2019).