Environmental Impact Study

Burwash Subdivision, Baltimore

Stalwood Homes

17 June 2025

→ **The Power of Commitment**



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1. Introduction

1.1 Background

GHD Limited (GHD) was retained by Stalwood Homes ("the Client") to prepare an Environmental Impact Study (EIS) for a proposed draft plan of a subdivision located at 9380 Burwash Road (the "Site") to fulfill permitting requirements of the County of Northumberland, Hamilton Township and Ganaraska Region Conservation Authority (GRCA). A concept plan for Site development can be found in **Appendix A**. At detailed design of the stormwater management system, septic solution and water supply and the final layout of the subdivision plan, there may be additional mitigation measures warranted that can be presented as an addendum to this EIS.

Based on the existing mapping, the Site is located on or within natural features such as the County of Northumberland (MOC) Natural Heritage System, unevaluated wetland features, possible habitat of threatened or endangered species, and watercourses. Proximity to these features triggered the need for an EIS to be prepared as part of the development application process.

1.2 Location and Study Area

This Site is located at 9380 Burwash Road and is also referred to as Part of Lot 7 Concession 3 in the Village of Baltimore in the County of Northumberland, in Hamilton Township. It is approximately 78 acres in size. The parcel is irregularly shaped and is bounded by Burwash Road and Community Centre Road to the south, Lime Kiln Trail to the east and multiple residential properties to the north and west (**Figure 1**). The study area was defined by the Site boundaries and where possible and accessible, adjacent natural heritage features within 120 m were identified.

1.3 Scope and Limitations

This report: has been prepared by GHD for Stalwood Homes and may only be used and relied on by Stalwood Homes for the purpose agreed between GHD and Stalwood Homes as set out in section 1 and 2 of this report.

GHD otherwise disclaims responsibility to any person other than Stalwood Homes arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report (refer sections 7 and 8 of this report). GHD disclaims liability arising from any of the assumptions being incorrect.

Accessibility of documents

If this report is required to be accessible in any other format, this can be provided by GHD upon request and at an additional cost if necessary.

1.4 Study Rationale

This section identifies federal, provincial and other regulatory legislation, policies, official plans (OPs) and official plan 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 Species at risk, natural features and habitats or other features relevant to this study.

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1.4.1 Federal Legislation

1.4.1.1 Fisheries Act, 1985 (R.S.C., 1985, c. F-14)

The purpose of the Fisheries Act, Fish and Fish Habitat Protection 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 alternation, disruption or destruction (HADD) of fish habitat. In addition, the Act administers relevant provisions of the Species at Risk Act.

If the project risks causing the death of fish or the harmful alteration, disruption or destruction of fish habitat, an authorization may be required from the Minister of Fisheries, Oceans and the Canadian Coast Guard as per Paragraph 34 or 35 of the Fisheries Act Regulations.

1.4.1.2 Migratory Birds Convention Act

The Migratory Birds Convention Act (MBCA 1994) and Migratory Birds Regulations (MBR – Government of Canada 2022) protect most species of migratory birds and their nests and eggs. Under the MBR 2022 it is now prohibited to damage, destroy, disturb, or remove migratory bird nests when they contain a live bird or viable egg and prohibit the deposit of harmful substances in waters and areas frequented by them. For 18 species of migratory birds identified on Schedule 1, the MBR 2022 provides year-round nest protection until they can be deemed abandoned. The Schedule includes certain migratory birds who either re-use their own nests from one year to the next (colonial species), or whose nests are commonly re-used by other species of migratory bird species, such as Pileated Woodpeckers. If the nest of a Schedule 1 species has not been occupied by a migratory bird for the entirety of the waiting time indicated in the MBR 2022, it is considered abandoned, and to no longer have high conservation value for migratory birds.

Environment and Climate Change Canada (ECCC) implements policies and guidelines to protect migratory birds, providing guidance on the ECCC website to help to minimize the risk of detrimental effects to migratory birds and to achieve compliance with the law (Government of Canada 2022c). Compliance with the MBCA and MBR is best achieved through a due diligence approach based on a site-specific analysis in consideration of the avoidance guidelines on the ECCC website, such as the implementation of timing restrictions to ensure migratory birds and their young have left an area before it is disturbed due to construction or prior to vegetation removal.

The Subject Lands have been identified to be within Zone C2 (ECCC 2019). In this area of southern Ontario (Zone C2) migratory birds typically nest between April 1st to August 31st, with the majority if nesting occurring between April 15th and August 15th of any given year.

1.4.2 Provincial Legislation

1.4.2.1 Endangered Species Act, 2007

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

– 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 2021)

The ESA clearly defines the five classifications of species status as extinct (EXT), extirpated (EXP), endangered (END), threatened (THR), or special concern (SC), and provides guidelines on the process of species status determination (Government of Ontario 2024)

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 in January 2024 (Government of Ontario 2024b). Species status provided in

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these lists was assessed by an independent body, the Committee on the Status of Species at Risk in Ontario (COSSARO), based on the best-available science and Indigenous 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 2024c). 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 (Government of Ontario 2024d).

Proposed changes the ESA are under review, as well as new legislation under Bill 5. This report is based on the ESA at the time of preparing this EIS.

1.4.2.2 Provincial Planning Statement

The Provincial Planning Statement, 2024 (herein referred to as PPS) was issued under Section 3 of the Planning Act and came into effect October 20, 2024. It replaces the Provincial Policy Statement that was issued May 1, 2020. The PPS provides overall policy direction on matters of provincial interest related to land use planning and development (Government of Ontario 2024). It applies province-wide, except in those cases where the PPS or another provincial plan state otherwise (Government of Ontario 2024).

Provincial plans, such as the Greenbelt Plan (2017) build upon the policy foundation provided by the PPS 2024 (Government of Ontario 2024). These provincial plans provide additional policies to address issues in certain geographic areas of Ontario (Government of Ontario 2024). Where the policy of a provincial plan addresses the same, similar, related or overlapping matters as the PPS 2024, the specific policies of the provincial plan may be used to satisfy the PPS. However, where matters in the PPS and the provincial plan policies are not overlapping, the PPS must be independently satisfied (Government of Ontario 2024).

Based on GHD's background review, portions of Sections 4.1.4 - 4.1.8 of the Provincial Planning Statement (PPS) had the potential to apply to this project.

4.1.4 Development and site alteration shall not be permitted in:

- *a. significant wetlands in Ecoregions 5E, 6E and 7E1, and*
- *b. significant coastal wetlands.*

4.1.5 Development and site alteration shall not be permitted in:

- *a. significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E,*
- *b. significant woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River),*
- *c. significant valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River),*
- *d. significant wildlife habitat,*
- *e. significant areas of natural and scientific interest; and*
- *f. coastal wetlands in Ecoregions 5E, 6E and 7E1 that are not subject to policy unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.*

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

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

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

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1.4.3 Local and Other Regulatory Bodies

1.4.3.1 Northumberland County Official Plan (2016)

This site falls under the Northumberland County Official Plan. The EIS policy sections that an EIS is to:

a. *Collect and evaluate the appropriate information in order to have a complete understanding of the boundaries, attributes and functions of natural heritage features and associated ecological and hydrological functions that exist;*
b. *Determine whether there are any additional natural heritage features on the lands and adjacent lands; and,*
c. *Make an informed decision as to whether or not the proposed development and/or site alteration will have a negative impact on the natural heritage features and ecological and hydrological functions.*

The approval authority, in consultation with the appropriate Conservation Authority and Parks Canada as appropriate, must be satisfied with an EIS prior to the granting of development approvals. The recommendations of an EIS shall be implemented through Official Plan Amendments, zoning bylaws, subdivision conditions, site plan control, and/or applicable regulations.

This EIS must demonstrate, before development, that the area in subject shall not have a “negative impact” on significant natural heritage features and related ecological functions.

Baltimore is considered a ‘rural settlement area’ in the Official Plan Schedule A – Land Use.

1.4.3.2 Hamilton Township Official Plan (2010)

The Township of Hamilton Official Plan Schedule ‘A’ (Land Use) identifies the entire property as “Rural”. Schedule ‘B’ (Key Natural Heritage Features) does not identify any Natural Heritage features as occurring on the property.

Section 8.2 of the Hamilton Township official plan states that development and/or site alteration shall not be permitted in or adjacent to (within 120 meters) of significant features (i.e.: significant woodlands, significant wetlands, ANSI’s, endangered and threatened species habitat, fish habitat, wildlife habitat and significant valleylands) unless it has been demonstrated that there will be negative impacts on the natural heritage features or their ecological functions through an EIS.

1.4.3.3 Conservation Authorities Act, 2024

In Ontario, conservation authorities develop and deliver local, watershed-based resource management programs on behalf of the province and municipalities. Conservation authorities carry out programs including natural hazard management (flood and erosion control, drought/low water), the management of conservation authority owned land, and surface water and groundwater monitoring programs. They also provide advice to municipalities regarding natural hazard management and other matters (e.g., development impacts on floodplains and wetlands).

1.4.3.4 Ganaraska Region Conservation Authority (GRCA)

The Conservation Authority whose jurisdiction the Study Area falls under is Ganaraska Region Conservation Authority (GRCA). Effective April 1, 2024, Ontario Regulation 41/24, Prohibited Activities, Exemptions and Permits (made under the Conservation Authorities Act) became applicable (Government of Ontario 2024b). Under this regulation, Conservation Authorities (including GRCA) can regulate the impacts of development and activities in or adjacent to river or stream valleys, Great Lakes watercourses and other hazardous lands (such as floodplains, the shorelines of inland lakes and wetlands) through a permitting process (Government of Ontario 2024).

The presence of several regulated features, i.e. a wetland and watercourse on Site, combined with the proposal for development, triggered the need for this EIS.

1.5 Other Resources Referenced

Prior to field surveys, background information for the subject lands and surrounding area was reviewed to provide context for the setting and sensitivity of the site. Background information sources included:

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1.5.1 Data Sources

- Aerial imagery
- Department of Fisheries and Oceans, Aquatic Species at Risk mapping (DFO 2024)
- Land Information Ontario (LIO) database mapping and Natural Heritage Information Centre (NHIC) Make-a-Map tool (2022)
- Ontario Breeding Bird Atlas data (Bird Studies Canada, 2007)
- Ontario Reptile and Amphibian Atlas data (Ontario Nature, 2019)
- Ontario Ministry of Natural Resources and Forestry (OMNF), Aquatic Resource Area, Fish Species List (OMNRF 2024)
- OMNRF Fish ON-Line (OMNRF 2024)

1.5.2 Literature and Resources

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

1.6 Description of Development

The draft plan of subdivision has not been finalized but will consist of a mix of residential dwellings, internal roads and services. Access to the site will be from Burwash Road. A copy of a concept plan is found in **Appendix A**.

1.7 Scope of Report

The scope of this EIS is to:

- determine or confirm the boundaries of key natural features (e.g., wetlands, wildlife habitat, watercourses, Significant Wildlife Habitat, woodlands) on or adjacent to the Site,
- confirm and identify the functions of any natural features present on Site or within Study Area;
- determine whether any Species at Risk or their habitats occur on the Site; and,
- develop appropriate vegetation protection zones (VPZs/buffers) and mitigation measures to prevent impacts of the proposed development on these features and their functions.

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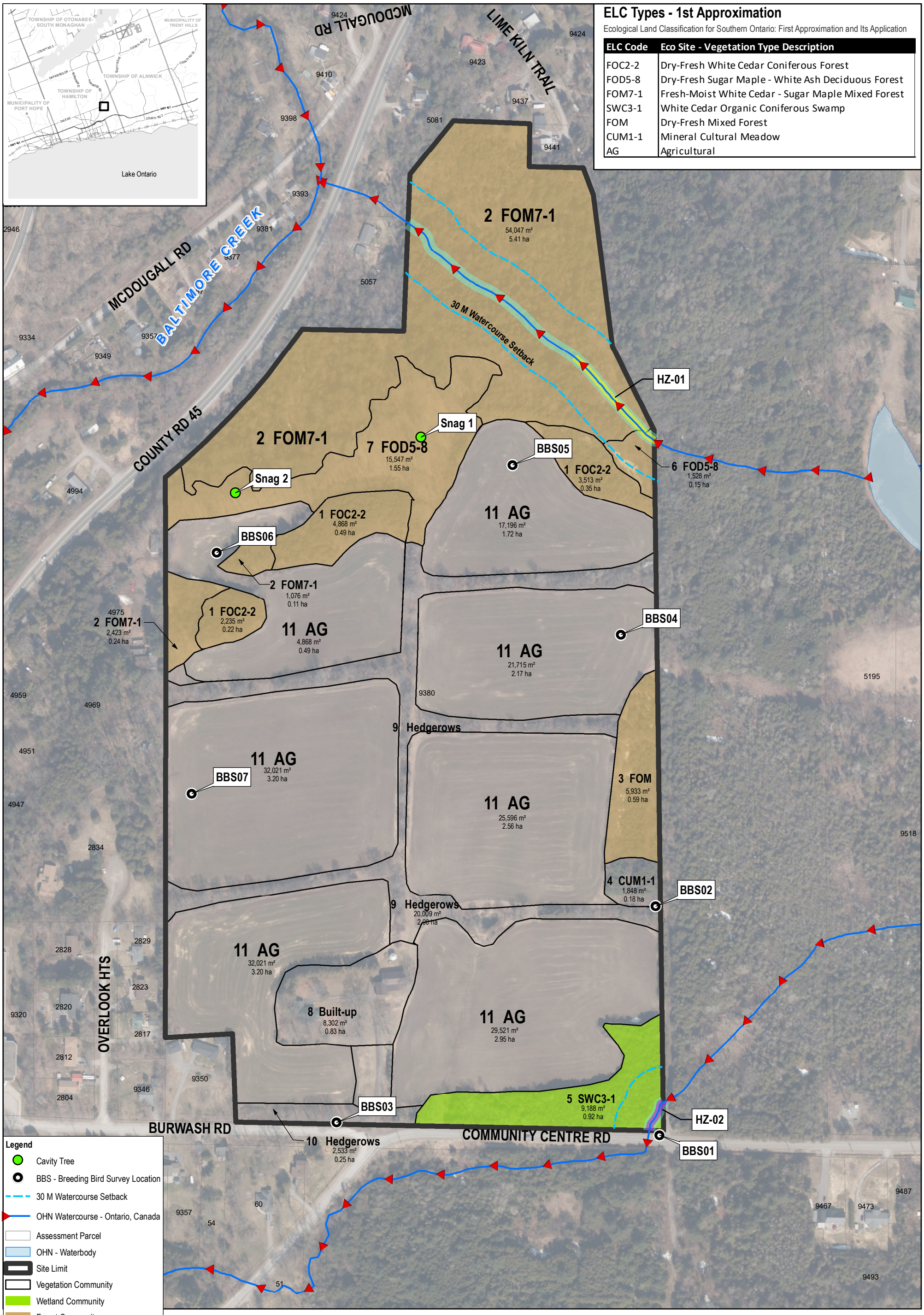

ELC Types - 1st Approximation

Ecological Land Classification for Southern Ontario: First Approximation and Its Application

ELC Code	Eco Site - Vegetation Type Description
FOC2-2	Dry-Fresh White Cedar Coniferous Forest
FOD5-8	Dry-Fresh Sugar Maple - White Ash Deciduous Forest
FOM7-1	Fresh-Moist White Cedar - Sugar Maple Mixed Forest
SWC3-1	White Cedar Organic Coniferous Swamp
FOM	Dry-Fresh Mixed Forest
CUM1-1	Mineral Cultural Meadow
AG	Agricultural

Legend

- Cavity Tree
- BBS - Breeding Bird Survey Location
- 30 M Watercourse Setback
- OHN Watercourse - Ontario, Canada
- Assessment Parcel
- OHN - Waterbody
- Site Limit
- Vegetation Community
- Wetland Community
- Forest Community

Habitat Zone

- HZ-01
- HZ-02

Thermal Regime

- Cold Water

Paper Size ANSI B

0 30 60 90

Meters

Map Projection: Transverse Mercator
Horizontal Datum: North American 1983
Grid: NAD 1983 UTM Zone 17N

STALWOOD HOMES
9380 Burwash Road, Baltimore, ON
Municipality of Northumberland
ENVIRONMENTAL IMPACT STUDY

Terrestrial and Aquatic Features and Survey Locations

Project No. **12639057**
Revision No. **-**
Date **Sep 13, 2024**

FIGURE 1

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2. Study Methods

2.1 General Approach

Our approach to the preparation of the EIS consisted of four distinct phases.

In the first phase, we collected available information on the site including recent air photography, Town of Whitby Official Plan schedules and policies, Region of Durham Official Plan schedules and policies, provincial key natural heritage system GIS mapping, MNRF GIS database mapping and significant woodland layers and other correspondence or files, as well as any previous work/EIS reports in the area.

In the second phase a Terms of Reference (ToR) was created to confirm the scope of the field surveys. The ToR was submitted to the Township of Hamilton, Northumberland County and Ganaraska Region Conservation Authority on October 1, 2024. This ToR can be found in **Appendix B**.

Our third phase consisted of a series of site visits by our terrestrial/ wetland biologists and fisheries biologists to document the following:

– Delineation and mapping of Ecological Land Classification vegetation types
– Breeding bird surveys (x2)
– 2-season plant inventories
– Incidental observations of other wildlife (e.g., amphibians, reptiles and mammals)
– Presence of significant trees or regionally rare plants (e.g., butternut)
– Assessment of habitat for Significant Wildlife Habitat including wildlife linkages
– Confirm the boundary of any valleyland wetlands based on current site conditions
– Bat cavity tree searches and assessments
– Assess the Ecological functions of the natural features and natural heritage systems
– Presence of habitat of threatened or endangered species
– Fish habitat assessments

The presence or absence of identified species at risk and/or their habitat was assessed. The Ontario Endangered Species Act places more responsibility on municipalities to prove presence/ absence of species at risk when reviewing development proposals. GHD reviewed the list of potential Species at Risk and determined which might have potential suitable habitat on the subject lands.

The final phase consisted of preparing this EIS report based upon both the literature review and any field surveys completed. The report follows the requirements in the Official Plans, as well as the GRCA policy requirements for an EIS report. All key natural heritage features and key hydrologic features were mapped, as well as recommended buffers/setbacks. The impact assessment and mitigation measures focussed on trees, watercourses and fish habitat, wetlands, maintaining water balance, wildlife issues and natural linkage and corridors in the area. Mitigation and buffers were included in the EIS report.

Compliance statements have been included at the end of our report to show compliance with the Fisheries Act, Endangered Species Act, Northumberland County and Township of Hamilton Official Plans and GRCA regulations.

This report only deals with the suitability of the site from a biological perspective and the constraints due to the presence of the creek and wetlands. Other approvals or constraints due to zoning, official plans, archaeology, minimum distance separation (MDS) flood and fill regulations, health regulations or other approvals are not addressed in this report.

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2.2 Study Site Methodology

2.2.1 Physical Site Characteristics

Site characteristics of the entire property (approximately 75 acres) were assessed during GHD's field visits to the Site in the spring and summer of 2024. GHD staff documented characteristics such as existing disturbances, current use of the Site, vegetation communities, aquatic features, wetlands, and general topography.

2.2.2 Biophysical Inventory

2.2.2.1 Vegetation

All vegetation communities encountered in the study area were inventoried during the site visits. Delineation and classification of the vegetation community types were based on the Ecological Land Classification for Southern Ontario (Lee et al., 1998). Delineation was done to the Ecosite or Vegetation Type, whenever possible.

GHD applied national, provincial, and regional rarity lists to determine significance. Such lists were from credible sources (e.g., published lists) such as Schedule 1 from the Species at Risk Act (SARA 2024), the list produced by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC 2025), the list of SAR in Ontario (SARO 2024), and the Natural Heritage Information Centre (NHIC 2024).

2.2.2.2 Birds

Breeding Bird Surveys

Bird surveys were conducted following the protocols of the Ontario Breeding Bird Atlas (OBBA) point count. Two surveys were conducted in peak breeding season (May 24th -July 10th) approximately 10-15 days apart. All birds seen or heard within each five-minute station period were documented and breeding evidence codes recorded. Surveys were conducted in the early morning between dawn and 9 am. Seven breeding bird stations were established around the subject lands to capture different habitat types.

Area Searches

In addition to breeding bird point counts, birds detected while biologists were on site conducting other surveys were recorded along with a breeding evidence code if known. The search area for these surveys included all of the vegetation communities within the study area. Rare, significant or unusual species were searched for. Species significance or rarity on a national, provincial, regional and local level was based on published literature and standard status lists. These included SARA (2024), COSEWIC (2025), and SARO (2024).

2.2.2.3 Other Wildlife

Incidental observations of any other wildlife (e.g., amphibians, reptiles and mammals) encountered while biologists were on site were recorded. Documentation included notes about the species, location and type of observation (e.g., direct sightings and indirect evidence such as calls, tracks, scat, burrows, dens and browse). GHD biologists searched for significant or rare species. Species rarity on a national, provincial, regional and local level was based on published literature and standard status lists. These included SARA (2024), COSEWIC (2025), and SARO (2024).

2.2.2.4 Wetlands

The boundaries of any wetlands encountered on the Subject Lands were confirmed in the field by our wetland biologists using the protocols described in the Ontario Wetland Evaluation System Manual - Southern Ontario (2023). A formal wetland evaluation was not completed as part of the scope of work for this project on any wetlands not part of the existing mapped wetlands.

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2.2.2.5 Woodlands

Treed communities of contiguous woodland were evaluated according to the Significant Woodland Evaluation Criteria and Standards in Table 7-2 of MNR's Natural Heritage Reference Manual (2010). The boundaries of these woodlands and associated woodland characteristics were confirmed by GHD biologists in the field.

2.2.2.6 Significant Wildlife Habitat (SWH)

Prior to site visits, a candidate list of Significant Wildlife Habitat (SWH) features was created using the Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E, 2015. During site visits, the confirmation (presence/absence) of those natural features was conducted. GHD biologists surveyed for: tree cavities or other evidence of bat maternity colonies; rock piles, large stick nests and other evidence of woodland raptors; seeps and springs; vernal pools, ponds and other potential amphibian habitat in woodlands and wetlands. All field survey data was reviewed and assessed to determine if additional candidate SWH were present on the subject lands.

2.2.2.7 Fish Habitat

A fish habitat assessment was conducted within the Site on all watercourses following standardized provincial aquatic methods from the Ontario Stream Assessment Protocol, Version 10, Section 4, Module 1 (Stanfield L., 2017) and Ontario Ministry of Transportation (MTO) Environmental Guide for Fish and Fish Habitat Protocol Section 4.0 (MTO, 2009). Fish 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. Appropriate assessment types were determined on-site based on feature type using professional judgment.

Surface water quality parameters were to be measured in the Site using a Horiba U-52 Water Quality Meter. However, during the time of assessments, the water levels were too low to measure water quality.

Due to the presence of existing fish community data, fish community surveys were not conducted by GHD. Exisiting fish community data was obtained from Ontario Ministry of Natural Resources Aquatic Resource Area (ARA) (OMNR, 2024).

2.2.2.8 Species at Risk

Based on the background review and historical observation records and the habitats on site, the need for targeted surveys for specific species was assessed.

As the agricultural properties were planted in soya, no grassland bird surveys were conducted, but incidental observations were part of the breeding bird surveys.

Bat cavity tree assessments were conducted on any fencerow trees or areas of trees where the development envelope may impact. Surveys were area searches for snags or cavity trees. If trees were found, they were assessed as per MECP protocols.

Targeted red-headed woodpecker surveys with playback were not conducted. However, biologists did search for any suitable sized cavities and breeding bird surveys would have detected calling birds.

Searches were also conducted for possible pileated woodpecker nest holes in suitable sized trees, in accordance with recent protection under the Migratory Birds Convention Act.

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3. Existing Conditions

3.1 Physical Site Characteristics

3.1.1 General Site Characteristics

The site can be accessed from Burwash Road and is irregularly shaped. The Site is actively used for agricultural purposes with a house and barn in the south portion. The north portion of the Site contains a sloped portion with forested lands. A watercourse is in the north within the forested portions. At the time of site visits, all open fields were planted with soya beans. An ATV trail runs perpendicular to the south-east portion of the property.

3.2 Biological Inventories

3.2.1 Level of Effort

Table 1 Vegetation Surveys: Level of Effort and Environmental Conditions

Survey Date	Survey Type	Weather	Start Time	Effort (Person hours)
June 26, 2024	Breeding Bird Survey	15°C, 0 BWS, 0% Cloud Cover, No Precipitation	06:18	1 hour x 2 biologists
July 9, 2024	Breeding Bird Survey Cavity/Snag Tree Survey Ecological Land Classification (ELC)	18°C, 0 BWS, 100% Cloud Cover, No Precipitation	06:08	5.5 hours x 2 biologists
September 5, 2024	Aquatic Habitat	23°C, 2 BWS, 0% Cloud Cover, No Precipitation	12:00	2 hours x 2 biologists

3.2.2 ELC Code Descriptions

The vegetation communities in the study area were delineated by GHD biologists according to the methodologies outlined in Section 2.2.2.1. A summary of the level of effort and environmental conditions at the time of ELC surveys have been provided in Table 1. The location of each of these communities is depicted on Figure 1. A total of 116 plant species were observed during all field visits (**Appendix C**). All photos were taken on July 9, 2024.

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Community 1 - Dry-Fresh White Cedar Coniferous Forest Type (ELC Code: FOC2-2)

Community 1 is in the north portion of the Site and the furthest north-west field. This is a small community that is separated into two separate stands (**Figure 1**). The dense stands of eastern white-cedar (*Thuja occidentalis*) had very sparse ground cover, with some patches of swallowwort (*Vincetoxicum rossicum*).



Photo 1: Community 1 - FOC2-2

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Community 2 - White cedar - sugar maple mixed forest type (ELC Code: FOM7-1)

Community two is broken up into three (3) separate stands along the northern portion of the Site. It occupies much of the woodland in the north and covers community 1 in the two sections below. This community is made up a mix of eastern white cedar and sugar maple (*Acer saccharum*) dominating the canopy. Other vegetation identified in this community was typical to this type of ELC community such as Canada mayflower (*Maianthemum canadense*), ironwood (*Ostrya virginiana*), Virginia creeper (*Parthenocissus quinquefolia*) and white birch (*Betula papyrifera*). The most northern section of this community was not explored due to the concept plan restrictions of building past a slope that runs along this community.



Photo 2: Community 2- FOM7-1, looking east, showing valley features at north end adjacent existing ATV trail

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Community 3 - Mixed forest ecosite (ELC Code: FOM)

This community is located on the east portion of the Site. This small stand is dominated by eastern red cedar (*Juniperus virginiana*) and white ash *(Fraxinus americana*). The understory of this community is a mix of herbaceous plants such as Canada goldenrod (*Solidago canadensis*), orchard grass (*Dactylis glomerata*) and New England aster (*Symphyotrichum novae-angliae*).



Photo 3: Mixed forest ecosite on the east side of the Site

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Community 4 - Old field meadow type (ELC Code: CUM1-1)

This community was a small pocket, located just south of Community 3 at the property line. An ATV trail begins at this point. The community turns into a marshy area off Site. This upland cultural meadow was dominated by timothy (*Phleum pratense*). Other species included red clover (*Trifolium pratense*), common strawberry (*Fragaria virginiana*), ox-eye daisy (*Leucanthemum vulgare*) and common yellow wood sorrel (*Oxalis stricta*).



Photo 4: Old field meadow community

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Community 5 - Organic coniferous swamp (ELC Code: SWC3-1)

This community was dominated almost solely by eastern white cedar with some mature specimens. While the overall ground cover was sparse, pockets of ostrich fern (*Matteuccia struthiopteris*) and sensitive fern (*Onoclea sensibilis*) were found, in part due to the deep organic soils. Small numbers of other species were also identified including field horsetail (*Equisetum arvense),* spotted jewelweed (*Impatiens capensis*) and bitter nightshade (*Solanum dulcamara*). Species quantity and quality were more abundant closer to the Community Centre Road and ATV trail.



Photo 5: Organic coniferous swamp in the south portion of the Site

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Community 6 - Sugar maple-white ash deciduous forest type (ELC Code: FOD5-8)

Community 6 is south of community 2 and north of community 1. The canopy and subcanopy are dominated by a stand of young, even aged white ash (*Fraxinus americana*) and sugar maple (*Acer saccharum*). This community was almost void of an understory. The groundcover had a mix of herbaceous plants, some of which included wild red raspberry (*Rubus idaeus*), white avens (*Geum canadense*), prickly gooseberry (*Ribes cynosbati*) and Canada enchanters nightshade (*Circaea lutetiana*).



Photo 6: Young sugar maple-white ash deciduous forest

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Community 7 - Sugar maple-white ash deciduous forest type (ELC Code: FOD5-8)

This community is the same dominant species (sugar maple and white ash) as Community 6 but more mature in comparison. This community had a mix of trees in a range of sizes whereas community 6 was trees approximately 20cm DBH (diameter breast height) and smaller.



Photo 7: Mature sugar maple-white ash deciduous forest

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Community 8 - House and manicured lawn (No ELC Code)

This community encompasses all areas that are maintained; the home, manicured lawn, and the area around the barn. Vegetation here is very typical of lawns and maintained areas. Some species identified here included; lilac (*Syringa vulgaris*), smooth brome (*Bromus inermis*), broad leaved plantain (*Plantago major*), common St. John's wort (*Hypericum perforatum*) and Kentucky blue grass (*Poa pratensis*).



Photo 8: Community 8, showing the house and maintained lawn

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Community 9 - Hedgerows- removed (No applicable ELC Code)

Community 9 was the hedgerows that are still visible on online mapping applications, but are now not present. From historical imagery, this appeared to be six (6) sections of hedgerows that were separating the fields. As of the field visit, these hedgerows were removed; however, some identifiable colonizing vegetation was still growing. Some species included common ragweed (*Ambrosia artemisiifolia*), cow vetch (*Vicia cracca*), swallow-wort (*Vincetoxicum rossicum*), white clover (*Trifolium repens*) and common dandelion (*Taraxacum officinale*).



Photo 9: Vegetation regeneration on the fencerows removed with chip piles

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Community 10 - Hedgerows- (No applicable ELC Code)

Along the outer edges of the Site, or as a transition between the fields and communities, there are still some standing hedgerows. Species present included staghorn sumac (*Rhus typhina*), wild grape (*Vitis vinifera),* European buckthorn (*Rhamnus cathartica*) and common milkweed (*Asclepias syriaca*).



Photo 10: Hedgerows

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Community 11 - Agriculture (No applicable ELC code)

Community 11 was made up of a number of small, separated fields. At the time of our surveys, the fields were planted in soya beans.



Photo 11: Community 11 showing planted soya beans

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3.2.3 Birds

3.2.3.1 Breeding Bird Surveys

Twenty-seven (27) bird species were identified during breeding bird surveys conducted on June 26th, 2024, and July 9th, 2024. Survey stations were established throughout the Site to capture all habitat types, open fields, forests, wetlands. A bird species list with breeding status is provided in **Appendix D and E.**

Aside from the breeding bird point count surveys, several species of birds were observed while completing other surveys on Site, this brings the total number of species identified to thirty (30). Wild turkey (*Meleagris*) tracks were identified in many of the fields and with turkey feathers being in a few of the fields as well. A hen and mid-size turkeys were observed in community 7. A deceased ring-billed gull (*Larus delawarensis*) was found in a field and other gulls also noted flying over the site as part of their diurnal movements. A black-and-white warbler (*Mniotilta varia*) was observed by call in community 5, American robins (*Turdus migratorius)* were observed in community 7, a house wren (*Troglodytes aedon*) was observed in community 8, and a pair of eastern phoebes (*Sayornis phoebe*) were observed in community 9. Old pileated woodpecker (*Dryocopus pileatus*) feeding holes were observed in community 2 and 5, with fresh feeding holes observed in community 7. No nesting holes were observed.

3.2.4 Other Wildlife

Four (4) mammal species were identified on site while biologists were completing other surveys. White-tailed deer (*Odocoileus virginianus*) tracks were identified in every field in community 11 and visually observed in community 4 and 7. Coyote (*Canis latrans*) tracks were also seen in every field with scat being found in one field as well. Red squirrels (*Sciurus vulgaris*) were observed in community 9, running along the fencerows. An eastern gray squirrel (*Sciurus carolinensis*) was seen during the first breeding bird survey at station 3.

Two trees were identified by biologists that would be suitable for bat habitat. These trees were in community 7. One tree is approximately 90 DBH, 22 metres in height, has 3 cavities at 9 metres and has a decay code of 4. Both trees were emerald ash borer affected white ash. Both are shown on Figure 1.

3.2.5 Wetlands

NHIC natural heritage features mapping did not indicate the presence of wetlands on Site; However, field investigations identified a wetland in the extreme south-east portion of the Site adjacent Community Centre Road. This wetland is likely associated with the MNR mapped unevaluated wetland on the neighbouring property.

3.2.6 Woodlands

Woodland was identified abutting the watercourse corridor and northern extent of the Site. The woodland communities are described in Section 2.2.2.1 and delineated on **Figure 1**. The woodlands are a mix of deciduous, mixed, and coniferous woodland. The significance of the woodland is assessed in Section 4.2.1.

3.2.7 Significant Wildlife Habitat

The assessment of SWH follows the guidelines in Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (MNR 2015). During the candidate SWH review the following were identified as SWH with potential to occur in the Study Area and/or Subject Lands: Amphibian Breeding Habitat (woodland), Special Concern and Rare Wildlife Species, Bat Maternity Colonies, Area-Sensitive Breeding Bird Habitat, and Deer Wintering Habitat (Stratum 2).

3.2.8 Fish Habitat

The fish habitat assessment identified two unnamed tributaries to Baltimore Creek within the Site, from here on the tributaries will be referred to as “watercourses”. The watercourses originated east of the Site and crossed through the north and southwest portions of the Site and. The watercourses then continued to flow west from the Site and eventually discharge into Baltimore Creek. The northern tributary discharges into Baltimore Creek approximately

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100 m west of the Site, and the southern tributary discharges into Baltimore Creek approximately 1,000 m southwest of the Site.

The watercourses were classified into two habitat zones. Habitat zones were defined based on presence of barriers, substrate composition, channel morphology, riparian habitat, percent in-stream cover, hydrological connection and unique features. The habitat zone locations (HZ-01 and HZ-02) have been illustrated in **Figure 1** and the habitat characteristics have been summarized in **Appendix E**.

Habitat zone 1 (**Photo 12**) is located in the north portion of the Site within the forest community, it should be noted that only 50 m of the watercourse within the Site was assessed due to existing development constraints. The substrate was dominated by sand with moderate overhead cover consisting of mainly trees and shrubs. The canopy cover was also moderate covering 50-74% of the surface of the watercourse. The watercourse morphology was dominated by run habitat. During the time of assessments, the habitat zone had a defined natural channel that was mostly dry with some standing water. The average water depth was 0.2 m, and the wetted width was 1.3 m. Please refer to **Section 3.2.2**, Community 2 for a detailed description of riparian vegetation.

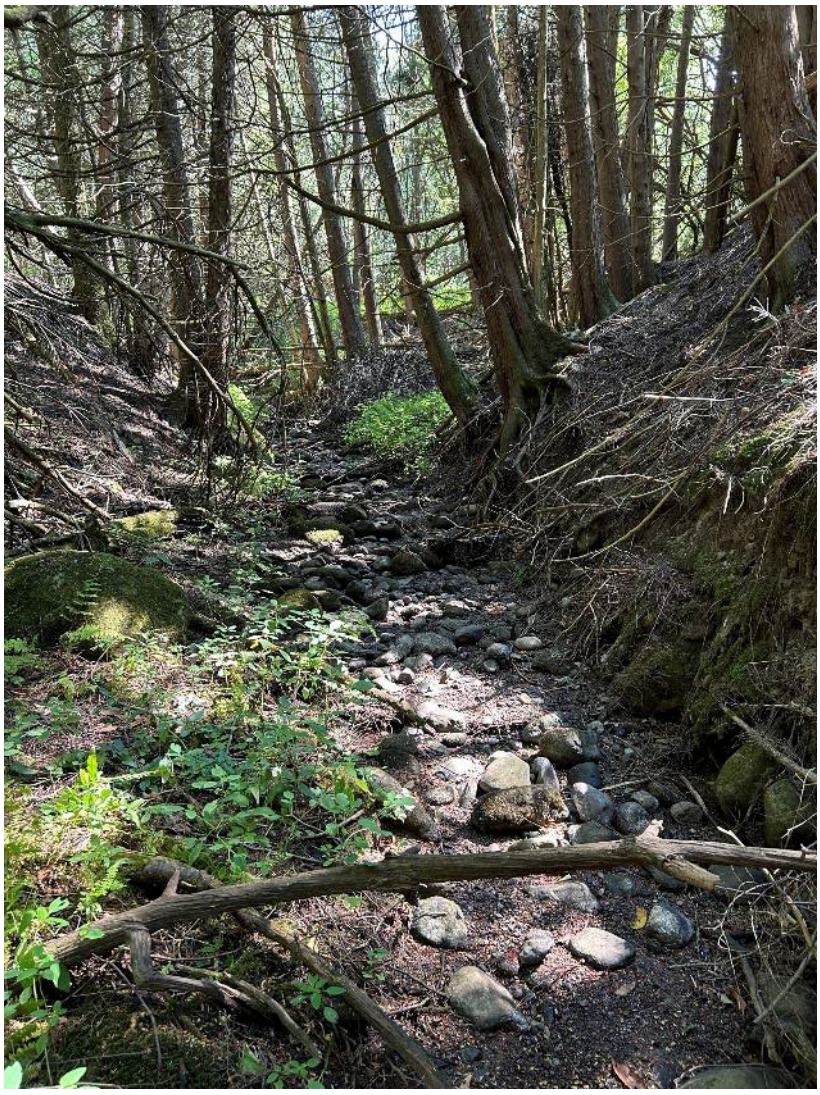

Photo 12 : Habitat Zone 1, representative of the watercourse and riparian habitat, photo facing downstream (northwest)o(Photo Date : September 5, 2024)

Habitat zone 2 (**Photo 13**) is located in the south portion of the Site within the wetland community and is approximately 100 m in length. The substrate was dominated by fine organics, the overhead cover was dense and was dominated by non-woody vegetation. The canopy cover was also dense providing shade to 75-100% of the water's surface. The watercourse morphology was dominated by "run" habitat. During the time of assessments, the habitat zone was classified as having a mixture of defined natural channel and wetland habitat. The was

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minimal flow with an average water depth of 0.2 m and average wetted width of 2 m. Please refer to **Section 3.2.2**, Community 5 for a detailed description of riparian vegetation.



Photo 13: Habitat Zone 2, representative of the watercourse. Photo facing downstream (south) (Photo Date : September 5, 2024)

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4. Discussion and Analysis

4.1 Species and Communities

4.1.1 Vegetation

None of the ecological communities (i.e., ELC ecosites or vegetation community types) found on the Site are considered provincially rare (NHIC 2022). No regionally rare plant species were detected within the Site.

The Ontario Natural Heritage Information Centre maintains records of rare and unusual species and communities in the province. The public can access presence-absence information for different species and/or vegetation communities according to the 1km x 1km square in which they were sighted. Records obtained from the NHIC (2022) for the squares that overlap the Site (17QJ2878, 17QJ2978 and, 17QJ2979) showed no rare or Species at Risk vegetation species.

4.1.2 Birds

A review of NHIC's make-a map database records for the 1km-by-1km squares (17QJ2878, 17QJ2978 and, 17QJ2979) containing the Site include records of four (4) Species at Risk at either at the national and/or provincial level (SARA 2023, COSEWIC 2023, SARO 2024). These species were grasshopper sparrow (*Ammodramus savannarum*), eastern wood-pewee (*Contopus virens*), eastern meadowlark (*Sturnella magna*) and bobolink (*Dolichonyx oryzivorus*).

The Ontario Breeding Bird Atlas (OBBA) is a volunteer-driven project aimed at documenting information about Ontario's breeding birds (i.e., abundance and distribution). The OBBA has had two previous data collection periods: from 1981-1985 and 2001-2005. A third five-year data collection period is currently underway (2021-2025). The public can access records of which species were in each 10km x 10km square that occurs in Ontario. Records obtained from the 2nd OBBA for the 10km^2 Ontario Breeding Bird Atlas square that overlaps the Site (17TQJ27) included the following twelve (12) Species at Risk (i.e., at the national or provincial level): common nighthawk (*Chordeiles minor*), chimney swift (*Chaetura pelagica*), least bittern (*Ixobrychus exilis*), red-headed woodpecker (*Melanerpes erythrocephalus*), eastern wood-pewee, bank swallow (*Riparia riparia*), barn swallow (*Hirundo rustica*), wood thrush (*Hylocichla mustelina*), grasshopper sparrow, bobolink, eastern meadowlark and Canada warbler (*Cardellina canadensis*).

There were no grassland habitats where grasshopper sparrows, bobolink or eastern meadowlarks would be able to breed. No suitable marsh habitat exists within the Study Area suitable for least bittern. Common nighthawks, chimney swifts and bank swallows may use the area to forage, but their habitat is likely associated with the larger area covered by the 10x10km square. The barn on site was not entered, but biologists watched the barn to see if any barn swallows were flying around or entering/ existing within the barn and none were observed.

Canada warbler is listed as special concern both provincially and federally (SARO, 2024; SARA 2023, COSEWIC 2023). In Ontario, breeding habitat for Canada warbler consists of moist mixed forests with a well-developed shrubby understory. This includes low-lying areas such as cedar and alder swamps, and riparian thickets (McLaren 2007). It is also found in densely vegetated regenerating forest openings. Suitable habitat often contains a developed moss layer and an uneven forest floor. Nests are well concealed on or near the ground in dense shrub or fern cover, often in stumps, fallen logs, overhanging stream banks or mossy hummocks (Reitsma et. al. 2010). This type of habitat was present in the more mature woodlands on Site. However, none were heard or observed during our surveys.

Deciduous and mixed woodland habitat may support wood thrush and eastern wood-pewee, as they prefer mature deciduous and mature mixed forests. Eastern wood-pewee is listed as special concern both provincially and federally (SARO, 2024; SARA 2023, COSEWIC 2023). It inhabits a wide variety of wooded upland and lowland habitats but is most associated with the mid-canopy of forest clearings, and edge habitat in deciduous and mixed forests. It also occurs in anthropogenic habitats that provide an open forested aspect such as parks and suburban neighborhoods. It prefers intermediate-age mature forest stands with little understory vegetation (COSEWIC 2012). Wood thrush is listed as a special concern species provincially and a threatened species federally (SARO,

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2024; SARA 2023, COSEWIC 2023). In Ontario, wood thrush breeds in moist, deciduous hardwood or mixed stands that are often previously disturbed, with a dense deciduous undergrowth and with tall trees for singing perches. This species selects nesting sites with the following characteristics: lower elevations with trees less than 16 m in height, a closed canopy cover (>70 %), a high variety of deciduous tree species, moderate subcanopy and shrub density, shade, open forest floor, moist soil, and decaying leaf litter (COSEWIC 2012). This habitat was present within the woodlands on Site. However, neither species was observed or heard on site.

Red-headed woodpecker cavities were searched for throughout the property, snag trees were identified in the north deciduous woodland which may provide nesting habitat for the species. Red-headed woodpecker is listed as an endangered species both provincially and federally (SARO, 2024; SARA 2023, COSEWIC 2023). In Ontario, the red-headed woodpecker breeds in open, deciduous woodlands or woodland edges and are often found in parks, cemeteries, golf courses, orchards and savannahs (Woodliffe 2007). They may also breed in forest clearings or open agricultural areas provided that large trees are available for nesting. They prefer forests with little or no understory vegetation. They are often associated with beech or oak forests, beaver ponds and swamp forests where snags are numerous. Nests are excavated in the trunks of large dead trees (Smith et al. 2000). Although there are historical records in the larger area and some suitable habitat exists on Site, no suitable cavities were found and no birds observed or heard during our Site visits.

4.1.3 Other Wildlife

4.1.3.1 Amphibians

The Ontario Reptile and Amphibian Atlas identified a record of western Chorus Frog Western within the 10km x 10km square that overlaps the property (17QJ27). The western chorus frog (Great Lakes St. Lawrence/Canadian Shield Population*; Pseudacris triseriata*) is federally threatened SAR but not at risk provincially (SARA 2024, COSEWIC 2025). In Ontario, habitat of this amphibian species typically consists of marshes or wooded wetlands, or seasonally flooded areas, particularly those with dense shrub layers and grasses, as this species is a poor climber. They will breed in almost any fishless pond including roadside ditches, gravel pits and flooded swales in meadows. This species hibernates in terrestrial habitats under rocks, dead trees or leaves, in loose soil or in animal burrows. During hibernation, this species is tolerant of flooding (Environment Canada 2015).

Breeding habitat for this species was not identified on Site due to a lack of open water ponds. No western chorus frogs were observed or heard on site.

4.1.3.2 Reptiles

The Ontario Reptile and Amphibian Atlas identifies a records of eastern hognose snake (*Heterodon platirhinos)*, eastern ribbonsnake (*Thamnophis sauritus)*, snapping turtle (*Chelydra serpentina)* and midland painted turtle (*Chrysemys picta)* within the 10km x 10km square that overlaps the property (17QJ27).

Eastern hognose snake is listed as threatened both federally and provincially (SARO, 2024; SARA 2024, COSEWIC 2025). In Ontario, this snake typically uses habitat with open vegetation cover, including open woodlands (pine mostly), wetlands, fields, forest edges, beaches and dunes, and disturbed sites, most often near water. This species relies on sandy well drained soils. Hibernation occurs in sandy soils below the frost line. This species has been observed excavating hibernation sites in mixed intolerant upland forests. Nesting and oviposition have been noted in upland sandy areas and rock outcrops under large flat rocks. The majority of their diet is comprised of American toad and Fowler's toad (Kraus 2011). Habitat for this species may be possible on Site in a variety of habitats on Site. None were observed during our field surveys.

Eastern ribbonsnake (Great Lakes population) is listed as special concern both provincially and federally (SARO, 2024; SARA 2023, COSEWIC 2023). In Ontario, eastern ribbonsnake is semi-aquatic, and is rarely found far from shallow ponds, marshes, bogs, streams or swamps bordered by dense vegetation. They prefer sunny locations and bask in low shrub branches. Hibernation occurs in mammal burrows, rock fissures or even ant mounds (COSEWIC 2012). Appropriate habitat was not identified on Site.

Snapping Turtle is listed as special concern both provincially and federally (SARO, 2024; SARA 2023, COSEWIC 2023). In Ontario, snapping turtles utilize a wide range of waterbodies, but shows preference for areas with shallow, slow-moving water, soft substrates and dense aquatic vegetation. Hibernation takes place in soft

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substrates under water. Nesting sites consist of sand or gravel banks along waterways or roadways (COSEWIC 2008). Appropriate habitat was not identified on Site.

Midland Painted Turtle is listed as special concern both provincially and federally (SARO, 2024; SARA 2023, COSEWIC 2023). They occupy slow moving, relatively shallow and well-vegetated wetlands (e.g., swamps, marshes, ponds, fens, bogs, and oxbows) and water bodies (e.g., lakes, rivers, creeks, and streams) with abundant basking sites and organic substrate. The species is semi-tolerant of human-altered landscapes and may occasionally be found occupying urban ponds and lands subject to anthropogenic disturbance (e.g., farm ponds, impoundments, water treatment facilities) (COSEWIC 2018). Appropriate habitat was not identified on Site.

4.1.3.3 Mammals

Habitat for SAR and non-SAR bats may be present on Site. Two candidate maternity roost trees were identified in the north deciduous woodland portion of the Site. Both trees were white ash, with one tree having a DBH of 90cm, with 3 cavities at heights of 9m or higher. The other tree lacked cavities, but had peeling bark which could provide cover for roosting bats. Three endangered bat species with ranges that overlap with the Site are known to roost in trees; little brown myotis (*Myotis lucifugus*), northern myotis (*Myotis septentrionalis*), and tri-colored bat (*Perimyotis subflavus*) (SARO, 2024; SARA 2024, COSEWIC 2025).

Little brown myotis will roost in both natural and man-made structures. They require several large dead trees, in specific stages of decay and that project above the canopy in relatively open areas (Lacki 2007). This species may form nursery colonies in the attics of buildings within 1 km of water. Caves or abandoned mines may be used for hibernaculum, but high humidity and stable above freezing temperatures are required. Little brown myotis have a moderate likelihood to occur within the Site because of the snag/cavity trees present within Community 7 – FOD5-8.

Northern myotis will usually roost in hollows, crevices, and under loose bark of mature trees. Roosts may be established in the main trunk or a large branch of either living or dead trees. Caves or abandoned mines may be used for hibernaculum, but high humidity and stable above freezing temperatures are required (COSSARO 2012). Northern myotis have a moderate likelihood to occur within the Site because of the snag/cavity trees present within Community 7 – FOD5-8.

Tri-colored bats may roost in foliage, in clumps of old leaves, hanging moss or squirrel nests. They are occasionally found in buildings although there are no records of this in Canada (Poissant et al. 2010). They typically feed over aquatic areas with an affinity to large bodies of water and will likely roost near these. Hibernation sites are found deep within caves or mines in areas of relatively warm temperatures. These bats have strong roost fidelity to their winter hibernation sites and may choose the exact same spot in a cave or mine from year to year. Tri-colored bats have the potential to occur within the Site because of the watercourse and surrounding wooded areas, which provide suitable roost and foraging habitat for the species.

4.2 Natural Features

4.2.1 Woodlands

Six areas within the Subject Lands were forested communities. A mixed woodland (FOM7-1) was located along the north limits of the Site. A deciduous woodland (FOD5-8) was located south of the mixed woodland. Coniferous cedar-dominated woodlands are also identified in the north portion of the Site. A mixed woodland has been identified on the extreme east of the Site and is part of a larger contiguous woodland off Site.

The Township and County OP does not directly identify significant woodland on the Site. However, the Township OP Section 8.2.5 is treating all wooded areas larger than 0.5 hectares as having potential to be Provincially Significant. This would infer that all woodlands on the northern portion of the Site and that are part of the larger contiguous woodland outside of the Site boundaries, are potentially Significant. This would include communities 1, 2 and 7.

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4.2.2 Wetlands

The only wetland identified on Site is an organic coniferous swamp (SWC3-1) in the southeast of the Site adjacent Community Centre Road. The wetland is associated with the riparian corridor of a small watercourse. The wetland is not currently mapped on provincial or regional mapping applications, nor is it identified in Township or County OP schedules. It is likely hydrologically linked to a larger mapped wetland off-site to the east.

4.2.3 Significant Wildlife Habitat

In the Provincial Planning Statement (2024) wildlife habitat is defined as, "… areas where plants, animals, and other organisms live, and find adequate amounts of food, water, shelter and space needed to sustain their populations." These documents also state, "specific wildlife habitats of concern may include areas where the species concentrate at a vulnerable point in their annual or life cycle; and areas which are important to migratory and non-migratory species."

Significant Wildlife Habitat often occurs within other natural heritage features and areas covered by Policy 4.1 of the Provincial Planning Statement (e.g., significant wetlands and significant woodlands). Therefore, it has been suggested that identification and evaluation of SWH is best undertaken after other natural heritage features have been identified (Natural Heritage Reference Manual, 2010). GHD biologists analysed the information collected from the ecological communities on the subject lands using the criteria for Significant Wildlife Habitat in Ecoregion 6E (2015) and compiled all candidate and confirmed (if any) habitats as described in the table below.

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Table 2 Candidate Significant Wildlife Habitat on Site

Seasonal Concentration Areas of Animals			
1. Areas where wildlife species occur annually in aggregations at certain times of the year. **2. In spring and autumn, migratory wildlife species will concentrate where they can rest and feed. Other wildlife species require habitats where they can survive winter. Examples of seasonal concentration areas include deer wintering areas, breeding bird colonies and hibernation sites for reptiles, amphibians and some mammals.**			
Candidate Wildlife Habitat	**Habitat Criteria and Requirements for Confirmation**	**Was SWH confirmed?**	**Probability of Occurrence & Explanation**
Bat Maternity Colonies	Maternity colonies can be found in tree cavities, vegetation and often in buildings (buildings are not considered to be SWH). Maternity roosts are not found in caves and mines in Ontario Maternity colonies located in Mature deciduous or mixed forest stands with >10/ha large diameter (>25cm dbh) wildlife trees Female Bats prefer wildlife tree (snags) in early stages of decay, class 1-3 or class 1 or 2 Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred.	Not confirmed	Two cavity trees were found which may present roosting habitat for bats. Cavity/snag density did not meet habitat size criteria to be SWH.
Deer Wintering Congregation Areas	Woodlots will typically be >100 ha in size. Woodlots <100ha may be considered as significant based on MNRF studies or assessment. Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands. If deer are constrained by snow depth refer to the Deer Yarding Area habitat within Table 1.1 of this Schedule. Large woodlots > 100ha and up to 1500 ha are known to be used annually by	Yes	Mapping from the Ministry of Natural Resources (MNR) shows that the southeast side of the property is labelled as Statum 2 deer yard. Swamp to west and coniferous forest may contain suitable habitat for this function.

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Seasonal Concentration Areas of Animals			
	densities of deer that range from 0.1-1.5 deer/ha Woodlots with high densities of deer due to artificial feeding are not significant.		
Specialized Wildlife Habitat			
1. Areas that support wildlife species with highly specific habitat requirements. 2. Areas with exceptionally high species diversity or community diversity. 3. Areas that provide habitat that greatly enhances a species survival			
Candidate Wildlife Habitat	**Habitat Criteria and Requirements for Confirmation**	**Was SWH confirmed?**	**Probability of Occurrence & Explanation**
Area-Sensitive Bird Breeding Habitat	Habitats where interior forest large mature (>60 yrs old) forest stands or woodlots >30 ha. Interior forest habitat is at least 200 m from forest edge habitat.	No	Five (5) area-sensitive species were identified on site: pileated woodpecker, black-throated green warbler (*Setophaga virens)* eastern wood-pewee (*Contopus virens*) in red-breasted nuthatch (*Sitta canadensis*) and a veery (*Catharus fuscescens*). Interior habitat was not present on Site.
Amphibian Breeding Habitat (Woodland)	Presence of a wetland, pond or woodland pool (including vernal pools) >500 m2 (about 25 m diameter) within or adjacent (within 120 m) to a woodland (no minimum Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used	No	Permanent water not identified in swamp community.
Habitat for Species of Conservation Concern (Not Including Endangered or Threatened Species)			
1. Areas that support wildlife species that are listed as Special Concern or rare, that are declining or are featured species. 2. Excludes the habitats of Endangered or Threatened Species			
Candidate Wildlife Habitat	**Habitat Criteria and Requirements for Confirmation**	**Was SWH confirmed?**	**Probability of Occurrence & Explanation**
Special Concern and Rare Wildlife Species	Presence of special concern and provincially rare (S1-S3, SH) plant or wildlife species. Assessment must be conducted in the peak breeding season for those species.	No	No species of concern were identified on site.

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4.2.4 Fish Habitat

Watercourses within the site are classified as permanent cold water watercourses (ARA, 2024). Observations within the watercourses (HZ-01 and HZ-02) that cross the Site indicate that the watercourses have defined natural channels and provide direct and indirect fish habitat. Results of the fish habitat assessments conducted in HZ-01 suggest that this watercourse has permanent flow and likely functions as direct fish habitat while the lack of flow observed at the time of field investigations in HZ-02 suggest that this watercourse has intermittent flow and functions as indirect fish habitat. Specifically, they provide feeding, nutrients, hydrological and groundwater connections to the downstream fish habitat of Baltimore Creek. These attributes are important for the sustainability of the existing coldwater fish community present in the watercourses and Baltimore Creek.

The fish community documented in both the watercourses consisted of the following families; American Brook Lamprey (*Lethenteron appendix*), Western Blacknose Dace (*Rhinichthys obtusus*), Brook Trout (*Salvelinus fontinalis*), Brown Trout (*Salmo trutta*),Chinook Salmon (*Oncorhynchus tshawytscha*), Creek Chub (*Semotilus atromaculatus*), Fantail Darter (*Etheostoma flabellare*), Johnny Darter x Tessellated Darter (*E. nigrum/E. olmstedi*) ,Longnose Dace (*Rhinichthys cataractae*), Mottled Sculpin (*Cottus bairdii*), Rainbow Trout (*Oncorhynchus mykiss*) ,Sea Lamprey (*Petromyzon marinus*) and White Sucker (*Catostomus commersonii*). The fish species are common to the Lake Ontario watershed and are widely distributed throughout southern Ontario. No SAR were identified within the Site (DFO 2024). Based on the size of the watercourses and flow regimes present at the time of assessment Salmonid species are unlikely to be permanent residents within the watercourses. The watercourses would likely provide feeding, reproduction or migration habitat to the fish species documented within the site.

Fish habitat in Ontario is managed federally by the Minister of Fisheries and Oceans Canada and since the watercourses that cross the Site function as direct and indirect fish habitat, the *Fisheries Act* applies to both watercourses. There are no DFO records of Aquatic SAR or their critical habitat within the Site (DFO 2024).

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 subject lands.

5.1 Species and Communities

5.1.1 Birds

5.1.1.1 Species at Risk

The field surveys did not confirm presence of any bird species at risk on the site or on the adjacent lands.

Direct impacts of development may include loss of foraging and nesting habitat as the open field is developed, and portions of the woodlot are cleared and prey insect populations are reduced. Indirect impacts may include disturbance because of increased noise and light pollution. Increased noise may force calling birds to expend more energy in singing louder to overcome noise. Increased light pollution could disrupt circadian rhythm in birds, leading to irregular call patterns and increased energy expenditure.

5.1.1.2 Non-Species at Risk

For non-SAR bird species, direct impacts will include loss of nesting habitat (open area and woodland nesting birds) and loss of foraging habitats if woodland areas are within the development area or in the grading zones.

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5.1.2 Other Wildlife

5.1.2.1 Species at Risk

Potential roosting habitat was identified for little brown myotis and northern myotis within the deciduous and mixed woodland communities (FOD5-8, FOM7-1, FOM) within the Subject Lands. The proposed residential development and associated infrastructure are proposed to extend into the woodland based on the concept plan. Two cavity trees were identified within the northern woodland as shown in Figure 3, however, the snag density in the woodland and Study Area was too low (less than 10 snags per hectare) to qualify as candidate SWH for bat maternity colonies. As such, there are no anticipated direct or indirect impacts anticipated for bat maternity colonies. The loss of woodland will directly impact potential roosting habitat for the bats listed above due to the loss of trees. To prevent direct impacts to roosting bats, tree removal should only occur from October 1 – March 31 to avoid the bat active period. Indirect impacts include decreased foraging opportunities due to loss of habitat and a decrease in insect populations and increased light pollution which alters bat activity.

Potential roosting habitat for tri-coloured bat may exist within the deciduous and mixed woodland communities (FOD5-8, FOM7-1, FOM) with foliage present in general. None of the trees identified in the Site were classified as having suitable leaf clusters for roosting during field investigations, however, potential roosting habitat for tri-coloured bats may be directly impacted by the removal of trees. As such, tree removal should be restricted to October 1 – March 31. Indirect impacts anticipated as a result of the proposed infrastructure include decreased foraging opportunities due to loss of habitat and a decrease in insect populations and increased light pollution which alters bat activity.

5.2 Natural Features

5.2.1 Woodlands

The contiguous woodland (from several woodland communities) was delineated in the field and identified to be a candidate Significant Woodland under the Township of Hamilton definition of significant woodland. Based on the concept plan, the significant woodland may be impacted by the development of residential lots, and storm water management facilities. Both the County of Northumberland and Township of Hamilton official plans include policies for a 120m minimum area of influence setback from significant woodlands unless no negative impacts to the natural feature and its ecological function is proven via an EIS. A 30m minimum vegetation protection zone setback from significant woodlands is proposed from all woodland boundaries on Site as per the County of Northumberland and Township of Hamilton OP policies for minimum vegetation protection zone.

The proposed development will not have a significant impact on the adjacent woodlands. The woodland is currently adjacent existing agricultural fields which is subject to impacts due to windthrow, dust, edge effect, erosion and anthropogenic disturbances. The implementation of a planted setback directly adjacent the woodlands (where void of vegetation) will provide additional protection to the exposed woodlands. The remainder of the setback will remain in natural self-sustaining vegetation

Heavy duty ESC is recommended around the development envelope to minimize sediment entering the surrounding protected areas. Fencing should be considered along the development limits to prevent negative impacts to wildlife accessing the Site.

5.2.2 Wetlands

The wetland on the Site was delineated by GHD biologists in the field (Communities 6 - **Figure 1**). Based on the concept plan, this community will be impacted by the development of residential lots as well as a road and storm water management facility. A 30m setback from the outer edge of the community is proposed as per the County of Northumberland and Township of Hamilton official plan policies for minimum vegetation protection zone.

Site grading and construction works have the potential to impact the adjacent wetland as a result of the proposed residential development. Impacts due to site-preparation and grading may include erosional gullies leading to the into wetland and watercourses, impacted water level, reduced plant survival, biodiversity loss, and sedimentation which could result in wetland loss. Installation of silt fence and other erosion control measures is required. An

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increase in human population in vicinity of the wetland may result in increased foot traffic and introduction of invasive species due to landscape waste. The 30-metre setback proposed will provide suitable protection for the wetland community.

During site preparation it is recommended that heavy-duty double-lined silt fencing (ESC fencing) be installed around the extent of the proposed development prior to the commencement of construction or potential placement of fill on the Site to protect the wetland from any potential sediment run off in the event of heavy rains or snow melts.

The proposed setbacks are recommended to be enhanced with native, self-sustaining vegetation and plantings to provide further protection; it is recommended these areas which are within the existing agricultural fields and currently void of vegetation natural vegetation be planted with native shrubs and trees (when possible) and seeded with a native seed mix to reduce erosion and maintain a natural vegetated setback.

The location and design of stormwater management facilities should be reviewed in order to understand potential impacts on the natural heritage features associated with stormwater management.

Mitigation is proposed to reduce impacts as a result of human activities. A 1.8 m high chain link fence is recommended to be installed around the perimeter of the development envelope to restrict anthropogenic movement into the protected features and associated setbacks. Heavy duty silt fencing should be installed prior to any clearing or grading associated with the proposed construction works. ESC fencing should remain in place until construction is completed, and soils have stabilized. The ESC fencing can serve as a visual cue to contractors for fence installation and no-go zones for development.

5.2.3 Significant Wildlife Habitat

A deer wintering congregation area was confirmed to be present on the Site based on mapping from the Ministry of Natural Resources (MNR) that shows that the southeast side of the property is labelled as Statum 2 deer yard.

No other SWH was confirmed or deemed likely to occur on Site.

A summary of impacts including mitigation and recommendations has been provided below in **Table 3.**

5.3 Fish Habitat

The two watercourses of Baltimore Creek function as direct (HZ-01) and indirect (HZ-02) fish habitat. Specifically, they provide cover, feeding, rearing, overwintering, and potential spawning habitat for the Baltimore Creek fish community. These attributes are important for the sustainability of the coldwater fish community that inhabits the watercourses and Baltimore Creek. It is recommended that the form and function of the watercourses within the Site be protected with a 30 m setback from the high-water mark, no development shall occur within this setback.

No significant impacts to fish or fish habitat are anticipated as a result of the current concept plan provided mitigation measures and recommendations are implemented as outlined in this report. To protect the watercourse and to demonstrate the project complies with the PPS, Conservation Authorities Act and Fisheries Act, additional recommendations have been provided in **Section 7.0**. These recommendations should be incorporated into the project detailed design and reviewed by professional biologist.

6. Policy and Legislative Compliance

6.1 Federal Legislation

6.1.1 Fisheries Act

Based on the current conceptual design, the proposed development will avoid all in-water works and standard environmental protection measures (i.e., erosion and sediment control, riparian buffers) as recommended in Section 7 below will avoid indirect impacts to fish habitat. Therefore, the proposed development is in compliance with the Fisheries Act and further project review by DFO is not required.

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If during the detailed design phase of the project proposes any near or in-water work and they cannot integrate the DFO protective measures and have the potential to cause the harmful alteration, disruption or destruction of fish habitat (such as infilling or alteration of the watercourse) a DFO Request for Review document must be submitted to DFO for formal project assessment to determine the next steps in project compliance. In addition, if a stormwater management pond is proposed in the future, evaluation of the location and design will be necessary to understand potential impacts and Fisheries Act compliance. Additional project details would be required to assess project compliance with the Fisheries Act.

6.1.2 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 lands 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.

6.2 Provincial Legislation

6.2.1 Endangered Species Act, 2007

As no provincially-listed Species at Risk or Species at Risk habitat were found in the study area, the proposed development is in compliance with the Endangered Species Act.

6.2.2 Provincial Planning Statement, 2024

The subject lands do not contain any provincially significant wetlands, is not located north of Ecoregions 5E, 6E and 7E and does not include or significant ANSIs. As a result, Sections 4.1.4 a) and b) and 4.1.5 a), b), c), e) and f) of the Provincial Planning Statement do not apply. Section 4.1.5 d) is applicable due to the presence of SWH (deer wintering congregation area). The protection of the woodland areas with an applicable buffer will maintain that habitat function. Section 4.1.6 and 4.1.7 of the PPS do not apply as no work will occur within fish habitat and the subject lands also does not have habitat of endangered species and threatened species.

In this EIS report, we have prepared Section 5.2.1 (Woodlands), 5.2.2 (Wetlands) and Section 5.3 (Fish and Aquatic Habitat) with recommendations, including buffers and mitigation measures that would permit the proposed development to proceed while not negatively impacting those natural heritage features or their ecological functions. Therefore, section 4.1.8 of the PPS does not apply.

6.3 Local and Other Regulatory Bodies

6.3.1 Northumberland County Official Plan (2016)

GHD has confirmed the location and extent of key natural heritage and/or hydrologic features through this EIS, as stipulated in Section D1.9.3 (Northumberland County Official Plan, 2016). Sections 5.1, 5.2, 5.3, and 7.0 of this EIS report describe measures that would permit the proposed development to be consistent with the 2016 Northumberland County Official Plan. Provided the recommended measures are followed, there will be no negative impacts on natural heritage or hydrologic features or their functions. In addition, connectivity between such features would be maintained.

6.3.2 Township of Hamilton Official Plan (2010)

Because the proposed development has been submitted for lands within or adjacent to an area identified as Natural Heritage System, this EIS has been prepared in accordance with Section 8.2.8 of the Township of Hamilton Official Plan (2010). Sections 5.1, 5.2, 5.3, and 7.0 of this EIS report describe measures that would permit the proposed development to be consistent with the Town’s Official Plan.

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6.3.3 Ganaraska Region Conservation Authority Regulations and Policies

Sections 5.2.1 (Woodlands), 5.2.2 (Wetlands) and 5.3 (Fish and Aquatic Habitat) provide direction as to how the development can proceed in a manner that complies with GRCA policies and Ontario Regulation 41/24. Recommendations have also been included (in Section 7) that will prevent any negative impacts to identified natural heritage features or their functions.

7. Summary of Recommendations

The following section is a comprehensive list of all project mitigation measures, recommendations, best management practices, and or compensation measures (if required). Many recommendations have been discussed or referenced in the body of the text and others may be newly presented standard best management practices. This list is intended to assist project reviews, contractors and clients to understand all environmental recommendations and to ensure all parties have fulsome understanding of the project. The final conclusions of this report are based on the implementation of the following. Any changes to the Site concept plan, lotting fabric, and the stormwater management system will require an EIS addendum which may impact mitigation measures, recommendations, best management practices and compensation measures.

7.1 General

1. The construction envelope must be clearly defined and delineated with a line staked and clearly marked in the field prior to any construction activities occurring in the study area.
2. Prior to any site preparation activities (such as grading or placement of fill) erosion and sediment control measures should be installed along the construction envelope to ensure sediment laden runoff does not enter or interfere with the adjacent woodland, wetland or watercourses. The silt fence should be inspected and maintained throughout the construction phase and remain in place until the soils are stabilized and re-vegetated.
3. Client to obtain relevant permits from Northumberland County, Hamilton Township, and Ganaraska Region Conservation Authority.
4. Any vegetation clearing required for site access prior to construction shall be completed outside of the Breeding Bird timing window of April 1st to August 31st (as per Environment and Climate Change Canada regulations).
5. The Project Manager and Contractor are obligated to ensure that all mitigation measures are strictly observed.
6. 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.
7. Native species should be incorporated into the Landscaping of the site.
8. Respect the 30 m setback from the high-water mark, no near or in-water work.

7.2 Woodlands and Associated Wildlife Habitat

9. A 30-metre buffer (setback) will be established from the delineated boundary of the identified woodland community edges as per Figure 1.
10. For accuracy, the woodland boundary will be determined through a staking exercise in cooperation with GRCA and tied in by an OLS surveyor.
11. Natural vegetation cover shall be allowed to grow wild, and downed woody debris (i.e., fallen sticks, logs) shall not be removed from woodland habitats retained on site.
12. Temporary wildlife exclusion fencing will be established around the development envelope to prevent wildlife access to the Site.

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7.3 Wetlands and Associated Wildlife Habitat

13. A 30-metre buffer (setback) will be established from the delineated boundary of the identified wetland community edge as per Figure 1.
14. For accuracy, the wetland boundary will be determined through a staking exercise in cooperation with GRCA and tied in by an OLS surveyor.
15. Natural vegetation cover shall be allowed to grow wild, and downed woody debris (i.e., fallen sticks, logs) shall not be removed from wetland habitat retained on site.
16. Temporary wildlife exclusion fencing will be established around the development envelope to prevent wildlife access to the Site.

7.4 Species at Risk

17. Should any Species at Risk (SAR) be incidentally encountered during work related activities, or if there is potential to negatively impact SAR, or wildlife more generally, the MECP must be contacted immediately for guidelines on how to proceed.

7.5 Sediment and Erosion Control

18. 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.
19. Sediment control measures shall be installed prior to the commencement of work and shall be maintained throughout the project to prevent the entry/outward flow of sediment into the watercourses crossing the Site and Baltimore Creek.
20. All sediment and erosion control measures shall be inspected regularly during the construction phase and periodically thereafter to ensure they are functioning properly, maintained, and upgraded as required. Sediment fence to be checked regularly to ensure they are maintained and functioning as intended. Accumulated silt and debris will be removed from the fence and site according to the design specifications and prior to removal of the fence once site stabilization has occurred.
21. 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 documented by the site inspector and if required, reviewed by a biologist to determine if the occurrence has impacted adjacent natural habitats.

7.6 Fish Habitat

22. If stormwater management ponds are proposed during the detail design phase of the project, it is recommended that the stormwater management plan be designed to provide Enhanced Level treatment and consider low impact development (LID) practices be used where possible. Existing vegetation should be maintained where possible to manage run-off by minimizing impervious cover. All stormwater management features should be designed to minimize thermal impacts and reduce the temperature of discharged waters. All stormwater features and LID will be located outside of the greatest natural feature buffer. If a stormwater management pond is proposed on the Site in the future, it is recommended that the design be reviewed by a qualified biologist when these details become available and any impacts on the natural features as a result be evaluated.
23. If during the detail design phase of the project proposes any near or in-water work, they should be evaluated by a professional biologist to provide mitigation measures since the watercourses function as fish habitat. If the future development proposes near or in-water work to the watercourses, the detail design should be reviewed by a professional biologist. Work in or near water may require the submission of a Request for Review to DFO to confirm if an Authorization under the Fisheries Act is required. Any work within the GRCA Regulated Area will also trigger a permitting review under the Conservation Authorities Act. Proposed works in or near the watercourses are subject to MNR in-water work timing windows restrictions. In-work would only occur between July 15 and September 15 of any given year.

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7.7 Fish Protection (DFO measures to protect fish and fish habitat)

24. Avoid in-water work during construction.
25. Avoid removal of riparian vegetation to the extent possible.
26. Maintain riparian vegetation by using existing trails or roads where possible and prevent soil compaction by using swamp pads or mats where possible.
27. No use of explosives in or near water. The use of explosives will be avoided in or near water to avoid damage to fish internal organs and eggs or larvae.
28. 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.
29. The Contractor shall ensure proper sediment control and not allow any deleterious substances as defined in the Fisheries Act (such as silt), caused by the work, to enter or re-enter the watercourse or lake. See Sediment and Erosion Control section.
30. 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

7.8 Operation of Machinery

31. 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.
32. 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 watercourses.
33. 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 watercourses.
34. Vehicle and equipment refuelling and/or maintenance shall be conducted within a defined staging area 30 m from any watercourse.
35. Machinery will not cross the watercourse.

7.9 Concrete Leachate

36. 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 watercourse.
37. 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 watercourse.
38. Completely isolate all concrete work from all watercourses. All concrete wash water shall be directed to a collection basin to effectively remove all suspended solids, dissipate velocity and prevent deleterious substances from entering the watercourse.
39. 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.
40. All mortars, 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.

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7.10 Contaminant and Spill Management

41. A spill management plan will be developed for future development. The plan will provide direction for implementation actions immediately in the event of a sediment release or spill of a deleterious substance.
42. An emergency spill kit shall be kept on site and employed immediately should a spill occur. In the case of a spill, the Ontario Spill Action Center shall be notified immediately at 1-800-268-6060; all provincial and federal regulations shall be adhered to.
43. Building material used in a watercourse will be handled and treated in a manner to prevent the release or leaching of substances into the water that may be deleterious to fish. Construction crews will be fully trained in their use to ensure timely and effective responses to spill incidents.
44. Vehicle and equipment refuelling shall be conducted on impermeable pads/pans within a defined staging area.
45. Refuelling 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 watercourse.
46. 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

This Environmental Impact Study report was prepared to address potential environmental issues associated with an application to develop the subject lands located at 9380 Burwash Road, Township of Hamilton, Ontario. Within this area GHD staff confirmed the boundaries of key natural features and confirmed their ecological functions. We have recommended appropriate buffers (setbacks) and other mitigation measures to prevent negative impacts from the proposed development. Any changes to the concept plan lotting fabric and the stormwater management system will require an EIS addendum.

The proposed development will not result in a significant impact on identified natural heritage features or their functions, provided the mitigation measures described in Sections 5 and 7 are implemented. In particularly obtaining the relevant permits from GRCA, the Municipality and the Township. These recommendations have been made to address potential impacts to natural features (identified woodlands, wetlands, fish and fish habitat and/or their functions during the site preparation, construction and post-construction activities on Site.

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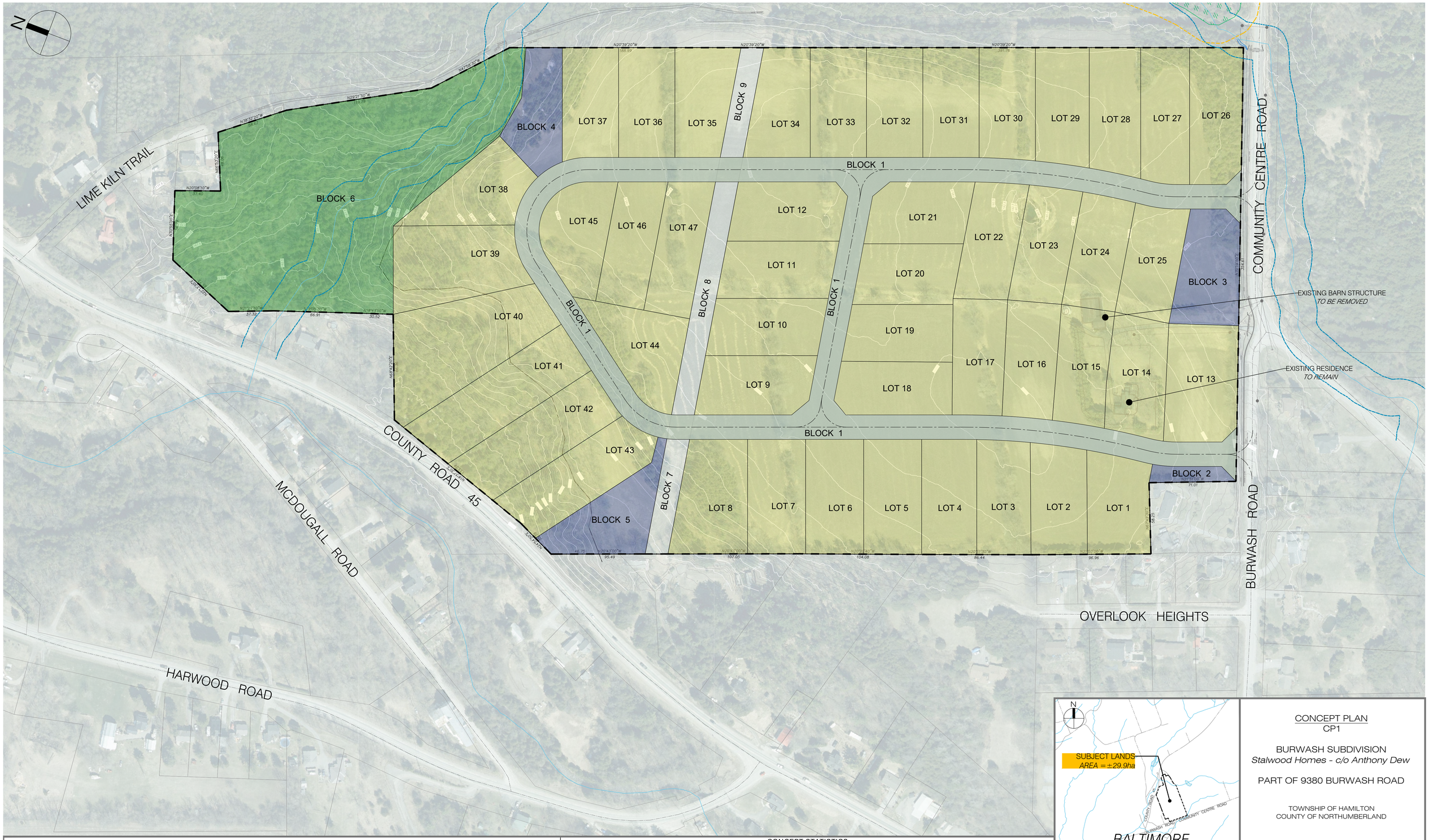
Appendices

Appendix A

Concept Plan



LEGEND

- Subject Lands
- Existing Parcel Line
- Proposed Lot/Block Line
- Proposed ROW Centreline
- Approximate Top of Bank
- Existing Watercourse
- Watercourse Buffer (15m)
- Existing Unevaluated Wetland
- Wetland Buffer (15m)
- Single Detached Residential Lot
- Storm Water Management Facilities
- Open Space - Parkland/Recreational

NOTES:

1. Property Boundaries and Topographic Baseplan derived from survey sketch by IBW Surveyors, 2024
2. Concept plan for discussion purposes only. Subject to change based on future studies.

CONCEPT STATISTICS

LOT/BLOCK NUMBER	AREA (sq.m)	AREA (ha)	LANDUSE COVERAGE (%)	DESCRIPTION
LOT 1 - LOT 47	213563.4	21.4	71%	SINGLE DETACHED RURAL RESIDENTIAL LOTS, PRIVATE WELL AND SEPTIC, MINIMUM LOT AREA = 4050 sq.m (1ac), MINIMUM LOT FRONTAGE = ±30m
BLOCK 1	30125.9	3.0	10%	20m RIGHT OF WAY
BLOCK 2 - BLOCK 5	13437.0	1.3	4%	POTENTIAL STORM WATER MANAGEMENT FACILITIES
BLOCK 6	34692.8	3.5	12%	OPEN SPACE/ RECREATIONAL
BLOCK 7 - BLOCK 9	6961.5	0.7	2%	EXISTING GAS LINE EASEMENT
TOTAL	298780.7	29.9	100%	

KEY MAP
1:30,000

CONCEPT PLAN
CP1

BURWASH SUBDIVISION
Stalwood Homes - c/o Anthony Dew

PART OF 9380 BURWASH ROAD

TOWNSHIP OF HAMILTON
COUNTY OF NORTHUMBERLAND

Project Number:	24-2700
Drawn By:	MC
Horiz. Scale:	1:1300
Revision Date:	JUNE 14, 2024

ECOVUE CONSULTING SERVICES INC.
311 George St N, Suite 200
Peterborough, ON K9J 3H3
T 705.876.8340 | F 705.742.8343

Appendix B

Terms of Reference

Terms of Reference- EIS- Burwash Subdivision, Baltimore

9 September 2024

From	GHD Ltd.	**Project No.**	12639057
Project Name	Burwash Subdivision, Baltimore		
Subject	Terms of Reference for Burwash Subdivision		

1. Introduction

GHD has been asked to prepare an Environmental Impact Study (EIS) for proposed draft plan of a subdivision on a property located in the Village of Baltimore, County of Northumberland in the Township of Hamiliton at 9380 Burwash Road. The Township and Ganaraska Conservation has requested an EIS as the site may contain natural features such as significant woodland and unevaluated wetlands. An EIS would be required as the City requires that an EIS be prepared due to the presence of key natural heritage/hydrological features on or adjacent the subject property for the development of this property.

The enclosed Terms of Reference (ToR) has been prepared to provide a detailed outline of the proposed work plan. The ToR has been developed based on GHD's background review, knowledge of the site and surrounding area, applicable federal, provincial and municipal policies and Ganaraska Region Conservation Authority (GRCA) regulations and policies.

Please review and circulate to GRCA and the Townshipo of Hamilton and County of Northumberland. If there are any questions or additions, please contact the undersigned. A formal response on the acceptance of the ToR would be appreciated.

GHD Limited has prepared this fee proposal to prepare an Environmental Impact Study (EIS) that is required as part of the planning applications for the development of this property. An EIS is required to define the developable area of the property and confirm the boundary of the natural heritage features.

GHD biologists completed a brief Natural Heritage desktop Review to look at constraints and the developable area of this property. The property is located near/ has several key natural heritage features present on the property or within 120 metres.

Those features include:

- County of Northumberland (MOC) Natural Heritage System
- Unevaluated wetland
- Possible habitat of threatened and endangered species
- Watercourses
- Possible significant woodland

DRAFT

2. Approach

2.1 Scope of work

Our approach to preparation of the EIS will consist of four distinct phases.

In the first phase we will collect and review available information on the site including recent air photography, key natural features GIS mapping, MNRF and City natural heritage mapping, County of Northumberland and Township of Hamilton Official plan schedules, and mapping and other correspondence or files available from the City, Ministry of Natural Resources and Forestry and GRCA.

In the second phase, we will submit a Terms of Reference to GRCA and the County and Township of our survey methods and timing and content of our report.

The third phase will consist of site visits by our terrestrial/ wetland biologists to confirm the data collected in the literature review, assess any natural heritage features (wetland, watercourses, SAR habitat) and any other natural features on or adjacent to the property. Surveys will include Ecological Land Classification (ELC) mapping, vegetation community boundaries, aquatic habitat assessment and presence of significant Species and Risk (SAR). The presence of possible SAR on or adjacent to the property will be derived from our field investigations and background literature. The significance of the features and ecological functions of the natural features will be determined during our field surveys.

The final phase will be the preparation of the EIS report with specific mitigation measures for protecting the natural features on or adjacent to the subject property and within or adjacent to the severed lot. Recommendations regarding the natural features, including buffers and setbacks will be included. This report will include a figure that shows the location of all natural features and recommended setback and buffers, if any. Mitigation measures will be required during the construction of the subdivision to avoid any impacts on the natural features.

The report will include compliance statements of the natural heritage policies of the County of Northumberland and Township of Hamilton Official Plan, Provincial Policy Statement (2020), Conservation Authorities Act, Fisheries Act and the Endangered Species Act.

2.2 Field Inventories

The EIS will be undertaken in the spring, summer of 2024. The surveys will cover all portions of the study property and adjacent areas to assess the boundary of natural features and any hydrological or ecological impacts.

3. Detailed Methodology

Vegetation

All vegetation communities on and adjacent to the study lands will be visited and species composition of dominant species determined. Community type criteria will follow that of MNR's Ecological Land Classification for Southern Ontario (ELC) program (Lee et al., 1998) and will be done to the vegetation type level. The presence of rare species or significant communities, if any, will be documented and locations mapped. Soil sampling will be conducted in each community to describe the moisture, soil type and organic content of soils according to the ELC manual. Timing of vegetation surveys will coincide with peak growing seasons; with visits occurring in the spring, summer and fall to capture ephemeral and summer flowering plants, as well as late season plants.

National, provincial and regional significance will be determined from accepted status lists and published reference lists such as SARA (2019), COSEWIC (2021), COSSARO (2021), Ontario Endangered Species Act (2007), NHIC (2019) and Varga (2000).

The presence of invasive species, regenerating vegetation, disturbances and land uses will be noted. Areas for potential restoration, invasive species management or rehabilitation will also be identified.

A master plant species list will be compiled from field notes in the final phase.

Breeding Birds

Breeding bird surveys will be conducted following the protocols of the Ontario Breeding Bird Atlas point count. Two surveys will be conducted in the peak season (May 24-July 10th) approximately 10-15 days apart. All birds seen or heard within each five-minute station period will be documented and breeding evidence codes recorded. Surveys will be conducted in the early morning at dawn. Survey stations will be established in the forests, wetlands and development envelope. A record will also be kept of any birds detected while GHD Biologists are conducting other surveys in the study area. The woodlands will be searched for raptor stick nests and tree cavities.

Reptiles and Amphibians

Incidental observations of frogs, toads, salamanders, snakes and turtles using the wetland, woodland and adjacent upland habitats, vernal pools and flooded areas during all visits.

Mammals

Incidental observations of mammals will be made during all site visits. Observations will include direct sightings and indirect evidence such as calls, scat, browse, burrows, dens and nests. The presence of cavity trees and wildlife tracks and game trails will also be noted.

Species At Risk

The Ontario Endangered Species Act (ESA) places the onus on proponents to determine if Species at Risk (birds, snakes, trees, plants) are present or absent on a property through targeted in-season field surveys by a qualified biologist. Based on the location and habitats present, it is unlikely many wildlife species are present. Butternut is possible in this area. The treed areas and fencerows will be checked for bat maternity trees, as per the MNRF bat survey protocols. In addition, part of the breeding bird surveys will be to note any nesting behaviour of several woodland birds.

Wetland Boundary

The boundary of any wetlands will be confirmed by GHD wetland biologists. The boundary of any wetlands (evaluated or unevaluated) will be confirmed in the field by our wetland biologists using the protocols in the Ontario Wetland Evaluation System Manual- Southern Ontario (Third Edition, MNRF, version 3.2, 2013) and SNRCA Regulations. This will include soil cores to confirm type of soil and presence of hydric soils and soil moisture regime.

Aquatic Habitat Assessments

GHD biologists will assess the aquatic habitat in the by determining all existing aquatic habitat types based on substrate, riparian habitat, percent in-stream cover and unique features. Habitat types will be identified on aerial imagery providing a site map characterizing the existing aquatic habitat. Assessments will be conducted using standardized provincial protocols (OSAP, MTO), with professional judgment modifications as warranted based on site conditions.

Surface Water Quality

Water temperature, dissolved oxygen, total dissolved solids, conductivity, salinity, pH, and water colour will be recorded as discrete measurements in the study area to establish a baseline in terms of fish habitat. These parameters are collected to support the biological findings and post construction stormwater monitoring, if required by a regulatory agency.

4. Report Preparation

4.1 Analysis, Discussion, and Impact Assessment

Following field surveys, the significance of all natural heritage features and species found on site will be assessed considering the relevant policies and regulations. Species lists from our field work will be compared to the most current federal, provincial, and regional plant and wildlife lists. Subsequently, the EIS report will be prepared in which GHD will analyze potential impacts of the proposed development on the natural features in the study area and recommend appropriate buffers from these features. Consideration will be given to all the natural features detected as well as their ecological functions.

Based on the site conditions, buffers and the proposed development type, we will recommend mitigation measures for the site-preparation, construction and post-construction phases of the project. Mitigation measures may include such items as sediment and erosion control, stormwater management, timing windows, protection areas, fencing and other measures to maintain infiltration, limit impervious surfaces and minimize grading. We will work with the other study team members on any measures we feel should be incorporated into the site plan and design.

5. Deliverables

GHD will provide .pdf files of the reports to the proponent and the agencies unless otherwise stated. Hard copies may be requested at an extra charge. This report will be prepared as per the requirements in the Official Plans, standard EIS procedures, and the details outlined in this Terms of Reference (ToR). The EIS will act as supporting documentation for the development application. Our wetland boundaries, vegetation community layers and ELC boundary lines can be made available to the agencies to update their GIS mapping.

Chris Ellingwood
Sr. Terrestrial and Wetland Biologist

Emma Northey
Terrestrial Biologist

Appendix C

Plant List

APPENDIX C 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	10
HORSETAIL FAMILY	*EQUISETACEAE*											
field horsetail	*Equisetum arvense*	2					X	X				
BRACKEN FERN FAMILY	*DENNSTAEDTIACEAE*											
eastern bracken fern	*Pteridium aquilinum*	1					X					
WOOD FERN FAMILY	*DRYOPTERIDACEAE*											
spinulose wood-fern	*Dryopteris carthusiana*	1							X			
ostrich fern	*Matteuccia struthiopteris*	1					X					
sensitive fern	*Onoclea sensibilis*	1					X					
PINE FAMILY	*PINACEAE*											
tamarack	*Larix laricina*	1					X					
white spruce	*Picea glauca*	1			X							
eastern white pine	*Pinus strobus*	3		X	X			X				
eastern hemlock	*Tsuga canadensis*	1					X					

Common Name	*Scientific Name*	Total	COMMUNITY NUMBER									
			1	2	3	4	5	6	7	8	9	10
CYPRESS FAMILY	*CUPRESSACEAE*											
eastern red cedar	*Juniperus virginiana*	2			X					X		
eastern white cedar	*Thuja occidentalis*	7	X	X	X		X	X	X	X		
BUTTERCUP FAMILY	*RANUNCULACEAE*											
white baneberry	*Actaea pachypoda*	1		X								
virgin's bower	*Clematis virginiana*	2			X				X			
tall buttercup	*Ranunculus acris*	3				X	X			X		
BARBERRY FAMILY	*BERBERIDACEAE*											
blue cohosh	*Caulophyllum giganteum*	1							X			
ELM FAMILY	*ULMACEAE*											
American elm	*Ulmus americana*	1		X								
rock elm	*Ulmus thomasii*	1						X				
NETTLE FAMILY	*URTICACEAE*											
wood nettle	*Laportea canadensis*	2				X	X					
clearweed	*Pilea pumila*	1					X					
WALNUT FAMILY	*JUGLANDACEAE*											
bitternut hickory	*Carya cordiformis*	1							X			
black walnut	*Juglans nigra*	4		X				X		X		X
BEECH FAMILY	*FAGACEAE*											
American beech	*Fagus grandifolia*	1							X			
red oak	*Quercus rubra*	1								X		
BIRCH FAMILY	*BETULACEAE*											
yellow birch	*Betula alleghaniensis Britt.*	1					X					
white birch	*Betula papyrifera*	3			X		X		X			
ironwood	*Ostrya virginiana*	2		X					X			
PINK FAMILY	*CARYOPHYLLACEAE*											
mouse-eared chickweed	*Cerastium fontanum*	1									X	
bladder campion	*Silene vulgaris*	2								X	X	

Common Name	*Scientific Name*	Total	COMMUNITY NUMBER									
			1	2	3	4	5	6	7	8	9	10
BUCKWHEAT FAMILY	*POLYGONACEAE*											
black bindweed	*Polygonum convolvulus*	1									X	
lady's thumb	*Polygonum persicaria*	1									X	
sheep sorrel	*Rumex acetosella*	1									X	
curled dock	*Rumex crispus*	1								X		
ST. JOHN'S-WORT FAMILY	*GUTTIFERAE*											
common St. John's-wort	*Hypericum perforatum*	3				X				X	X	
LINDEN FAMILY	*TILIACEAE*											
American basswood	*Tilia americana*	1								X		
GOURD FAMILY	*CUCURBITACEAE*											
wild cucumber	*Echinocystis lobata*	3		X				X			X	
WILLOW FAMILY	*SALICACEAE*											
trembling aspen	*Populus tremuloides*	1										X
MUSTARD FAMILY	*BRASSICACEAE*											
garlic mustard	*Alliaria petiolata*	1							X			
GOOSEBERRY FAMILY	*GROSSULARIACEAE*											
prickly gooseberry	*Ribes cynosbati*	2						X	X			
ROSE FAMILY	*ROSACEAE*											
English hawthorn	*Crataegus monogyna*	1				X						
hawthorn species	*Crataegus spp.*	1							X			
common strawberry	*Fragaria virginiana*	2				X				X		
white avens	*Geum canadense*	2		X				X				
sulfur cinquefoil	*Potentilla recta*	2				X					X	
black cherry	*Prunus serotina*	2		X					X			
multiflora rose	*Rosa multiflora*	2			X							X
wild red raspberry	*Rubus idaeus*	5		X		X		X		X	X	
purple-flowering raspberry	*Rubus odoratus*	2				X			X			
European mountain ash	*Sorbus aucuparia*	1							X			

Common Name	*Scientific Name*	Total	COMMUNITY NUMBER									
			1	2	3	4	5	6	7	8	9	10
PEA FAMILY	*FABACEAE*											
hog-peanut	*Amphicarpa bracteata*	2						X	X			
bird's-foot trefoil	*Lotus corniculatus*	1			X							
black medick	*Medicago lupulina*	2								X		X
black locust	*Robinia pseudo acacia*	1									X	
red clover	*Trifolium pratense*	3			X	X				X		
white clover	*Trifolium repens*	2								X	X	
cow vetch	*Vicia cracca*	1									X	
OLEASTER FAMILY	*ELAEAGNACEAE*											
russian olive	*Elaeagnus angustifolia*	1			X							
EVENING PRIMROSE FAMILY	*ONAGRACEAE*											
Canada enchanter's nightshade	*Circaea lutetiana L. ssp.canadensis*	3		X				X	X			
BUCKTHORN FAMILY	*RHAMNACEAE*											
European buckthorn	*Rhamnus cathartica*	8		X	X	X	X	X	X	X		X
GRAPE FAMILY	*VITACEAE*											
Virginia creeper	*Parthenocissus inserta*	3		X						X	X	
wild grape	*Vitis riparia*	3		X				X				X
MAPLE FAMILY	*ACERACEAE*											
Manitoba maple	*Acer negundo*	4			X			X		X		X
Norway maple	*Acer platanoides*	2		X						X		
black maple	*Acer saccharum ssp. nigrum*	1				X						
sugar maple	*Acer saccharum ssp.saccharum*	3		X					X			X
CASHEW FAMILY	*ANACARDIACEAE*											
western poison-ivy	*Rhus rydbergii*	3				X		X				X
staghorn sumac	*Rhus typhina*	1										X
WOOD-SORREL FAMILY	*OXALIDACEAE*											
common yellow wood-sorrel	*Oxalis dillenii*	5		X		X			X	X	X	
TOUCH-ME-NOT FAMILY	*BALSAMINACEAE*											
spotted jewelweed	*Impatiens capensis*	3				X	X	X				

Common Name	*Scientific Name*	Total	COMMUNITY NUMBER									
			1	2	3	4	5	6	7	8	9	10
CARROT FAMILY	*APIACEAE*											
Queen-Anne's lace	*Daucus carota*	5		X	X	X					X	X
MILKWEED FAMILY	*ASCLEPIADACEAE*											
common milkweed	*Asclepias syriaca*	5		X	X	X				X		X
swallow-wort	*Cynanchum rossicum*	9	X	X		X	X	X	X	X	X	X
NIGHTSHADE FAMILY	*SOLANACEAE*											
bitter nightshade	*Solanum dulcamara*	5		X			X		X	X	X	
MINT FAMILY	*LAMIACEAE*											
ground ivy	*Glechoma hederacea*	2					X			X		
motherwort	*Leonurus cardiaca*	1								X		
heal-all	*Prunella vulgaris ssp. Lanceolata*	2				X				X		
PLANTAIN FAMILY	*PLANTAGINACEAE*											
narrow-leaved plantain	*Plantago lanceolata*	2				X				X		
broad-leaved plantain	*Plantago major*	2				X				X		
OLIVE FAMILY	*OLEACEAE*											
white ash	*Fraxinus americana*	4		X	X			X	X			
lilac	*Syringa vulgaris*	1								X		
FIGWORT FAMILY	*SCROPHULARIACEAE*											
common mullein	*Verbascum thapsus*	1		X								
HAREBELL FAMILY	*CAMPANULACEAE*											
creeping bellflower	*Campanula rapunculoides*	2				X				X		
MADDER FAMILY	*RUBIACEAE*											
white bedstraw	*Galium mollugo*	2		X				X				
HONEYSUCKLE FAMILY	*CAPRIFOLIACEAE*											
tartarian honeysuckle	*Lonicera tatarica*	1						X				
red-berried elderberry	*Sambucus racemosa*	2							X	X		
maple-leaved viburnum	*Viburnum acerifolium*	1					X					

Common Name	*Scientific Name*	Total	COMMUNITY NUMBER									
			1	2	3	4	5	6	7	8	9	10
ASTER FAMILY	*ASTERACEAE*											
common yarrow	*Achillea millefolium*	1				X						
common ragweed	*Ambrosia artemisiifolia*	2								X	X	
common burdock	*Arctium minus*	1								X		
ox-eye daisy	*Chrysanthemum leucanthemum*	5		X	X	X					X	X
bull thistle	*Cirsium vulgare*	2		X								X
daisy fleabane	*Erigeron annuus*	5		X		X				X	X	X
elecampane	*Inula helenium*	1					X					
tall goldenrod	*Solidago altissima*	1										X
Canada goldenrod	*Solidago canadensis*	3		X						X	X	
goldenrod species	*Solidago spp.*	4				X		X			X	X
perennial sow-thistle	*Sonchus arvensis ssp.uliginosus*	1									X	
calico aster	*Symphyotrichum lateriflorum var.later*	1				X						
New England aster	*Symphyotrichum novae-angliae*	2			X							X
purple-stemmed aster	*Symphyotrichum puniceum*	1										X
common dandelion	*Taraxacum officinale*	1									X	
goat's-beard	*Tragopogon dubius*	4			X	X				X		X
coltsfoot	*Tussilago farfara*	1					X					
ARUM FAMILY	*ARACEAE*											
Jack-in-the-pulpit	*Arisaema triphyllum*	2		X					X			
RUSH FAMILY	*JUNCACEAE*											
path rush	*Juncus tenuis*	1									X	

Common Name	*Scientific Name*	Total	COMMUNITY NUMBER									
			1	2	3	4	5	6	7	8	9	10
GRASS FAMILY	*POACEAE*											
redtop	*Agrostis gigantea*	1									X	
awnless brome grass	*Bromus inermis ssp.inermis*	4		X						X	X	X
orchard grass	*Dactylis glomerata*	3			X					X		X
quack grass	*Elymus repens*	2			X					X		
meadow fescue	*Festuca pratensis*	1				X						
timothy	*Phleum pratense*	3				X				X	X	
Kentucky blue grass	*Poa pratensis*	4		X		X				X	X	
green foxtail	*Setaria viridis*	1									X	
LILY FAMILY	*LILIACEAE*											
Canada mayflower	*Maianthemum canadense*	2		X					X			
false Solomon's seal	*Smilacina racemosa*	3		X			X		X			
purple trillium	*Trillium erectum*	2		X					X			
ORCHID FAMILY	*ORCHIDACEAE*											
helleborine	*Epipactis helleborine*	1					X					
Total Number of Plant Species	116		2	34	20	30	22	21	27	40	30	23
			Number of Plant Species Per Community									

Appendix D

Breeding Bird List (Comprehensive)

APPENDIX D-1 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, 2024.
	COSSARO	The Committee on the Status of Species at Risk in Ontario, 2023.
	SARA	Species At Risk Act, Schedule 1, Government of Canada,2023.
	Area Sensitive	Significant Wildlife Technical Guide, Appendix C, OMNR, Oct. 2000
	Region 6	Southern Ontario Wetland Evaluation Appendix 11B, Version 3.2, March 2013

Breeding Status: (Observed By GHD)

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 GHD)

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	Region 6		
WITU	Wild Turkey	*Meleagris gallopavo*	B	None				No			
MODO	Mourning Dove	*Zenaida macroura*	B	S				No			
DOWO	Downy Woodpecker	*Picoides pubescens*	B	H				No			
NOFL	Northern Flicker	*Colaptes auratus*	B	S				No			
EAPH	Eastern Phoebe	*Sayornis phoebe*	B	None				No			
REVI	Red-eyed Vireo	*Vireo olivaceus*	B	S				No			
BLJA	Blue Jay	*Cyanocitta cristata*	B	S				No			
AMCR	American Crow	*Corvus brachyrhynchos*	B	S				No			
BCCH	Black-capped Chickadee	*Poecile atricapillus*	B	S				No			
RBNU	Red-breasted Nuthatch	*Sitta canadensis*	B	S				Yes			
WBNU	White-breasted Nuthatch	*Sitta carolinensis*	B	S				No			
HOWR	House Wren	*Troglodytes aedon*	B	S				No			
VEER	Veery	*Catharus fuscescens*	B	S				Yes			
AMRO	American Robin	*Turdus migratorius*	B	S				No			
GRCA	Gray Catbird	*Dumetella carolinensis*	B	S				No			
CEWX	Cedar Waxwing	*Bombycilla cedrorum*	B	P				No			
YEWA	Yellow Warbler	*Dendroica petechia*	B	S				No			
BTGW	Black-throated Green War	*Dendroica virens*	B	S				Yes			
PIWA	Pine Warbler	*Dendroica pinus*	B	S				No			
BWWA	Black-and-white Warbler	*Mniotilta varia*	B	None				No			
COYE	Common Yellowthroat	*Geothlypis trichas*	B	S				No			
CHSP	Chipping Sparrow	*Spizella passerina*	B	S				No			
SOSP	Song Sparrow	*Melospiza melodia*	B	S				No			
SWSP	Swamp Sparrow	*Melospiza georgiana*	B	S				No			
WTSP	White-throated Sparrow	*Zonotrichia albicollis*	B	S				No			
NOCA	Northern Cardinal	*Cardinalis cardinalis*	B	S				No			

INBU	Indigo Bunting	*Passerina cyanea*	B	S				No				
RWBL	Red-winged Blackbird	*Agelaius phoeniceus*	B	S				No				
COGR	Common Grackle	*Quiscalus quiscula*	B	S				No				
AMGO	American Goldfinch	*Carduelis tristis*	B	S				No				
TOTAL SPECIES OBSERVED:	**30**	**BREEDING SPECIES OBSERVED:**	**30**		**0**	**0**	**0**	**3**	**0**	**0**	**0**	

Appendix E

Bird Status Report by Station

APPENDIX D-2 Bird Status Report by Station

Bird species observed by GHD within each survey station 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, 2022.
	COSSARO	The Committee on the Status of Species at Risk in Ontario, 2023.
	SARA	Species At Risk Act, Schedule 1, Government of Canada, 2023.
	Area Sensitive	Significant Wildlife Technical Guide, Appendix C, OMNR, Oct. 2000
	Region 6	Southern Ontario Wetland Evaluation Appendix 11B, Version 3.2, March 2013

Breeding Status: (Observed By GHD)

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 GHD)

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

Station No.: BBS1												
AOU Code	Common Name	Scientific Name	Observed Breeding Status	Breed Evidence Code	COSEWIC	COSSARO	SARA	Area Sensitive	Region 6			
MODO	Mourning Dove	*Zenaida macroura*	B	S				No				
DOWO	Downy Woodpecker	*Picoides pubescens*	B	H				No				
BLJA	Blue Jay	*Cyanocitta cristata*	B	S				No				
AMCR	American Crow	*Corvus brachyrhynchos*	B	H				No				
BCCH	Black-capped Chickadee	*Poecile atricapillus*	B	S				No				
RBNU	Red-breasted Nuthatch	*Sitta canadensis*	B	S				Yes				
VEER	Veery	*Catharus fuscescens*	B	S				Yes				
AMRO	American Robin	*Turdus migratorius*	B	S				No				
YEWA	Yellow Warbler	*Dendroica petechia*	B	S				No				
PIWA	Pine Warbler	*Dendroica pinus*	B	S				No				
COYE	Common Yellowthroat	*Geothlypis trichas*	B	S				No				
SOSP	Song Sparrow	*Melospiza melodia*	B	S				No				
SWSP	Swamp Sparrow	*Melospiza georgiana*	B	S				No				
NOCA	Northern Cardinal	*Cardinalis cardinalis*	B	S				No				
INBU	Indigo Bunting	*Passerina cyanea*	B	S				No				
RWBL	Red-winged Blackbird	*Agelaius phoeniceus*	B	S				No				
AMGO	American Goldfinch	*Carduelis tristis*	B	S				No				
No. of Species Observed in Station:	**17**	**No. of Breeding Species Observed in Station:**	**17**		**0**	**0**	**0**	**2**	**0**	**0**	**0**	

Station No.: BBS2												
AOU Code	Common Name	Scientific Name	Observed Breeding Status	Breed Evidence Code	COSEWIC	COSSARO	SARA	Area Sensitive	Region 6			
MODO	Mourning Dove	*Zenaida macroura*	B	None				No				
NOFL	Northern Flicker	*Colaptes auratus*	B	S				No				
REVI	Red-eyed Vireo	*Vireo olivaceus*	B	S				No				
BLJA	Blue Jay	*Cyanocitta cristata*	B	S				No				
AMCR	American Crow	*Corvus brachyrhynchos*	B	S				No				
BCCH	Black-capped Chickadee	*Poecile atricapillus*	B	S				No				
WBNU	White-breasted Nuthatch	*Sitta carolinensis*	B	S				No				
HOWR	House Wren	*Troglodytes aedon*	B	S				No				
AMRO	American Robin	*Turdus migratorius*	B	S				No				
CEWX	Cedar Waxwing	*Bombycilla cedrorum*	B	P				No				
PIWA	Pine Warbler	*Dendroica pinus*	B	S				No				
SOSP	Song Sparrow	*Melospiza melodia*	B	S				No				
NOCA	Northern Cardinal	*Cardinalis cardinalis*	B	S				No				
COGR	Common Grackle	*Quiscalus quiscula*	B	S				No				
AMGO	American Goldfinch	*Carduelis tristis*	B	S				No				
No. of Species Observed in Station:	**15**	**No. of Breeding Species Observed in Station:**	**15**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	

Station No.: BBS3												
AOU Code	Common Name	Scientific Name	Observed Breeding Status	Breed Evidence Code	COSEWIC	COSSARO	SARA	Area Sensitive	Region 6			
MODO	Mourning Dove	*Zenaida macroura*	B	S				No				
REVI	Red-eyed Vireo	*Vireo olivaceus*	B	S				No				
BLJA	Blue Jay	*Cyanocitta cristata*	B	S				No				
AMCR	American Crow	*Corvus brachyrhynchos*	B	S				No				
BCCH	Black-capped Chickadee	*Poecile atricapillus*	B	S				No				
WBNU	White-breasted Nuthatch	*Sitta carolinensis*	B	S				No				
HOWR	House Wren	*Troglodytes aedon*	B	S				No				
AMRO	American Robin	*Turdus migratorius*	B	S				No				
CEWX	Cedar Waxwing	*Bombycilla cedrorum*	B	P				No				
SOSP	Song Sparrow	*Melospiza melodia*	B	S				No				
NOCA	Northern Cardinal	*Cardinalis cardinalis*	B	S				No				
COGR	Common Grackle	*Quiscalus quiscula*	B	S				No				
AMGO	American Goldfinch	*Carduelis tristis*	B	S				No				
No. of Species Observed in Station:	**13**	**No. of Breeding Species Observed in Station:**	**13**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	

Station No.: BBS4												
AOU Code	Common Name	Scientific Name	Observed Breeding Status	Breed Evidence Code	COSEWIC	COSSARO	SARA	Area Sensitive	Region 6			
REVI	Red-eyed Vireo	*Vireo olivaceus*	B	S				No				
BLJA	Blue Jay	*Cyanocitta cristata*	B	S				No				
AMCR	American Crow	*Corvus brachyrhynchos*	B	S				No				
HOWR	House Wren	*Troglodytes aedon*	B	S				No				
AMRO	American Robin	*Turdus migratorius*	B	S				No				
GRCA	Gray Catbird	*Dumetella carolinensis*	B	S				No				
BTGW	Black-throated Green War	*Dendroica virens*	B	S				Yes				
PIWA	Pine Warbler	*Dendroica pinus*	B	S				No				
COYE	Common Yellowthroat	*Geothlypis trichas*	B	S				No				
CHSP	Chipping Sparrow	*Spizella passerina*	B	S				No				
SOSP	Song Sparrow	*Melospiza melodia*	B	S				No				
WTSP	White-throated Sparrow	*Zonotrichia albicollis*	B	S				No				
NOCA	Northern Cardinal	*Cardinalis cardinalis*	B	S				No				
AMGO	American Goldfinch	*Carduelis tristis*	B	S				No				
No. of Species Observed in Station:	**14**	**No. of Breeding Species Observed in Station:**	**14**		**0**	**0**	**0**	**1**	**0**	**0**	**0**	

Station No.: BBS5												
AOU Code	Common Name	Scientific Name	Observed Breeding Status	Breed Evidence Code	COSEWIC	COSSARO	SARA	Area Sensitive	Region 6			
NOFL	Northern Flicker	*Colaptes auratus*	B	S				No				
REVI	Red-eyed Vireo	*Vireo olivaceus*	B	S				No				
BTGW	Black-throated Green War	*Dendroica virens*	B	S				Yes				
COYE	Common Yellowthroat	*Geothlypis trichas*	B	S				No				
SOSP	Song Sparrow	*Melospiza melodia*	B	S				No				
INBU	Indigo Bunting	*Passerina cyanea*	B	S				No				
No. of Species Observed in Station:	**6**	**No. of Breeding Species Observed in Station:**	**6**		**0**	**0**	**0**	**1**	**0**	**0**	**0**	

Station No.: BBS6												
AOU Code	Common Name	Scientific Name	Observed Breeding Status	Breed Evidence Code	COSEWIC	COSSARO	SARA	Area Sensitive	Region 6			
REVI	Red-eyed Vireo	*Vireo olivaceus*	B	S				No				
BLJA	Blue Jay	*Cyanocitta cristata*	B	S				No				
INBU	Indigo Bunting	*Passerina cyanea*	B	S				No				
AMGO	American Goldfinch	*Carduelis tristis*	B	S				No				
No. of Species Observed in Station:	**4**	**No. of Breeding Species Observed in Station:**	**4**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	

Station No.: BBS7												
AOU Code	Common Name	Scientific Name	Observed Breeding Status	Breed Evidence Code	COSEWIC	COSSARO	SARA	Area Sensitive	Region 6			
REVI	Red-eyed Vireo	*Vireo olivaceus*	B	S				No				
AMCR	American Crow	*Corvus brachyrhynchos*	B	S				No				
BCCH	Black-capped Chickadee	*Poecile atricapillus*	B	S				No				
SOSP	Song Sparrow	*Melospiza melodia*	B	S				No				
INBU	Indigo Bunting	*Passerina cyanea*	B	S				No				
AMGO	American Goldfinch	*Carduelis tristis*	B	S				No				
No. of Species Observed in Station:	**6**	**No. of Breeding Species Observed in Station:**	**6**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	

TOTAL BIRD SPECIES OBSERVED DURING STATION SURVEYS: 27

Appendix F

Fish Habitat Characteristics

Table 1. Detailed Fish Habitat Observations- Habitat Zones 1 and 2

Habitat Zone	Feature Type	Flow Condition	Percent Substrate Composition	Percent Instream Cover	Percent Canopy Cover (%)	Overhead Cover (%)	Watercourse Hydrology	Average Depth (m)	Average Width (m)	Zone Length (m)
01	Defined Channel	Mostly dry with some standing water	10% boulder 40% cobble 20% gravel 10% sand 20% silt	10% large woody debris 10% small woody debris 15% boulders	50-74	15% shrubs 20% trees 10% woody debris	50% run 10% pool 20% riffle 20% flats	0.2	1.3	50
02	Defined Channel/ Wetland	Minimal flow	10% cobble 90% fine organics	30% large woody debris 10% small woody debris 10% submerges aquatic vegetation	75-100	5% shrubs 5% trees 40% woody debris 20% non woody vegetation	80% run 20% pool	0.2	2	100

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