Environmental Impact Study

Osaca Whitepine Subdivision
Part Lot 27, Concession 5
County Road 65, Osaca, Ontario

D.M. Wills Project Number 11056

D.M. Wills Associates Limited
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Peterborough

December 2022

Prepared for:
Hillstreet Developments Ltd.

WILLS

Submissions Summary

Submission No.	Submission Title	Date of Release	Submissions Summary
1	Draft Environmental Impact Study	November 29, 2022	Draft Submission to Client
2	Final Environmental Impact Study	November 30, 2022	Final Submission to Client
3	Final Environmental Impact Study	December 13, 2022	Updated Final Report

This report has been formatted considering the requirements of the Accessibility for Ontarians with Disabilities Act.

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Executive Summary

D.M. Wills Associates Limited (Wills) was retained by Hillstreet Developments Ltd. (Client) to undertake an Environmental Impact Study (EIS) to address potential impacts associated with a Plan of Subdivision (Project) at the lands located on Part of Lot 27, Concession 5 in the Village of Osaca (Subject Property).

Due to the presence of a watercourse as well as unevaluated wetlands and woodlands, and a drainage feature, an Environmental Impact Study (EIS) is required under the Provincial Policy Statement (2020) and the Municipality of Port Hope's Official Plan.

Potential impacts of the Project on existing natural heritage features and associated wildlife, including Species at Risk (SAR), were evaluated based on a review of publicly available resources, agency consultation (Ministry of Natural Resources and Forestry [MNRF], Ministry of the Environment, Conservation and Parks [MECP]) as well as on-site field investigations. Field investigations consisted of Ecological Land Classification assessment and mapping, watercourse and wetland delineation, headwater drainage feature assessment, amphibian call surveys, breeding bird surveys, and a SAR assessment.

Should future development occur, a number of mitigation measures including a 15 m wetland buffer, a 5 or 15 m woodland buffer, or a Tree Preservation and Planting Plan which includes compensation plantings in areas where development is being proposed within the woodland.

A vegetation removal timing window (**April 15 to September 30**) and the erection of erosion and sediment control measures and turtle exclusionary fencing are proposed to ensure adjacent significant natural heritage features are not impacted by development.

In summary, Wills does not anticipate any significant negative environmental impacts associated with the proposed development provided the environmental mitigation measures described in this report are implemented effectively throughout the construction period.

1.0 Introduction

D.M. Wills Associates Limited (Wills) was retained by Hillstreet Developments Ltd. (Client) to undertake an Environmental Impact Study (EIS) to address potential impacts associated with a Plan of Subdivision (Project) at the lands located on Part of Lot 27, Concession 5 in the Village of Osaca (Subject Property). See **Appendix A** for Statement of Limitation details.

Under the *Provincial Policy Statement* (2020), Ganaraska Region Conservation Authority (GRCA) can request an EIS to help guide recommendations for applications for development within, or adjacent to, natural heritage features or areas. The area of the Plan of Subdivision is proximate to a number of natural features, including a watercourse as well as unevaluated wetlands and woodlands, and a drainage feature, which prompted the need for the EIS.

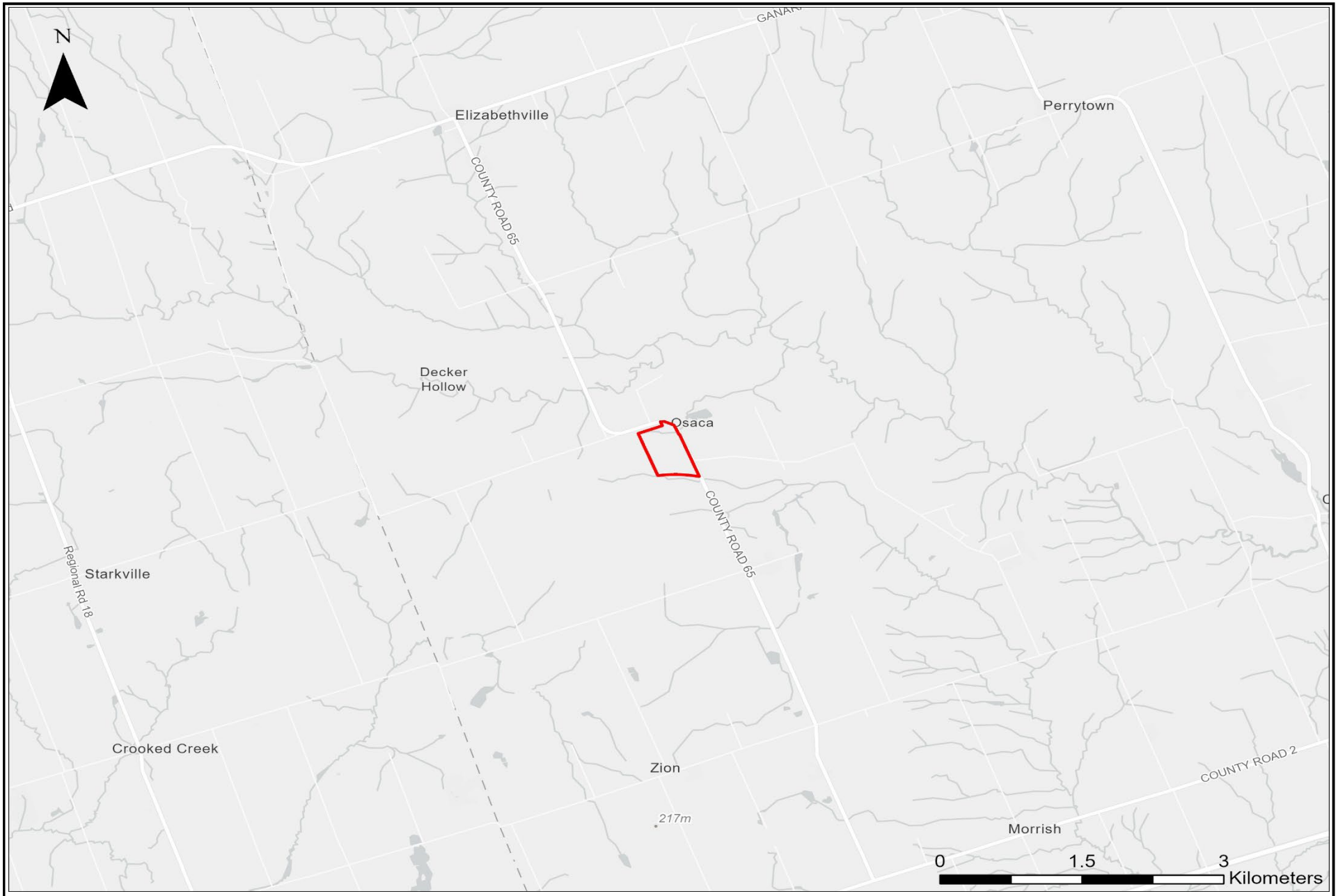
The EIS must demonstrate that there will be no negative ecological or hydrological impacts on the natural heritage system, connectivity, and linkages associated with the site and surrounding area. It should identify environmental constraints, develop appropriate setbacks, consult with regulatory agencies and identify the activities required to address project compliance with Provincial and Federal statutes and policies including, but not limited to: the *Planning Act* (R.S.O. 1995), the *Conservation Authorities Act* (R.S.O. 1990), the *Endangered Species Act* (R.O. 2007), the *Provincial Policy Statement* (2020), and Section 35 and 37 of the *Fisheries Act* (R.S.C. 1985).

To meet the requirements of the EIS, Wills' biologists undertook field investigations to collect information on existing conditions. This document provides an existing conditions background review, a summary of the observations made during the site visits, describes the potential impacts of the proposed development, and recommends measures to mitigate impacts of the Project.

1.1 Subject Property/Project Details

The Subject Property encompasses approximately 25.4 ha of land with access from County Road 65 and is being proposed for a 59-lot Rural Estate Lot subdivision. While the majority of the Subject Property currently consists of active agricultural land, unevaluated woodlands and wetlands. There is additionally an existing residential dwelling situated on the eastern boundary of the Subject Property.

County Road 65 borders the Subject Property to the east, while forested lands are found to the west and south, and residential properties are also located to the north and south of the Subject Property. To the northeast of the Subject Property lies the Osaca Provincially Significant Wetland (PSW), which is situated across County Road 65 approximately 35 m east of the Subject Property. See **Figure 1** for the Site Location and **Figure 2** for the Subject Property.



Legend

Subject Property

Figure 1 – Site Location

Environmental Impact Study

Part of Lot 27, Concession 5, County Road 65, Osaca, Ontario

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Project No.	11056	Drawing File No.	Figure 1

Legend

Subject Property

Figure 2 – Subject Property

Environmental Impact Study

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2.0 Existing Conditions

2.1 Background Review

Surrounding Land Use

The land uses surrounding the Subject Property are primarily active agricultural lands, but also include forested lands, particularly to the west of the Subject Property. Additionally, there are residential dwellings north and south of the Subject Property.

Designated Areas

A review of the Ministry of Natural Resources and Forestry (MNRF) natural heritage/resources data obtained through the Natural Heritage Information Centre (NHIC) database was completed to identify the presence or absence of any Valued Ecosystem Components (VECs) such as local, provincial, and federally Designated Areas (DAs). DAs include lands covered under the Provincial Policy Statement (2020), as well as other natural heritage features of local or federal interest including Federal Parks, Environmental Sensitive Landscapes or Areas, such as significant woodlands, locally significant wetlands or otherwise natural heritage features identified for conservation. A copy of the NHIC data map is located in **Appendix B**.

Furthermore, Wills sent out a formal information request to the Ministry of the Environment, Conservation and Parks (MECP)and the MNRF to obtain additional records with reference to restricted SAR, Significant Wildlife Habitat (SWH) and other data on file concerning lands and the watercourse within the Subject Property; see **Appendix C** for detail).

A summary of the results of the database searches is outlined below with reference to DAs.

Areas of Natural and Scientific Interest

No Areas of Natural and Scientific Interest (ANSI) were identified on the Subject Property. One ANSI, (Life Science, Osaca – Ganaraska River/Osaca Wetland) was identified approximately 50 m northeast of the Subject Property, across County Road 65.

Significant Wildlife Habitat

No Significant Wildlife Habitat (SWH) records were identified through background review.

Conservation Reserves

No Conservation Reserves are located within the Study Area.

Provincial Parks

No Provincial Parks are located within the Study Area.

Provincially Significant Wetlands

No Provincially Significant Wetlands (PSW) were identified on the Subject Property based on background review. However, the Osaca PSW has been found to be situated approximately 35 m to the northeast of the Subject Property.

Woodlands

NHIC mapping indicates woodlands as being present on the Subject Property.

Other Wetlands

NHIC mapping has identified one unevaluated wetland on the Subject Property. The wetland extends into the adjacent lot to the west and appears to be hydrologically connected to the Osaca PSW through a watercourse which runs east through County Road 65.

Soils

The Subject Property falls within Ecoregion 6E (Lake Simcoe, Rideau), a region underlain by carbonate rich Paleozoic bedrock, and dominated by a wide variety of deep glacial deposits (Ecological Stratification Working Group, 1996).

Hydrology/Topography

NHIC mapping indicated the presence of one large unevaluated wetland on the Subject Property. Delineation by Wills Biologists determined there were two, which were both found to be situated near the northwest corner of the Subject Property. One drainage feature was observed within the Subject Property. It is anticipated that this feature runs west to east and carries seasonal surface water runoff in the spring from the Subject Property and across County Road 65 into the Osaca PSW. A Wills biologist delineated and assessed this feature in general accordance with Toronto Region Conservation Authority's *Evaluation, Classification and Management of Headwater Drainage Features Guidelines* (2014) during the site investigations.

It is anticipated that surface water on the Subject Property generally flows from west to east following the topography of the landscape, which peaks at 164 metres above sea level (masl) along the western boundary of the property. The intersection of County Road 65 and the watercourse represents the lowest elevation point (161 masl) on the Subject Property. Therefore, it is likely that the majority of the agricultural surface runoff associated with the Subject Property drains into the watercourse before continuing to drain east into the Osaca PSW. Overall, the Subject Property is characterized by a relatively flat landscape with no major changes in elevation, with the exception of the watercourse which presents a gentle slope resulting in an elevation change of approximately 3 m. There is additionally another watercourse which flows west to east situated immediately to the south of the Subject Property. Therefore, it is possible that

some lands near the southern boundary of the Subject Property drain south into this second watercourse before continuing to flow east.

Fish Habitat

Consultation with the MNRF identified two tributaries of the Ganaraska River within or adjacent to the Subject Property. The tributary that flows through the wetland at the north end of the Subject Property is identified as a Tributary of the Ganaraska River and is a cold water stream. The tributary that is just south of the Subject Property is identified as Port Britain Creek and is also a cold water stream. MNRF identified several fish species that have the potential to be found within the two watercourses, see Appendix C for details. Significant Wildlife Habitat (SWH)

Significant Wildlife Habitat

In accordance with the Provincial Policy Statement (2020) and the MNRF's Significant Wildlife Habitat Technical Guide (2000), Significant Wildlife Habitat (SWH) is generally defined as areas where wild mammals, birds, reptiles, amphibians, fishes, invertebrates, plants, fungi, algae, bacteria and/or other wild organisms live, and find adequate amounts of food, water, shelter, and space needed to sustain their populations, and where areas are considered ecologically important in terms of features, functions, representation or amount, and contributing to the quality and diversity of an identifiable geographic area or Natural Heritage System. Specific wildlife habitats of concern may include:

1) Seasonal Concentration Areas of Animals;
2) Rare Vegetation Communities or Specialized Habitats;
3) Habitat of Species of Conservation Concern; and,
4) Animal Movement Corridors.

No SWH was identified through background review. An assessment on SWH is found is **Section 4.3.**

2.2 Field Investigations

Field investigations took place on May 5, June 2, 3, 6, 21, 23 and July 12, 2022, to evaluate existing ecological conditions within the Subject Property. The field investigations included the following surveys:

- Ecological Land Classification assessment and mapping on June 21, 2022.
- Confirm presence/absence of hydrological features (wetlands, watercourses, seeps, springs) and delineate their boundaries on June 21, 2022.
- Amphibian call surveys completed in general accordance with the Marsh Monitoring Program (MMP) standard procedures and protocols. Field investigations took place on May 5, June 2, and June 23, 2022.

- Breeding bird surveys, in general accordance with OBBA standard procedures and protocols. Field investigations took place on June 6 and June 21, 2022.
- Incidental wildlife and wildlife habitat observations were completed (auditory, visual, tracks, scat, burrows, nests, etc.) throughout the Subject Property after breeding bird surveys, with particular attention to any species of conservation concern noted to be present within the area.
- Species at Risk Assessment.
- Evaluation of potential SWH within the Subject Property.
- Headwater Drainage Feature Assessment (HDFA) in general accordance with Toronto Region Conservation Authority's Evaluation, Classification and Management of Headwater Drainage Features Guidelines (2014). Field investigations took place on May 5 and June 21.

A photographic record to support field investigations is located in **Appendix D**.

2.2.1 Ecological Land Classification

Ecological Land Classification (ELC) mapping of the Subject Property was completed using the *Ecological Land Classification for Southern Ontario* (Lee, 1998). From this, **Figure 3** was created.

Soil sampling as part of determination of ELC communities indicated moderately deep substrates predominantly comprised of sandy soils across the Subject Property. Auger refusal was primarily achieved due to the presence of hard packed sand. Moisture regimes and organic soils varied across the ecosites, with increased organic content and moisture regimes present within the wetland communities. Six (6) ELC units were identified within the Subject Property:

1. Fresh – Moist Sugar Maple Deciduous Forest (FOD6)

   The canopy primarily consisted of Sugar Maple (*Acer sacharrum*) but also contained American Elm (*Ulmus Americana*). Vegetation species within the sub canopy and understory community were more varied and consisted of Sugar Maple, American Elm, White Birch (*Betula papyrifera*), Basswood (*Tilia americana*), Blue Beech (*Carpinus caroliniana*) Black Ash (*Fraxinus nigra*) and White Pine (*Pinus strobus*). The ground cover community consisted predominantly of Horsetails (*Equisetum spp.*) but Sensitive Fern (*Onoclea sensibilis*), Violets (*Viola spp.*), Virginia Creeper (*Parthenocissus quinquefolia*), Poison Ivy (*Toxicodendron radicans*), Bloodroot (*Sanguinaria canadensis*), Rose-twisted Stalk (*Streptopus lanceolatus*) and Canada Mayflower (*Maianthemum canadense*) were also present.

Soil Auger 1:

0 – 20 cm – Organic – Fresh
20 – 70 cm – Sand – Fresh
70 cm – Hard-packed sand refusal

2. Dry – Fresh Hardwood – Hemlock Mixed Forest (FOM3)

   The dominant canopy species consist of large Eastern Hemlock (*Tsuga canadensis*) and Sugar Maple, but Red Oak (*Quercus rubra*) and White Pine are also present. The sub canopy contains American Beech (*Fagus grandifolia*), Basswood (*Tilia americana*), Ironwood (*Ostrya virginiana*), Black Cherry (*Prunus serotina*), Sugar Maple, and Yellow Birch (*Betula alleghaniensis*). The understory community is relatively thin and consists only of American Beech and Sugar Maple. Ground cover consisted of Red Trillium (*Trillium erectum*), False Solomon's seal (*Maianthemum racemosum*), Hairy Solomon's Seal (*polygonatum pubescens*), Starflower (Lysimachia borealis), Blue Cohosh (*Caulophyllum thalictroides*), White Ash (*Fraxinus Americana*), Canada Mayflower, Bloodroot, Jack-in-the-pulpit (*Arisaema triphyllum*), Grasses (*Poaceae spp*.) and Currants (*Ribes spp.*).

   Soil Auger 1:

   0 – 10 cm – Organic – Dry
   10 – 55 cm – Sand – Fresh
   55 cm – Hard-packed sand refusal

3. Dry – Fresh Poplar – White Birch Deciduous Forest (FOD3)

   This ecosite is representative of an early successional forest, with the canopy consisting exclusively of young White Birch, Trembling Aspen (*Populus tremuloides*) and Large-toothed Aspen (*Populus grandidentata*). The subcanopy and understory communities were largely absent, save for a few American Mountain Ash (*Sorbus Americana*) interspersed throughout the site. Ground cover was dominated by Raspberries (*Rubus spp*.), Goldenrods (*Solidago spp*.), Strawberries (Fragaria spp.), Common blackberry (*Rubus allegheniensis*), and Sugar Maple.

   Soil Auger 1:

   0 – 5 cm – Organics – Dry
   5 – 35 cm – Sand – Fresh
   35 - 45 cm – Moist
   45 cm - Rock Refusal

4. Mineral Cultural Meadow (CUM1)

   This ecosite is characterised by active agriculture, with the vegetation community restricted to Soybean (*Glycine* spp.). A drainage feature is present towards the north end of the large field, which drains water from the SWM1 ecosite, across the field and into the SWM1 ecosite on the east side of the

Subject Property. The CUM1 ecosite was not observed to provide any rare or valuable habitat features due to the active agricultural activities.

Soil Auger 1:

0 – 20 cm – Sand – Dry
20 – 50 cm – Sand – Fresh
50 cm – Hard-packed sand refusal

5. White Cedar Mineral Mixed Swamp Ecosite (SWM1)

This ecosite encompasses both wetlands delineated within the Subject Property. The canopy primarily consisted of Eastern White Cedar (*Thuja occidentalis*), but additionally contained Yellow Birch, White Birch, Trembling Aspen and Black Ash. The sub canopy consisted of Eastern White Cedar, Black Ash and Sugar Maple while the undergrowth community included Red-osier Dogwood (*Cornus sericea*), Willows (*Salix spp*.), Black Ash and European Buckthorn (*Rhamnus cathartica*). Ground cover species and quantities varied throughout the ecosite, with areas of increased Eastern White Cedar mostly consisting of coniferous litter and few ground cover species. However, Sensitive Fern (*Onoclea sensibilis L*.), Ostrich Fern (*Matteuccia struthiopteris*), Spotted Jewelweed (*Impatiens capensis*), Mayapple (*Podophyllum peltatum*), Blue Cohosh (*Caulophyllum thalictroides*), Rough Bedstraw (*Galium asprellum*), Wild Mint (*Mentha arvensis*), Sweet Coltsfoot, Poison Ivy, Hairy Solomon Seal, Skunk Cabbage, Wild Red Raspberry and Virginia Creeper were observed within the ecosite.

Soil Auger 1:

0 – 30 cm – Organics – Moist
30 – 70 cm – Sand – Wet
70 - 80 cm – Sandy Clay – Wet
Depth to water table: 30 cm

Soil Auger 2:

0 – 20 cm – Organics – Moist
20 – 60 cm – Sand – Wet
Depth to water table: 30 cm

Soil Auger 3:

0 – 30 cm – Organics – Moist
30 – 45 cm – Sand – Moist
45 – 60 cm – Sand – Wet
Depth to water table: 45 cm

Soil Auger 4:

0 – 25 cm – Organics – Fresh
25 – 50 cm – Sand – Fresh
50 – 65 cm – Sand – Moist
65 cm – Hard-packed sand refusal

6. Fresh – Moist White Cedar – Mixed Hardwood Forest (FOM7)

   This ecosite primarily borders the wetland communities within the Subject Property, and therefore possessed similar canopy species, which consisted of Eastern White Cedar, Yellow Birch, White Birch and Trembling Aspen. The sub canopy consisted of Eastern White Cedar and Sugar Maple while the undergrowth community included Eastern White Cedar and European Buckthorn. Ground cover species included Ostrich Fern, Mayapple, Blue Cohosh, Poison Ivy, Hairy Solomon Seal and Virginia Creeper.

   Soil Auger 1:

   0 – 20 cm – Organics – Fresh
   20 – 85 cm – Sand – Fresh
   85 - 105 cm – Sand – Moist
   105 cm – Hard-packed sand refusal

   Soil Auger 2:

   0 – 20 cm – Organics – Fresh
   20 – 40 cm – Sand – Fresh
   40 - 70 cm – Sand – Moist
   70 cm – Hard-packed sand refusal

Legend

- Subject Property
- Headwater Drainage Feature
- SWM1
- CUM1
- FOM3
- FOD6
- FOM7
- FOD3

Figure 3 – ELC

Environmental Impact Study

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Project No.	11056	Drawing File No.	Figure 3

2.2.2 Breeding Bird Surveys

Breeding bird surveys (Surveys) were completed on June 6 and June 21, 2022, in general accordance with OBBA standard procedures and protocols. Three listening stations were determined prior to arriving at site, as noted in **Figure 4**, following OBBA protocols. Surveys on June 6, 2022, commenced at 7:54 a.m., 8:01 a.m. and 8:10 a.m. while surveys conducted on June 21, 2022, commenced at 8:57 a.m., 9:06 a.m. and 9:17 a.m. Audio recordings were taken at each listening station.

During the two Surveys, a total of 24 species were observed through auditory or visual cues. Eastern Meadowlark was the only SAR observed during the surveys, two individuals were heard in the distance from tall grasses adjacent to County Road 65 on the eastern side of the Subject Property. **Table 1** provides full details of species found during the Surveys.

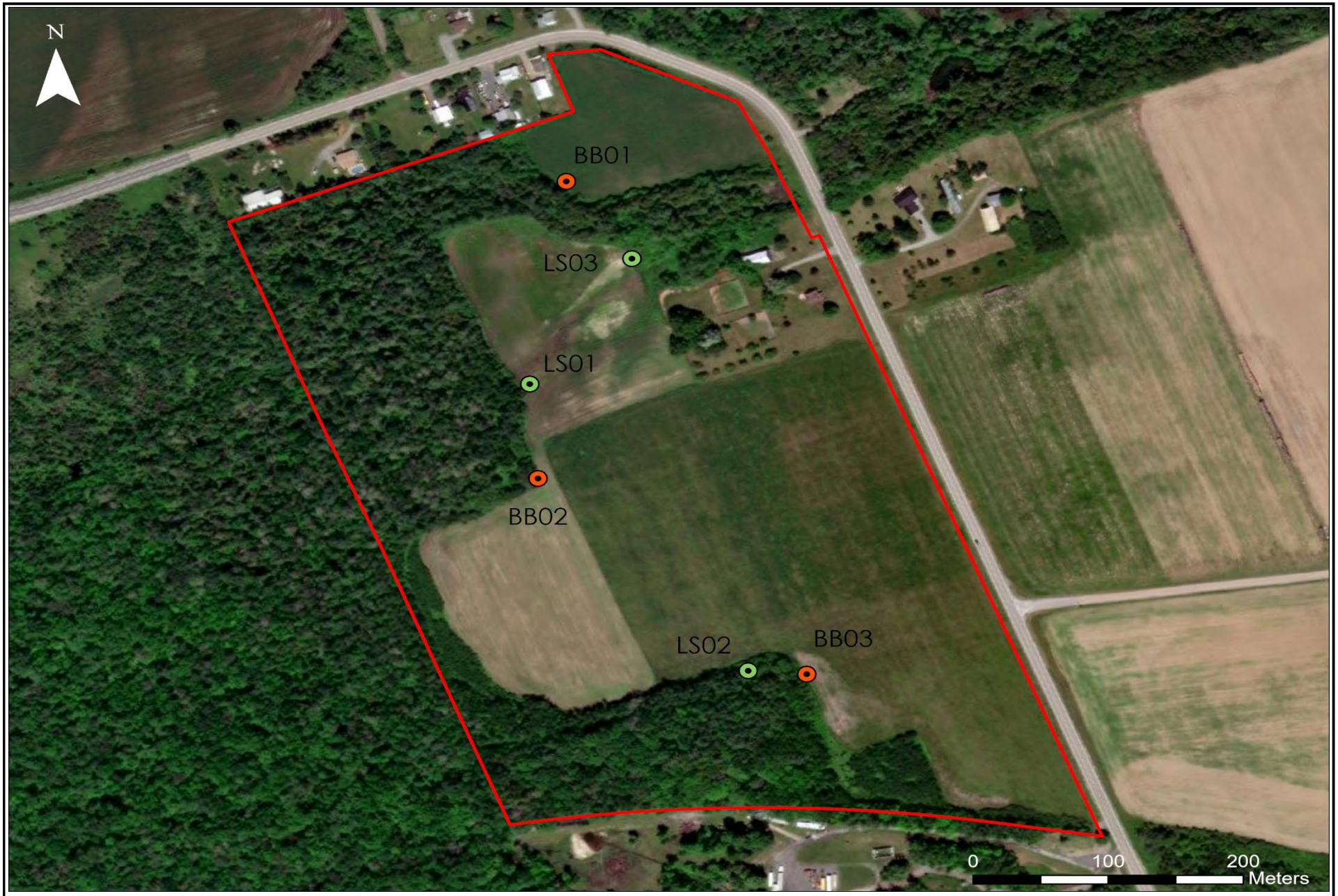
Table 1 – 2022 Breeding Bird Survey Results

Common Name	Scientific Name	BB01		BB02		BB03	
		Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2
Killdeer	*Charadrius vociferus*					x	
Yellow Warbler	*Setophaga petechia*			x	x		x
American Crow	*Corvus brachyrhynchos*	x	x	x	x	x	x
Blue Jay	*Cyanocitta cristata*	x	x		x		
Great Crested Flycatcher	*Myiarchus crinitus*		x		x		
Red-eyed Vireo	*Vireo olivaceus*	x	x				
Eastern Meadowlark	*Sturnella magna*			x		x	
Ovenbird	*Seiurus aurocapilla*			x		x	
American Redstart	*Setophaga ruticilla*		x	x	x		x
American Goldfinch	*Spinus tristis*	x	x	x			x
American Robin	*Turdus migratorius*	x	x	x	x	x	
Wild Turkey	*Meleagris gallopavo*						x
Eastern Wood Pewee	*Contopus virens*		x		x		x
Eastern Phoebe	*Sayornis phoebe*		x			x	
Red-winged Blackbird	*Agelaius phoeniceus*	x	x	x	x		x
Mourning Dove	*Zenaida macroura*		x				
Song Sparrow	*Melospiza melodia*		x		x		
Eastern Towhee	*Pipilo erythrophthalmus*	x		x			

Common Name	Scientific Name	BB01		BB02		BB03	
		Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2
Gray Catbird	*Dumetella carolinensis*			x	x	x	
Osprey	*Pandion haliaetus*					x	x
Northern Cardinal	*Cardinalis cardinalis*					x	
Yellow-bellied Sapsucker	*Sphyrapicus varius*				x		x
Black-throated Green Warbler	*Setophaga virens*				x		
Pileated Wood Pecker	*Dryocopus pileatus*						x

2.2.3 Amphibian Call Surveys

Amphibian Call Surveys were completed on May 5, June 2, and June 23, 2022, in general accordance with the Marsh Monitoring Program (MMP) standard procedures and protocols. The Amphibian Call Surveys took place at three Listening Stations in the Subject Property and commenced after sunset. Listening stations were strategically chosen to optimize coverage while preventing overlap of species calls; see **Figure 4**. Amphibian Call Surveys were conducted based on auditory cues for mating purposes, with incidental visual observations noted as well. Spring Peeper (*Pseudacris crucifer*), Gray Tree Frog (*Hyla versicolor*) and American Toad (*Anaxyrus americanus*) were observed.



Legend

- Subject Property
- Amphibian Call Survey
- Breeding Bird Survey

Figure 4 – Amphibian & Breeding Bird Surveys

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2.2.4 Headwater Drainage Feature

Detailed Headwater Drainage Feature (HDF) investigations took place during two separate site visits: May 5 and June 21, 2022, following the Ontario Stream Assessment Protocol Section 4: Module 10 (OSAP S4: M10) for Headwater Drainage Features. Wills followed the Toronto Region Conservation Authority's (TRCA) Evaluations, Classification and Management of Headwater Drainage Features Guidelines (2014), to evaluate the drainage feature during field investigations. Following the review of aerial imagery, one potential HDF was identified, and its presence was confirmed during the initial field investigation on May 5, 2022. See **Figure 3** for the location of the HDFs.

Two field investigations were conducted instead of three, since the HDF was dry at the time of the second field investigation on June 21, 2022. During the two field investigations for the upstream and downstream segments of the HDFs, the Feature Type, Feature Flow, Sediment Transport, Riparian Vegetation, Feature Width, Bankfull Depth, Wetted Width, Depth, and Hydraulic Head, were categorized and assessed. In addition, Site Features were also assessed which included Major Nutrient Sources Upstream, Potential Contaminant Sources Upstream, Channel Hardening, Dredging or Straightening, Barriers and/or Dams in Proximity, Online Ponds Upstream, Seeps or Springs at the Site, Evidence of Channel Scouring/Erosion, and BMPs or Restoration Activities. The HDF was observed to carry surface water flow originating from the wetland in the western portion of the Subject Property. The drainage feature was observed to be impacted by agricultural activities, mainly the active tilling, which appeared to disrupt its morphology. The drainage feature drains in an easterly direction through the agricultural field into the wetland that borders County Road 65.

An assessment of the HDF using TRCA guidelines is included in **Section 4.2**. The drainage feature can be seen in **Figure 3**.

2.2.5 Wetland Delineation

Wills' biologists conducted a desktop review of aerial imagery within the Subject Property for wetlands using the Natural Heritage Information Centre mapping, prior to the field investigation. Mapping indicated that wetlands were present along the north, west and southern boundaries of the Subject Property as shown in **Appendix B**.

On June 21, 2022, Wills' biologists conducted a ground confirmation exercise by foot, within the Subject Property, following the Ontario Wetland Evaluation System, 2014 (OWES) standard methods for identifying wetland communities. Wills' biologists traversed the Subject Property, conducting an evaluation of wetland presence/absence in the wetland polygons indicated by NHIC mapping. When a wetland was found, the boundary was delineated using a handheld Garmin GPS, marking a waypoint approximately every 5 m.

The OWES methodology involves identifying vegetation species and determining the relative abundance or "cover" of wetland indicator species versus upland vegetation species. If the vegetation community consists of greater than 50% wetland indicator species, this area is identified as a wetland. This is commonly known as the "50%

wetland vegetation rule". If the percent composition of wetland indicator species is equal to that of upland indicator species, that space represents the wetland boundary. Soil augers were taken at various locations to assist in confirming wetland communities/boundaries.

As part of the wetland delineation, the watercourse that flows through the wetland at the north end of the Subject Property was assessed. During the field investigations, it was determined that the reach of the watercourse on the Subject Property is unlikely to provide fish habitat. At the time of the wetland delineation, the watercourse was observed to have no flow, and minimal standing water (<5 cm). Substrates consisted of 100% muck/detritus with high vegetation content within the watercourse. The conditions of the watercourse are anticipated to contribute to very low oxygen levels, thereby preventing fish from utilizing this reach.

The wetland boundary can be seen in **Figure 3.**

2.2.6 Incidental Wildlife Observations

The following wildlife species were observed or heard during field investigations:

- Red Squirrel (*Tamiasciurus hudsonicus*)
- Ruffed Grouse *(Bonansa umbellis)*
- Coyote *(Canis latrans)*
- Common Nighthawk *(Chordeiles minor)*
- Broad-winged Hawk *(Buteo platypterus)*

2.2.7 Species at Risk Assessment

Information from the following sources was reviewed for all species of conservation concern prior to completing the field investigation to assist in assessing the Subject Property for SAR.

1. Land Information Ontario Natural Heritage Areas database; and,
2. Other SAR species identified through other data sources (OBBA, iNaturalist).

A SAR Screening Assessment was completed comparing known occurrences within the area against specific local habitat features identified during the field investigation; see **Table 2** for details.

Table 2 – Species at Risk Screening Assessment

Species	Provincial ESA Status	COSEWIC Status	Federal SARA Status	Habitat Requirements	Source	Likelihood of Occurrence	Site Area Suitability/Observations
Bald Eagle (*Haliaeetus leucocephalus*)	Special Concern	Not at Risk	Not at Risk	Bald Eagles nest in a variety of habitats and forest types, almost always near a major lake or river where they do most of their hunting. While fish are their main source of food, Bald Eagles can easily catch prey up to the size of ducks, and frequently feed on dead animals, including White-tailed Deer. They usually nest in large trees such as pine and poplar. During the winter, Bald Eagles sometimes congregate near open water such as the St. Lawrence River, or in places with a high deer population where carcasses might be found (MNRF, 2019).	eBird	Low	No Bald Eagles were observed or heard during the Breeding Bird Surveys. Furthermore, no evidence of stick nests was observed during site visits.
Bank Swallow (*Riparia riparia*)	Threatened	Threatened	Threatened	Bank swallows nest in burrows in natural and human-made settings where there are vertical faces in silt and sand deposits. Many nests are on banks of rivers and lakes, but they are also found in active sand and gravel pits or former ones where the banks remain suitable. The birds breed in colonies ranging from several to a few thousand pairs.	OBBA	Low	Habitat requirements not present. No Bank Swallows were observed or heard during Breeding Bird Surveys.
Barn Swallow (*Hirundo rustica*)	Threatened	Threatened	Threatened	Terrestrial open and man-made structures. Barn Swallow nesting sites include the use of a variety of artificial structures (e.g., beams, posts, light fixtures, ledges over windows and doors) that provide either a horizontal nesting surface or a vertical face, often with some sort of overhang that provides shelter. Often nesting sites are associated with open barns, sheds, garages, and docks.	OBBA	Moderate	There is an existing barn situated on the northeastern portion of the Subject Property, near County Road 65, which may potentially serve as suitable habitat for this species. While no species-specific surveys were conducted within the structure, no Barn Swallows were observed or heard during the Breeding Bird Surveys. It should be noted that no impacts to the barn are anticipated as part of the development.
Bobolink (*Dolichonyx oryzivorus*)	Threatened	Threatened	Threatened	Bobolink prefers tall grass prairies but is also known to nest in forage crops (e.g., hayfields and pastures dominated by a variety of species such as clover, Timothy, Kentucky Bluegrass, and broadleaved plants).	OBBA	Low	Due to the active agricultural activities within ecosite CUM1, the habitat requirements for this species are not present. No Bobolink were observed or heard during Breeding Bird Surveys.

Species	Provincial ESA Status	COSEWIC Status	Federal SARA Status	Habitat Requirements	Source	Likelihood of Occurrence	Site Area Suitability/Observations
Butternut (*Juglans cinerea*)	Endangered	Endangered	Endangered	In Ontario, Butternut usually grows alone or in small groups in deciduous forests. It prefers moist, well-drained soil and is often found along streams. It is also found on well-drained gravel sites and rarely on dry rocky soil. In Ontario, this species is found throughout the southwest, north to the Bruce Peninsula, and south of the Canadian Shield (MNRF, 2019).	iNaturalist	Moderate	Potentially suitable habitat for this species may be found within ecosites FOD6 and SWM1. However, no Butternut were observed during site investigations.
Canada Warbler (*Cardellina canadensis*)	Special Concern	Threatened	Threatened	The Canada Warbler breeds in a range of deciduous and coniferous, usually wet forest types, all with a well- developed, dense shrub layer. Dense shrub and understory vegetation help conceal Canada Warbler nests that are usually located on or near the ground on mossy logs or roots, along stream banks or on hummocks. It winters in South America.	eBird	Low	While ecosite SWM1 does present a suitable wet forest type, it did not possess a well-developed shrub layer due to the dense Eastern White Cedar canopy overhead. Therefore, habitat requirements are not present. No Canada Warbler were observed or heard during Breeding Bird Surveys.
Chimney Swift (*Chaetura pelagica*)	Threatened	Threatened	Threatened	Before European settlement, Chimney Swifts mainly nested on cave walls and in hollow trees or tree cavities in old growth forests. Today, they are more likely to be found in and around urban settlements where they nest and roost (rest or sleep) in chimneys and other manmade structures. They also tend to stay close to water as this is where the flying insects they eat, congregate.	OBBA	Moderate	Large, mature Eastern Hemlocks, Red Oaks and Sugar Maples were present within ecosite FOM3, which could potentially support suitable habitat for this species. However, no cavities were observed on suitable trees. There is an existing barn as well as a residential dwelling situated on the northeastern portion of the Subject Property, near County Road 65, which may potentially serve as suitable habitat for this species. While no species-specific surveys were conducted within the structure, no Chimney Swift were observed or heard during Breeding Bird Surveys. It should be noted that no impacts to the barn are anticipated as part of the development.

Species	Provincial ESA Status	COSEWIC Status	Federal SARA Status	Habitat Requirements	Source	Likelihood of Occurrence	Site Area Suitability/Observations
Eastern Meadowlark (*Sturnella magna*)	Threatened	Threatened	Threatened	Native grasslands, pastures and savannahs. Eastern meadowlark also uses a wide variety of other anthropogenic grassland habitats, including hayfields, weedy meadows, young orchards, golf courses, restored surface mines, grassy roadside verges, young oak plantations, grain fields, herbaceous fencerows, and grassy airfields. Eastern Meadowlarks occasionally nest in crop fields such as corn and soybean, but these crops are considered low-quality habitat.	OBBA	Low	While 2 Eastern Meadowlark were observed on a thin stretch of long grass adjacent to County Road 65 during the June 6, 2022, breeding bird survey, no Eastern Meadowlark were observed during the subsequent survey. Due to the active agricultural uses of the field, permanent Eastern Meadowlark habitat is not anticipated to be found on the Subject Property, and it is likely that the 2 individuals observed on June 6 did not nest in the field.
Eastern Small-footed Myotis (*Myotis leibii*)	Endangered	Not at Risk	Not at Risk	In the spring and summer, eastern small-footed bats will roost in a variety of habitats, including in or under rocks, in rock outcrops, in buildings, under bridges, or in caves, mines, or hollow trees. These bats often change their roosting locations every day. At night, they hunt for insects to eat, including beetles, mosquitos, moths, and flies. In the winter, these bats hibernate, most often in caves and abandoned mines. They seem to choose colder and drier sites than similar bats and will return to the same spot each year (MNRF, 2019).	iNaturalist	Moderate	Large, mature Eastern Hemlocks, Red Oaks and Sugar Maples were present within ecosite FOM3, which could potentially support suitable habitat for this species. There is also an existing barn as well as a residential dwelling situated on the northeastern portion of the Subject Property, near County Road 65, which may potentially serve as suitable habitat for this species. Furthermore, an unidentified bat species was observed flying overhead at listening station LS3 during the Amphibian Call Survey conducted on May 4, 2022. While no Eastern small-footed myotis were observed or recorded during site investigations, it must be noted that no species-specific surveys were carried out within the scope of this project.

Species	Provincial ESA Status	COSEWIC Status	Federal SARA Status	Habitat Requirements	Source	Likelihood of Occurrence	Site Area Suitability/Observations
							It should be noted that no impacts to the barn are anticipated as part of the development.
Eastern Whip-poor-will (*Caprimulgus vociferus*)	Threatened	Threatened	Threatened	The Eastern Whip-poor-will is usually found in areas with a mix of open and forested areas, such as savannahs, open woodlands or openings in more mature, deciduous, coniferous and mixed forests. It forages in these open areas and uses forested areas for roosting (resting and sleeping) and nesting. It lays its eggs directly on the forest floor, where its colouring means it will easily remain undetected by visual predators (MNRF, 2018).	OBBA	Low	Habitat requirements not present. No Eastern Whip-poor-will were observed or heard during Breeding Bird or Amphibian Surveys.
Eastern Wood-pewee (*Contopus virens*)	Special Concern	Special Concern	Special Concern	In Canada, the Eastern Wood-pewee is mostly associated with the mid-canopy layer of forest clearings and edges of deciduous and mixed forests. It is most abundant in forest stands of intermediate age and in mature stands with little understory vegetation. During migration, a variety of habitats are used, including forest edges, early successional clearings, and primary and secondary lowland (and submontane) tropical forest, as well as cloud forest. In South America in the winter, the species primarily uses open forest, shrubby habitats, and edges of primary forest. It also occurs in interior forests where tree-fall gaps are present (COSEWIC, 2012).	OBBA	Confirmed	Multiple Eastern Wood-pewee were observed/heard from all three listening stations during the Breeding Bird Survey conducted on June 21, 2022.
Evening Grosbeak (*Coccothraustes vespertinus*)	Special Concern	Special Concern	Special Concern	During the breeding season, the Evening Grosbeak is generally found in open, mature mixed-wood forests dominated by fir species, White Spruce and/or Trembling Aspen. Its abundance is strongly linked to the cycle of its primary prey, the Spruce Budworm. Outside the breeding season, the species depends mostly on seed crops from tree species in the boreal forest such as firs and spruces. It is also attracted to ornamental trees that have seeds or fruit, and may visit bird feeders (MNRF, 2019).	eBird	Low	Habitat requirements not present. No Evening Grosbeak were observed or heard during Breeding Bird Surveys.
Grasshopper Sparrow (*Ammodramus savannarum*)	Special Concern	Special Concern	Special Concern	It lives in open grassland areas with well-drained, sandy soil. It will also nest in hayfields and pasture, as well as alvars, prairies and occasionally grain crops such as barley. It prefers areas that are sparsely vegetated. Its nests are well-hidden in the field and woven from grasses in a small cup-like shape. The Grasshopper Sparrow is a short-distance migrant and leaves Ontario in the fall to migrate to the southeastern United States and Central America for the winter (MNRF, 2018).	OBBA	Low	Due to the active agricultural activities within ecosite CUM1, the habitat requirements for this species are not present. No Grasshopper Sparrow were observed or heard during Breeding Bird Surveys.

Species	Provincial ESA Status	COSEWIC Status	Federal SARA Status	Habitat Requirements	Source	Likelihood of Occurrence	Site Area Suitability/Observations
Little Brown Myotis (*Myotis lucifugus*)	Endangered	Endangered	Endangered	During the day Little Brown Myotis roost in trees and buildings. They often select attics, abandoned buildings and barns for summer colonies where they can raise their young. Little brown bats hibernate from October or November to March or April, most often in caves or abandoned mines that are humid and remain above freezing (MNRF, 2019).	iNaturalist	Moderate	Large, mature Eastern Hemlocks, Red Oaks and Sugar Maples were present within ecosite FOM3, which could potentially support suitable habitat for this species. There is also an existing barn as well as a residential dwelling situated on the northeastern portion of the Subject Property, near County Road 65, which may potentially serve as suitable habitat for this species. Furthermore, an unidentified bat species was observed flying overhead at listening station LS3 during the Amphibian Call Survey conducted on May 4, 2022. While, no Little Brown Myotis were observed or recorded during site investigations, it must be noted that no species-specific surveys were carried out within the scope of this project. It should be noted that no impacts to the barn are anticipated as part of the development.
Northern Myotis (*Myotis septentrionalis*)	Endangered	Endangered	Endangered	Northern long-eared bats are associated with boreal forests, choosing to roost under loose bark and in the cavities of trees. These bats hibernate from October or November to March or April, most often in caves or abandoned mines. The northern long-eared bat is found throughout forested areas in southern Ontario, to the north shore of Lake Superior and occasionally as far north as Moosonee, and west to Lake Nipigon (MNRF, 2019).	iNaturalist	Low	Large, mature Eastern Hemlocks, Red Oaks and Sugar Maples were present within ecosite FOM3, which could potentially support suitable habitat for this species. Furthermore, an unidentified bat species was observed flying overhead at listening station LS3 during the Amphibian Call Survey conducted on May 4, 2022. While, no Northern Myotis were

Species	Provincial ESA Status	COSEWIC Status	Federal SARA Status	Habitat Requirements	Source	Likelihood of Occurrence	Site Area Suitability/Observations
							observed or recorded during site investigations, it must be noted that no species-specific surveys were carried out within the scope of this project.
Red-headed Woodpecker (*Melanerpes erythrocephalus*)	Endangered	Endangered	Threatened	The Red-headed Woodpecker lives in open woodland and woodland edges, and is often found in parks, golf courses and cemeteries. These areas typically have many dead trees, which the bird uses for nesting and perching. The Red-headed Woodpecker is found across southern Ontario, where it is widespread but rare (MNRF, 2019).	eBird	Low	While the border of the forested ecosites found within the Subject Property may provide suitable edge habitat for this species, these communities were not observed to have a high density of dead trees. Furthermore, no Red-headed Woodpecker were observed or heard during Breeding Bird Surveys.
Snapping Turtle (*Chelydra serpentina*)	Special Concern	Special Concern	Special Concern	Snapping Turtles spend most of their lives in water. They prefer shallow waters so they can hide under the soft mud and leaf litter, with only their noses exposed to the surface to breathe. During the nesting season, from early to mid summer, females travel overland in search of a suitable nesting site, usually gravelly or sandy areas along streams. Snapping Turtles often take advantage of man-made structures for nest sites, including roads (especially gravel shoulders), dams and aggregate pits (MNRF, 2019).	iNaturalist	Low	No Snapping Turtles were observed during site investigations. While no species-specific surveys were carried out within the scope of this project, it was observed that the area lacked sufficient standing water within any of the wetland ecosites that would support the life processes of this species. However, there may still be potential for Snapping Turtles to use the wetlands within the Subject Property as a travel corridor to access other wetlands.
Tri-colored Bat (*Perimyotis subflavus*)	Endangered	Endangered	Endangered	During the summer, the Tri-colored Bat is found in a variety of forested habitats. It forms day roosts and maternity colonies in older forest and occasionally in barns or other structures. They forage over water and along streams in the forest. Tri-colored Bats eat flying insects and spiders gleaned from webs. At the end of the summer they travel to a location where they swarm; it is generally near the cave or underground location where they will overwinter. They	iNaturalist	Moderate	There is an existing barn as well as a residential dwelling situated on the northeastern portion of the Subject Property, near County Road 65, which may potentially serve as suitable habitat for this species. Furthermore, an unidentified

Species	Provincial ESA Status	COSEWIC Status	Federal SARA Status	Habitat Requirements	Source	Likelihood of Occurrence	Site Area Suitability/Observations
				overwinter in caves where they typically roost by themselves rather than part of a group (MNRF, 2019).			bat species was observed flying overhead at listening station LS3 during the Amphibian Call Survey conducted on May 4, 2022. While, no Tri-colored Bats were observed or recorded during site investigations, it must be noted that no species-specific surveys were carried out within the scope of this project. It should be noted that no impacts to the barn are anticipated as part of the development.
Wood Thrush (*Hylocichla mustelina*)	Special Concern	Threatened	Threatened	During the breeding season, the Wood Thrush is found in moist, deciduous hardwood or mixed stands, often previously disturbed, with a dense deciduous undergrowth and with tall trees for singing perches (Gauthier and Aubry 1995; Friesen et al. 1999; Holmes and Sherry 2001; Friesen 2007; Evans et al. 2011; Suarez-Rubio et al. 2011). It is noted that in southern Ontario, the Wood Thrush prefers second-growth over mature forests (Peck and James, 1987).	OBBA	Moderate	While ecosite SWM1 does present a suitable wet forest type, no Wood Thrush were observed or heard during Breeding Bird Surveys.

OBBA: Ontario Breeding Bird Atlas

3.0 Regulatory Context

According to the Northumberland County Public GIS tool, the Subject Property is designated as a rural settlement area.

3.1 Provincial Policy Context

The *Provincial Policy Statement 2020* (PPS) is a consolidated statement of the government's policies on land use planning. The PPS was issued under section 3 of the Planning Act and came into effect May 1, 2020. It replaces the PPS issued April 30, 2014.

The PPS states:

> *Section 2.1.4: Development and site alteration shall not be permitted in:*
>
> *a) significant wetlands in Ecoregions 5E, 6E and 7E*

The Subject Property is located in Ecoregion 6E. There is no PSW situated within the Subject Property however the Osaca PSW is situated across County Road 65 approximately 35 m east of the Subject Property.

> *Section 2.1.5: Development and site alteration shall not be permitted in:*
>
> *b) significant woodlands in Ecoregions 6E and 7E unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.*
>
> *d) significant wildlife habitat*

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

A portion of unevaluated woodlands are located within, and adjacent to the Subject Property. An assessment on the significance of the woodlands is provided in Section 5.2.4.1. Candidate Special Concern and Rare Wildlife Species – Eastern Wood-pewee SWH has been identified in the wooded communities on the Subject Property. Further details are provided in Section 4.3, and mitigation measures are provided in Section 5.

The PPS also states:

> *Section 2.1.8: Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 2.1.4, 2.1.5, 2.1.6 and 2.1.7, 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 the ecological functions.*

The Ontario Natural Heritage Reference Manual for the Provincial Policy Statement defines adjacent lands as:

- 120 m from PSW.

- 50 m from – significant woodlands; significant valley lands; significant wildlife habitat; significant portions of habitat for threatened or endangered species, significant ANSIs.
- 30 m from fish habitat.

The assessment to meet regulatory requirements is provided in Sections 5.0.

3.2 Northumberland County Official Plan

The following are the applicable natural heritage policies for the Subject Property from the Northumberland County Official Plan (2016).

Section D1.5 Development and Site Alteration

a. Development and site alteration shall not be permitted in significant wetlands and significant coastal wetlands.

The Subject Property does not have any Significant Wetlands or Significant Coastal Wetlands within its boundaries. However, the Osaca PSW is situated across County Road 65, approximately 35 m east of the Subject Property.

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

i. Significant woodlands;

ii. Significant valleylands;

iii. Non-significant coastal wetlands;

iv. Significant wildlife habitat; and,

v. Significant Areas of Natural and Scientific interest

The Subject Property contains unevaluated woodlands and unevaluated wetlands as well as Candidate SWH. A minimum 15 m buffer has been proposed on the unevaluated wetlands. Further assessment (woodlands evaluation, SWH evaluation) and details are provided in Section 4 and Section 5.

c. Development and site alteration shall not be permitted in fish habitat except in accordance with Provincial and Federal requirements.

No fish or fish habitat was found on the Subject Property.

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

No significant habitat of Endangered or Threatened species was found on the Subject Property. While two individual Eastern Meadowlark (Threatened) were heard singing in

ecosite CUM1, this is not considered to be habitat as they were only heard on one occasion.

Section D1.12.2 Protection of Watercourses

a) New development in the form of buildings and structures and septic systems shall be located a minimum of 30 metres from the stable top of bank of a watercourse. This setback requirement must be met by all development unless more appropriate setbacks are recommended in accordance with an approved Subwatershed study, Environmental Impact Study or Geotechnical study in consultation with the appropriate Conservation Authority.

A watercourse is located in the wetland that flows across the north end of the Subject Property. A minimum 15 m buffer for development has been applied to that wetland. Further details and mitigation measures are provided in Section 5.

3.3 Municipality of Port Hope

The following are the applicable natural heritage policies for the Subject Property from the Municipality of Port Hope Official Plan (2017).

Section C5.2.2 Policies

a) Council shall protect lands classified as Natural Heritage from incompatible development. No development or site alteration will be permitted within a provincially significant wetland. Provincially significant and evaluated wetlands, as identified on Schedule B, will be similarly designated in the implementing zoning by-law as no development zones. Further, development or site alteration shall not be permitted in fish habitat or the habitat of endangered and threatened species except in accordance with provincial and federal requirements. Existing uses, including agricultural operations will be permitted to continue. Development within natural heritage features shall meet the requirements laid out in Table 1.

The Subject Property does not possess any Provincially Significant Wetlands, significant habitat of Endangered or Threatened species or fish habitat within its boundary.

Section C5.2.3: Surface and Groundwater Policies

e) Within the Municipality there are a number of warm and cold water creeks. In order to protect these watercourses, a 30 metres setback shall be maintained within which natural vegetation with no disturbance of soil will be permitted.

A watercourse is located in the wetland that flows across the north end of the Subject Property. A minimum 15 m buffer for development has been applied to that wetland. Further mitigation measures and details are provided in Section 5.

3.4 Endangered Species Act, 2007

The *Endangered Species Act, 2007* (ESA) was implemented to protect SAR in Ontario. An independent body, the Committee on the Status of Species at Risk in Ontario

(COSSARO), was developed to classify native plants or animals into one (1) of four (4) categories of at risk status:

1. Extirpated: lives somewhere in the world, and at one (1) time lived in the wild in Ontario, but no longer lives in the wild in Ontario.
2. Endangered: lives in the wild in Ontario but is facing imminent extinction or extirpation.
3. Threatened**:** lives in the wild in Ontario, is not endangered, but is likely to become endangered if steps are not taken to address factors threatening it.
4. Special Concern**:** lives in the wild in Ontario, is not endangered or threatened, but may become threatened or endangered due to a combination of biological characteristics and identified threats.

Species at Risk in Ontario (SARO) are provided by MECP, who administer the ESA regulations for SAR in Ontario. The ESA applies to native species that have been proven to be in danger of becoming extinct or extirpated from Ontario. The ESA provides protection of both the species and their habitat, as well as provides a recovery strategy and stewardship program for those SAR.

Section 9(1) of the ESA prohibits a person from killing, harming, harassing, capturing, or taking a member of a species listed as endangered, threatened or extirpated on the SARO list. In addition, Section 10(1) of the ESA prohibits the damage or destruction of habitat of a species listed as threatened, endangered or extirpated on the SARO list.

A permit from MECP is required under Section 17(2)(c) of the ESA for any proposed work to be completed within the habitat of one (1), or more, species listed as threatened or endangered.

Two Eastern Meadowlark (Threatened) were heard singing in the southeastern portion of ecosite CUM1, east of BB02 from a strip of tall grasses bordering County Road 65. Only two individuals were observed during the first Breeding Bird Survey, while none were observed during the second. The narrow strip of tall grasses adjacent to County Road 65 did not provide high quality habitat. Therefore, no Eastern Meadowlark nesting habitat is found on the Subject Property.

As such, no significant habitat for Endangered or Threatened species was found on the Subject Property. Eastern Wood-pewee (Special Concern) was the only other SAR to be observed during the field investigations.

3.5 Ganaraska Region Conservation Authority

The following portions of Ontario Regulation 168/06 apply for the Subject Property.

3.5.1 Watercourses

Ontario Regulation 168/06 provides the following with respect to watercourses:

Alteration Prohibited

5. *Subject to Section 6, no person shall straighten, change, divert or interfere in any way with the existing channel of a river, creek, stream or watercourse or change or interfere in any way with a wetland.*

Permission to alter

6. *(1) The Authority may grant a person permission to straighten, change, divert or interfere with the existing channel of a river, creek, stream or watercourse or to change or interfere with a wetland.*
(2) The permission of the Authority shall be given in writing, with or without conditions.

In general, interference with a watercourse shall not be permitted except in accordance with the policies of 3.1.1 – 3.1.6;

3.1.1 Infrastructure (e.g., roads, sewers, flood and erosion control works) and various utilities (e.g., pipelines) may be permitted within a watercourse subject to the activity being approved through a satisfactory Environmental Assessment process or through other studies deemed necessary by the Conservation Authority and/ or if the interference on the natural features and hydrologic and ecological functions of the watercourse has been deemed to be acceptable by the Conservation Authority;

3.1.2 Stream, bank, and channel stabilization to protect existing development or conservation or restoration projects may be permitted within a watercourse if the interference on the natural features and hydrologic and ecological functions of the watercourse has been deemed to be acceptable by the Conservation Authority;

3.1.3 Any works that are to be located below the bed of the river within a watercourse shall be located below the long term scour depth to the satisfaction of the Conservation Authority;

3.1.4 Minor interference and/or alteration (e.g., tile outlet) may be permitted within a watercourse if it has been demonstrated to the satisfaction of the Conservation Authority that the interference is acceptable on the natural features and hydrologic and ecological functions of the watercourse;

3.1.5 Major interference (e.g., realignment, dredging, dam, enclosure, pond) with a watercourse may be permitted where supported by the recommendations of an Environmental Assessment and if it has been demonstrated to the satisfaction of the Conservation Authority that the interference is acceptable for the natural features and hydrologic, ecological functions of the watercourse;

3.1.6 Watercourse crossings may be permitted if it has been demonstrated to the satisfaction of the Conservation Authority that the interference on the natural features and hydrologic and ecological functions of the watercourse has been deemed to be acceptable by the Conservation Authority. At a minimum, the submitted plans should demonstrate the

following based on morphological characteristics of the watercourse system.

a) culverts have an open bottom where it is feasible, or where it is not feasible, the culverts should be appropriately embedded into the watercourse;

b) crossing location, width, and alignment should be compatible with stream morphology, which typically requires location of the crossing on a straight and shallow/riffle reach of the watercourse with the crossing situated at right angles to the watercourse;

c) the crossing is sized and located such that there is no increase in upstream or downstream erosion or flooding;

d) the design should consider fish and wildlife passage; and,

e) consideration for upstream and downstream effects when installing/ replacing a culvert.

No alterations are proposed to the watercourse identified on the Subject Property, and a 15 m buffer has been applied to the wetland in which it is found.

3.5.2 Wetlands

Ontario Regulation 168/06 contains the following sections dealing with wetlands.

Development Prohibited

2. (1) Subject to section 3, no person shall undertake development or permit another person to undertake development in or on areas within the jurisdiction of the Authority that are,

(d) wetlands; or

(e) other areas where development could interfere with the hydrologic function of a wetland, including areas within 120 metres of all provincially significant wetlands and wetlands greater than 2 hectares in size, and areas within 30 metres of wetlands less than 2 hectares.

Permission to develop

3. (1) The Authority may grant permission for development in or on the areas described in subsection 2 (1) if, in its opinion, the control of flooding, erosion, dynamic beaches, pollution or the conservation of land will not be affected by the development.

Alterations prohibited

5. Subject to Section 6, no person shall… change or interfere in any way with a wetland.

Permission to alter

6. *(1) The Authority may grant a person permission…to change or interfere with a wetland.*

   (2) The permission of the Authority shall be given in writing, with or without conditions.

4.2 Development within other areas (areas of interference/adjacent lands within which development may interfere with the hydrologic function of the wetland)

4.2.1 Ontario Regulation 168/06 defines other areas as areas where development could interfere with the hydrologic function of a wetland, including areas within 120 metres of all provincially significant wetlands and wetlands greater than 2 hectares in size, and areas within 30 metres of wetlands less than 2 hectares in size.

The proposed development is within 120 m of unevaluated wetlands that total more than 2 ha in size. A 15 m buffer for development has been proposed on the wetland. Further mitigation measures and details are provided in Section 5.

4.2 Area within 30 metres of the wetland

In general, development shall not be permitted within 30 metres of the boundary of the wetland except in accordance with the policies of 4.3.1 – 4.3.4;

4.3.1 Infrastructure (e.g., roads, sewers, flood and erosion control works) and various utilities (e.g., pipelines) may be permitted within 30 metres of a wetland if the interference on the hydrologic functions of the wetland has been deemed to be acceptable by the Conservation Authority;

4.3.2 Conservation or restoration projects may be permitted within 30 metres of a wetland if the interference on the hydrologic functions of the wetland has been deemed to be acceptable by the Conservation Authority;

4.3.3 Development associated with public parks (e.g., passive or low intensity outdoor recreation and education, trail system) may be permitted within 30 meters of a wetland if the interference on the hydrologic functions of the wetland has been deemed to be acceptable by the Conservation Authority;

4.3.4 Single family buildings or structures may be permitted within 30 metres of a wetland on vacant lots of record if the interference on the hydrologic function of the wetland has been deemed to be acceptable by the Conservation Authority. An Environmental Impact Study to assess the hydrologic impact shall be required if the submitted plans do not demonstrate the following:

a) all development (including grading) is located so as to maintain as much setback from the wetland as is feasible;

b) disturbances to natural vegetation communities contributing to the hydrologic function of the wetland are avoided;

c) the overall existing drainage patterns for the lot will be maintained;

d) disturbed area and soil compaction is minimized;

e) development is located above the high water table;

f) all septic systems are located a minimum of 15 metres from the wetland and a minimum of 0.9 m above the water table;

g) impervious areas are minimized; and,

h) best management practices are used to:

(i) maintain water balance;

(ii) control sediment and erosion; and

(iii) buffer wetlands.

The proposed development is within 30 m of the wetland. A 15 m buffer has been proposed. Further mitigation measures and details are provided in Section 5.

4.4 Area between 30 metres to 120 metres of the wetland

In general, development may be permitted in the area between 30 metres to 120 metres of a wetland if the interference on the hydrologic functions of the wetland has been deemed to be acceptable by the Conservation Authority except in accordance with the policies of 4.4.1 – 4.4.5;

4.4.1 Infrastructure (e.g., roads, sewers, flood and erosion control works) and various utilities (e.g., pipelines) may be permitted in the area between 30 metres to 120 metres of a wetland subject to the activity being approved through a satisfactory Environmental Assessment process and/or if the interference on the hydrologic functions of the wetland has been deemed to be acceptable by the Conservation Authority;

4.4.2 Conservation or restoration projects may be permitted in the area between 30 metres to 120 metres of a wetland if the interference on the hydrologic functions of the wetland has been deemed to be acceptable by the Conservation Authority;

4.4.3 Development associated with public parks (e.g., passive or low intensity outdoor recreation and education, trail system) may be permitted in the area between 30 metres to 120 metres of a wetland if the interference on the hydrologic functions of the wetland has been deemed to be acceptable by the Conservation Authority;

4.4.4 Single family buildings or structures may be permitted in the area between 30 metres to 120 metres of a wetland on vacant lots of record if the interference on the hydrologic functions of the wetland has been deemed to be acceptable by the Conservation Authority. An Environmental Impact Study to assess the hydrologic impact shall be required if the submitted plans do not demonstrate the following:

a) disturbances to natural vegetation communities contributing to the hydrologic function of the wetland are avoided;

b) the overall existing drainage patterns for the lot will be maintained;

c) disturbed area and soil compaction is minimized;

d) development is located above the high water table;

e) all septic systems are located at a minimum 0.9 metres above the water table;

f) impervious areas are minimized; and,

g) best management practices are used to:

(i) maintain water balance;

(ii) control erosion and sediment; and

(iii) buffer wetlands.

4.4.5 Larger scale development associated with large commercial uses, industrial uses, multiple residential uses (condominiums, apartments, townhouses, etc.) and/or development into the water table may be permitted in the area between 30 metres to 120 metres of a wetland if the interference on hydrologic functions of the wetland has been deemed to be acceptable by the Conservation Authority. An Environmental Impact Study to assess the hydrologic impact shall be required.

Development is proposed between 30 m and 120 m from the wetland boundary. Mitigation measures to protect the wetlands on the Subject Property are provided in Section 5.

4.0 Determination of Significance

Valued Ecosystem Components (VECs) are broadly defined as any part of the environment that is considered important by the proponent, public, scientists, and government involved in the assessment process. Importance may be determined on the basis of cultural values or scientific concern. For the purposes of the EIS, VECs will be limited to define any part of the biophysical environment that is considered important by the proponent, public, scientists and government involved in the assessment process.

4.1 Significant Woodlands

Woodlands are located on the northern, southern, and western portions of the Subject Property as indicated by a background review of NHIC. The *Natural Heritage Reference Manual* (MNRF, 2010) suggests using the criteria below for determining Significant Woodlands. In order to be deemed significant, woodlands must meet at least one of the following criteria:

1) Woodland Size – must have an area of at least 50 ha;

Where municipality woodlands cover approximately 30-60% land cover (Municipality of Port Hope: 32.5%) woodlands 50 ha in size or larger are considered significant.

- **The woodland complex that the Subject Property adjoins to, is larger than 50 ha and therefore they should be considered significant.**

2) Ecological Functions Criteria:

a) Woodland Interior – Based on woodlands cover (30-60%), woodlands with 8 ha or more of interior habitat (habitat that is 100 m or more from the woodland edge) are considered significant:

- **There is greater than 8 ha of woodland interior in the complex that the Subject Property is associated with. Therefore, the woodlands meet this criterion.**

b) Proximity to other woodlands or other habitats must be within 30 m of a significant natural feature or fish habitat and be at least 10 ha.

- **The woodlands on the Subject Property are within 30 m of the Lake Iroquois Archipelago ANSI and the Graham Creek Headwater Wetland Complex (PSW, located approximately 1.3 km west of the Subject Property). Therefore the woodlands meet this criterion. In addition, a watercourse that is anticipated to provide habitat for fish is located approximately 5 m south of the Subject Property and flows through the woodland complex.**

c) Linkages – must be located between two other significant features each of which are not greater than 120 m apart and at least 10 ha.

- **The woodlands on the Subject Property meet this criterion. The woodlands are between the Lake Iroquois Archipelago and the Graham Creek Headwater Wetland Complex.**

d) Water Protection – Must be located within 50 m of a sensitive groundwater discharge/recharge area, headwater, watercourse or fish habitat and be at least 5 ha.

- **The woodlands on the Subject Property meet this criterion. Multiple watercourses that provide fish habitat are present within the woodland.**

e) Woodland Diversity Representation – Must have a naturally occurring composition of native forest species that have declined significantly south and east of the Canadian Shield.

OR

A high native diversity through a combination of composition and terrain and meet minimum area thresholds.

- **The woodlands on the Subject Property meet this criterion. The woodlands were confirmed to contain a significant amount of Sugar**

Maple, Eastern Hemlock, Eastern White Cedar, Yellow Birch, and White Birch, all of which are native to Southern Ontario.

3) Uncommon Characteristics – Must have rare vegetation community and be more than 4 ha in size OR habitat of a rare, uncommon, or restricted woodland plant species with 10 individual stems or 100 m of leaf coverage and be more than 4 ha in size, OR characteristics of older woodlands with larger tree size structure in native species and be more than 4 ha in size.
    - **While the majority of the woodlands on the Subject Property do not meet this criterion, the FOM3 ecosite is an older woodland that contains large native tree species. No formal studies were completed to determine the number or frequency of large trees.**
4) Economic and Social Functional Values Criteria - Woodlands that have high economic value or social values.
    - **The woodlands on the Subject Property do not meet this criterion.**

Through the formal assessment completed for the woodlands on the Subject Property, it was determined that the woodlands on and adjacent to the Subject Property met three Significant Woodland criteria:

- Woodland Size – the woodlands are greater than 50 ha.
- Ecological Functions – The woodlands met categories a), b), c), d) and e).
- Uncommon Characteristics – the FOM3 ecosite contains large native tree species.

Therefore, the woodlands on the Subject Property are deemed to be **significant.**

4.2 Headwater Drainage Feature Classification

Using results from the OSAP S4:M10 assessment of HDFs, the TRCA Guidelines were used to classify the feature as indicated below.

Step 1 – Hydrological Classification

Flow Conditions on May 5, 2022, were classified as FC 4 (surface flow minimal i.e., <0.5 L/second), and the Feature Type was identified to be FT 3 (multi-thread) in the upstream section, indicating minimal surface water flow in the late April-May sampling period. During the June 21, 2022, field investigation, the HDF was dry (FC 1).

These values, along with the presence of a wetland upstream of the HDF, indicates that the hydrological classification of the HDF is **Contributing Functions – Ephemeral**.

It should be noted that a field investigation was unable to occur prior to the agricultural field being tilled. The tilling and tire tracks caused pooling of water to occur where it normal would not be present, slightly altering the HDF's typical flow path. However, it is not anticipated that the tilling of the agricultural field would have changed the outcome of the Hydrological Classification, as the HDF was dry in late June.

Step 2 – Riparian Classification

The Riparian Classification was determined to be 1 (no vegetation) and 3 (cropped land), as the moist land immediately surrounding the HDF did not have vegetation growth. As the riparian corridor was characterized by either no vegetation or cropped land, the Riparian Classification for the HDF is **Limited Functions.**

Step 3 – Fish and Fish Habitat Classification

The HDF is not considered to provide fish habitat. The Fish and Fish Habitat Classification is **Contributing Functions** as the HDF may contribute allochthonous transport through the feature to downstream fish habitat that is potentially located east of County Road 65.

Step 4 – Terrestrial Habitat Classification

Due to the presence of a wetland downstream with breeding amphibians, the Terrestrial Habitat Classification of the HDF is **Important Functions**.

The determination of the Management Option and mitigation measures based on the sensitivity of the HDF and the downstream habitat are outlined in **Section 5.2.2**.

4.3 Significant Wildlife Habitat

To further investigate the potential occurrence of SWH, mapped ELC communities were cross-referenced with a database of significant wildlife habitats to determine potential for any seasonal concentration areas (SCA), rare vegetation communities and specialized habitats for wildlife (SHW), habitat for species of conservation concern (HSCC), and animal movement corridors to be present within the Area of Assessment. The Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E were used to identify potential significant wildlife habitat. See **Table 3** below for details on Candidate SWH that may be applicable to the Subject Property.

Table 3 – Significant Wildlife Habitat Screening

SWH Type	Associated Species	Associated ELC Ecosites	Habitat Criteria	Candidate SWH	Confirmed SWH	Additional Notes
Seasonal Concentration Areas of Animals						
Waterfowl Stopover and Staging Areas (Terrestrial)	Blue-winged Teal Mallard Northern Pintail Northern Shoveler American Wigeon Gadwall	CUM1 CUT1 Evidence of annual flooding.	Fields with standing/pooling water in the spring from melt water.	No	N/A	The agricultural field did not contain pooling water. The HDF did not contain enough pooling water to support a waterfowl staging area, it was limited to a small, undefined channel that was approximately 30 cm wide. Furthermore, no waterfowl were observed during any of the site visits.
Raptor Wintering Area	Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl Short-eared Owl Bald Eagle	Hawks/Owls: One community series from each land class: Forest: FOD, FOM, FOC Upland: CUM, CUT, CUS, CUW Bald Eagle: FOD, FOM, FOC, SWD, SWM, or SWC on shoreline areas adjacent to large waterbodies.	Hawks/Owls: >20 ha with a combination of with a combination of forest and upland habitat for Hawks/Owls. Idle/Fallow/Meadow (>15 ha) with adjacent woodlands. Bald Eagle: Large trees and snags adjacent to open water.	No	N/A	The portion of CUM1 that represents the agricultural fields makes up approximately 14 ha, not meeting the minimum size requirement of 15 ha. The forested communities are not adjacent to open water.
Bat Maternity Colonies	Big Brown Bat Silver-haired Bat	FOD FOM SWD SWM	Maternity Colonies located in mature deciduous or mixed forests with >10/ha large diameter (>25 cm dbh) wildlife trees	Probable	N/A	While no wildlife tree density surveys have been completed to date, mitigation measures to protect large wildlife trees that may provide maternity roosts are provided in **Section 5.2.4**.
Turtle Wintering Areas	Midland Painted Turtle Northern Map Turtle Snapping Turtle	Classes: SW, MA, OA, SA Community Series: FEO, BOO	Water has to be deep enough to not freeze and have soft mud substrates and have adequate dissolved oxygen.	No	N/A	There are no areas on the Subject Property that have pools of water that are deep enough to not freeze during the winter months.
Colonially – Nesting Bird Breeding Habitat (Ground)	Herring Gull Great Black-backed Gull Littler Gull Ring-billed Gull Common Tern Caspian Tern Brewer's Blackbird	MAM 1-6 MAS1-3 CUM CUT CUS	Any rocky island or peninsula within a large lake or river. Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird).	No	N/A	The CUM1 community does not represent a pasture or open field.

SWH Type	Associated Species	Associated ELC Ecosites	Habitat Criteria	Candidate SWH	Confirmed SWH	Additional Notes
Migratory Butterfly Stopover Areas	Painted Lady Red Admiral Monarch	One Community Series from each landclass: Field: CUM CUT CUS Forest: FOC FOD FOM CUP	Minimum 10 ha in size with a combination of forest and field habitats and is located within 5 km of Lake Ontario.	No	N/A	While the minimum size criteria is met, the Subject Property is located >5 km from Lake Ontario.
Landbird Migratory Stopover Areas	All migratory songbirds	FOC FOM FOD SWC SWM SWD	Woodlots need to be >10 ha in size and within 5 km of Lake Ontario.	No	N/A	While the minimum size criteria is met, the Subject property is located >5 km from Lake Ontario.
Deer Yarding Areas	White-tailed Deer	FOM FOC SWM SWC CUP2 CUP3 FOD3 CUT	MNRF to determine this habitat through correspondence.	No	N/A	MNRF did not identify Deer Yarding Areas on the Subject Property through correspondence (see **Appendix C**).
Deer Winter Congregation Areas	White-tailed Deer	FOC FOM FOD SWC SWM SWD Conifer plantation much smaller than 50 ha may also be used.	Woodlots >100 ha in size. Woodlots <100 ha may be significant based on MNRF assessment. MNRF to determine this habitat.	No	N/A	MNRF did not identify Deer Yarding Areas on the Subject Property through correspondence (see **Appendix C**).

SWH Type	Associated Species	Associated ELC Ecosites	Habitat Criteria	Candidate SWH	Confirmed SWH	Additional Notes
Rare Vegetation Communities or Specialized Habitat for Wildlife						
Old Growth Forest	N/A	FOD FOC FOM SWD SWC SWM	Characterized by heavy mortality or turnover of overstory trees resulting in gaps that encourage a multi-layered canopy and an abundance of snags and downed woody debris. Woodlands >30 ha in size with at least 10 ha interior habitat, assuming 100 m buffer at edge of forest. Field studies confirm the dominant tree species are >140 years old.	Probable	N/A	While no field studies were completed to confirm the presence of Old Growth Forest, it is anticipated that the FOM3 community at the south end of the Subject Property meets the criteria for SWH. Mitigation measures are provided in **Section 5.2.1 and Section 5.2.4** will ensure that no impacts to the form and function of this community will occur from the proposed development.
Specialized Habitat for Wildlife						
Bald Eagle and Osprey Nesting, Foraging, and Perching Habitat	Osprey Bald Eagle	FOD, FOM, FOC, SWD, SWM, and SWC directly adjacent to riparian areas – rivers, lakes, ponds, and wetlands	Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water. Nests located on man-made objects such as telephone poles and constructed nesting platforms are not considered SWH.	No	N/A	While an Osprey nest is present on a constructed nesting structure adjacent to County Road 65, this is not considered SWH. The forested communities on the Subject Property are not immediately adjacent to the large ponds associated with the Osaca PSW located on the opposite side of County Road 65, therefore Candidate SWH is not applicable.
Woodland Raptor Nesting Habitat	Northern Goshawk Cooper's Hawk Sharp-shinned Hawk Red-shouldered Hawk Barred Owl Broad-winged Hawk	All forested ELC Ecosites. Additionally found in SWC, SWM, SWD, and CUP3.	All natural or conifer plantation woodland/forest stands >30 ha in size with >10 ha of interior habitat. Interior habitat determined with a 200 m buffer.	No	N/A	While a single Broad-winged Hawk was observed outside of the peak breeding bird time, no nests were observed on the Subject Property. However, to ensure no impacts to the forest will occur from the proposed development, mitigation measures are provided in **Section 5.2.**
Amphibian Breeding Habitat (Woodland)	Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog	FOC FOM FOD SWC SWM SWD	Presence of a wetland, pond, or woodland pool (including vernal pools) >500 m^2 within or adjacent (within 120 m) to a woodland	No	N/A	No vernal pools that reached the minimum size criteria were found within the forested communities. In addition, the SWM1 community which contained vernal pools, will be protected from development by the natural heritage buffer that is outlined in **Figure 5**.

SWH Type	Associated Species	Associated ELC Ecosites	Habitat Criteria	Candidate SWH	Confirmed SWH	Additional Notes
Amphibian Breeding Habitat (Wetlands)	Eastern Newt Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	SW MA FE BO OA SA	Wetlands >500 m^2 supporting high species diversity are significant. Presence of shrubs and logs increase significance. Bullfrogs require permanent waterbodies.	Yes	No	Only one of the associated frog species was heard during the Amphibian Call Surveys. The SWM1 community will be protected from development by the natural heritage buffer that is outlined in **Figure 5**.
Woodland Area-Sensitive Bird Breeding Habitat	Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler	FOC FOM FOD SWC SWM SWD	Habitats where interior forest breeding birds are breeding, typically large mature (>60 years old) forest stands or woodlots >30 ha in size. Interior forest habitat is at least 200 m from forest edge habitat.	No	N/A	No interior forest habitat is present on the Subject Property.

Habitat for Species of Conservation Concern (Not Including Endangered or Threatened Species)						
Marsh Breeding Bird Habitat	American Bittern Virginia Rail Sora Common Moorhen American Coot Pied-billed Grebe Marsh Wren Sedge Wren Common Loon Sandhill Crane Green Heron Trumpeter Swan Black Tern Yellow Rail	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SAS1 SAM1 SAF1 FEO1 BOO1 Green Heron: All SW, MA, and CUM1 sites	Nesting occurs in wetlands. All wetland habitat is to be considered as long as shallow standing water with emergent vegetation is present. For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees.	Yes	No	None of the associated bird species, specifically Green Heron (due to the presence of the CUM1 and SWM1 ecosites and watercourse) were identified during the Breeding Bird Surveys.
Open Country Bird Breeding Habitat	Upland Sandpiper Grasshopper Sparrow Vesper Sparrow Northern Harrier Savannah Sparrow Short-eared Owl	CUM1 CUM2	Large grassland areas (includes natural and cultural fields and meadows) >30 ha. Grassland not Class 1 or 2 agricultural lands, and not actively used for farming (no row cropping or intensive hay or livestock pasturing in the last 5 years).	No	N/A	The CUM1 ecosite on the Subject Property is actively used for agricultural purposes, as the field was used to grow soy in 2022.
Shrub/Early Successional Bird Breeding Habitat	Brown Thrasher Clay-coloured Sparrow Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher Yellow-breasted Chat Golden-winged Warbler	CUT1 CUT2 CUS1 CUS2 CUW1 CUW2 Patches of shrub ecosites can be complexed into a larger habitat for some bird species.	Large field areas succeeding to shrub and thicket habitats >10 ha in size. Shrub land or early successional fields, not Class 1 or 2 agricultural lands, not being actively for farming (no row-cropping, haying or live-stock in pasturing in the last 5 years).	No	N/A	Due to the active farming activities on the Subject Property, and a lack of Associated ELC ecosites, the Subject Property does not qualify for this Candidate SWH.
Special Concern and Rare Wildlife Species	All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species. These species are tracked by the NHIC.	All plant and animal element occurrences within a 1 ort 10 km grid.	When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or provincially Rare species; linking Candidate SWH on the site needs to be completed to ELC Ecosites.	Yes	Yes	Eastern Wood-pewee was confirmed to be present within the forested communities on the Subject Property. Mitigation measures to avoid impacts to this species from the proposed development are found in **Section 5.2.4**.

Animal Movement Corridors						
Amphibian Movement Corridors	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	Corridors may be found in all ecosites associated with water. Corridors will be determined based on identifying the significant breeding habitat for these species.	Movement corridors must be determined when Amphibian breeding habitat is confirmed as SWH (Amphibian Breeding Habitat – Wetland).	No	N/A	Amphibian Breeding Habitat – Wetland was confirmed to not be SWH on the Subject Property.
Deer Movement Corridors	White-tailed Deer	Corridors may be found in all forested ecosites. A project proposal in Stratum II Deer Wintering Area has potential to contain corridors.	Movement corridor must be determined when Deer Wintering Habitat is confirmed as SWH.	No	N/A	Deer Wintering Habitat was confirmed to not be SWH on the Subject Property.

5.0 Impact Assessment and Mitigation

Any future site development works including building erection, grading, and pavement development have the potential to incur adverse impacts on the surrounding environment including natural heritage features, sensitive species (e.g., SAR), and/or Significant Wildlife Habitat (often described under the umbrella of Valued Ecosystem Components (VECs), particularly concerning works in undeveloped natural landscapes. Locally specific mitigation measures are implemented to prevent or mitigate impacts to the VECs identified.

To address any potential impacts to the existing natural features or any potential wildlife species of conservation concern which may reside in the area, as shown in **Table 2,** the following mitigation measures should be implemented.

5.1 General Recommendations

The following general recommendations should be applied to any future development:

- All necessary precautions must be taken to prevent the accumulation of litter and construction debris within any natural areas outside of the construction limits. Daily inspections and clean-up must take place.
- Upon project completion, all construction materials must be removed off-site.

5.2 Natural Heritage Features

5.2.1 Woodlands

The woodlands on the Subject Property have been deemed significant based on the Woodlands Evaluation that was completed in **Section 4.1.**

No development is to occur within 5 m of the woodlands as identified in **Figure 5.** The implementation of a minimum 5 m buffer will ensure that no impacts to the woodland will occur from the proposed subdivision. Some lots identified in the Site Plan (**Appendix E**) and **Figure 5** have enough area to implement a 15 m buffer on the woodland.

The following lots are to implement a **5 m buffer** on the significant woodlands:

- Lot 52
- Lot 58
- Lot 59
- Northeast cul-de-sac

The following lots are to implement a **15 m buffer** on the significant woodlands:

- Lot 34
- Lot 35
- Lot 36
- Lot 37
- Lot 47
- Lot 48
- Lot 49
- Lot 50
- Lot 51

Figure 5 shows the variable buffers where development should not take place within each of the lots.

In addition, Lots 17-20 and the cul-de-sac to the southeast are proposed to have zero buffer.

Lots 21-33 and the adjacent cul-de-sac to the west are planned to have development within the significant woodland provided additional mitigation measures are implemented to avoid impacts to the woodland.

To ensure no impacts to the significant woodland occur, the criteria in which the woodland is considered significant are evaluated below.

Woodland Size

Due to the large size of the woodland complex (<50 ha) and the small size of the proposed development within the significant woodland, the complex as a whole will not be impacted to the point where the woodlands would no longer be considered significant.

No clear cutting will take place in the lots where development is being proposed within the Significant Woodland, the only vegetation removal that is to occur will take place in the area of the proposed development, and nowhere else.

In addition, in the buffer areas identified in Figure 5 that don't contain vegetated buffers, these areas buffers should be revegetated with native tree and plant species to improve on existing conditions between the significant woodland and the existing agricultural field that is proposed for development. The Tree Preservation and Planting Plan (TPPP) is detailed below.

Woodland Interior

The development area within the significant woodland is located along the outside edge of the woodland complex. While this would make the interior habitat of the woodland complex marginally smaller, the impact would be negligible due to the large size of the overall complex. In addition, some of this impact would be offset by the implementation of the TPPP and plantings within the 5 m and 15 m buffers.

Proximity to another Significant Natural Feature

The woodlands on the Subject Property are within 30 m of the Lake Iroquois Archipelago ANSI and the Graham Creek Headwater Wetland Complex (PSW, located approximately 1.3 km west of the Subject Property). In addition, a watercourse that is anticipated to provide habitat for fish is located approximately 5 m south of the Subject Property and flows through the woodland complex but is greater than 30 m from the proposed development within the woodland. As such, the proposed development would have no impact on the significant natural features located within the complex. It can be expected that any additional inputs from anthropogenic sources associated

with the development would be minimal and the distance to the watercourse is sufficient in order to have a negligible impact.

Linkages

The Lake Iroquois Archipelago ANSI and the Graham Creek Headwater Wetland Complex, (within 120 m of each other) are found within the woodland complex that connects to the Subject Property. These two features are located approximately 1.3 km from the proposed development within the woodland, and therefore the proposed development will have no impact on these features.

Water Protection

A watercourse that is anticipated to provide habitat for fish is located approximately 5 m south of the Subject Property and flows through the woodland complex but is greater than 30 m from the proposed development within the woodland. It can be expected that any additional inputs from anthropogenic sources associated with the development would be minimal and the distance to the watercourse is sufficient in order to have a negligible impact. The area between the proposed development is to stay vegetated, providing a sufficient buffer from the proposed development.

Woodland Diversity

The woodlands were confirmed to contain a significant amount of Sugar Maple, Eastern Hemlock, Eastern White Cedar, Yellow Birch, and White Birch, all of which are native to Southern Ontario. These species are to be included in any new plantings according to the TPP to offset any impacts from tree removal during development.

Uncommon Characteristics

The FOM3 ecosite within the woodlands contain large Eastern Hemlock and Sugar Maple trees that were greater than 50 cm in diameter. No formal surveys were completed to determine the density or age of the large trees as this area will be avoided as part of the proposed development. Furthermore, the TPPP will protect any large trees that are within the woodlands.

Impacts to Form and Function

The characteristics of the woodland complex that make it unique to the surrounding general landscape are the size of the complex and the presence of various significant natural features within it, as well as the age of certain tree species and the high diversity of native species.

While the proposed development within the woodland will not reduce the woodland complex to a point where it is no longer deemed significant, restrictions on the developable area should still be implemented in order to minimize impacts to the feature.

A key function of a woodland is to provide protection from soil erosion and reduce flood erosion. However, the location of the proposed development within the woodland is not within the floodplain of any watercourse. However, in order to minimize soil erosion within the woodland, the amount of impervious surface should also be restricted.

Due to the PSW and ANSI being over 1 km away from the Subject Property, no impacts to those features will occur from the proposed development within the woodland. Access for animals to those features from the woodland will not be impacted, and a major corridor for animal movement to rare habitats will remain intact.

A large portion of woodlands within Southern Ontario have been impacted by high densities of invasive tree and plant species. The woodland complex on the Subject Property contains a high diversity of native tree species such as Sugar Maple, Eastern Hemlock, Eastern White Cedar, Yellow Birch, and White Birch. As development is anticipated to result in the removal of some trees, it is important that this impact is offset by additional plantings and preservation of trees within the 5 m and 15 m buffer areas.

As such, the following mitigation measures should be implemented:

- No development is to take place within the FOM3 ecosite as identified in **Figure 5**.
- A TPPP should be developed to preserve large healthy trees (and wildlife trees), within the proposed developed area. It is recommended that construction activities aim to retain as much native vegetative cover as possible.
    - Snags and woody debris are not to be removed adjacent to the development.
    - Trees that are greater than 60 cm diameter at breast height (DBH) should be preserved, along with snags that are greater than 60 cm DBH.
- Vegetation removal within the woodlands should be limited to the area of construction.
    - The TPPP should include a planting plan that replaces cleared trees at a rate of 2:1 within the 5 m and 15 m buffer areas. Trees species should include Sugar Maple, Eastern Hemlock, Eastern White Cedar, Yellow Birch, and White Birch.
- Any future development should limit the amount of impermeable surfaces and use Low Impact Development (LIDs) to direct water back into the ground.
    - LID features include grassed swales, rain gardens, infiltration trenches, etc.
- The 5 m and 15 m woodland buffer should be staked in the field prior to any site development.

Legend

- Subject Property
- Lot Boundaries
- Natural Heritage Buffer
- Wetlands
- Woodlands
- No Development Boundary

Figure 5 – Natural Heritage Constraints

Environmental Impact Study

Part of Lot 27, Concession 5, County Road 65, Osaca, Ontario

WILLS

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Drawn By	JG	Scale	See Scale Bar
Checked	BR	Date	Dec. 2022
Project No.	11056	Drawing File No.	Figure 5

5.2.2 Headwater Drainage Feature

Based on the Classification of the HDFA, the Management option of the HDFA is **Conservation – Valued Functions**. Details on the mitigation measures required for the HDFA are provided below.

Conservation – Valued Functions

- Maintain, relocate, and/or enhance drainage feature and its riparian zone corridor;
- If catchment drainage has been previously removed or will be removed due to diversion of stormwater flows, restore lost functions through enhanced lot level controls (i.e., restore original catchment using clean roof drainage), as feasible;
- Maintain or replace on-site flows using mitigation measures and/or wetland creation, if necessary;
- Maintain or replace external flows;
- Use natural channel design techniques to maintain or enhance overall productivity of the reach;
- Drainage feature must connect to downstream.

It is recommended that a ditch be constructed between Lot 49 and Lot 50, that runs east towards the proposed road. The water that comes from the wetland on the west side of the Subject Property can be conveyed through this ditch into a gutter system associated with the proposed cul-de-sac that outlets towards the wetland downstream (east) of the existing HDF (Block 60).

5.2.3 Wetlands

Unevaluated wetlands were delineated on the Subject Property. No development is to occur within 15 m of the delineated wetland boundaries as shown in **Figure 5**. In order to ensure the 15 m buffer will prevent impacts to the wetlands, additional plantings are suggested within the 15 m buffer where the agricultural field currently exists. This will be an improvement over existing conditions, as there is currently no buffer from the agricultural fields over most of the wetland features on the Subject Property.

The following recommendations should be addressed:

- A lot grading and drainage plan should be prepared to ensure runoff is conveyed into the wetland/watercourse.
- Maintain drainage from the wetland on the west side of the Subject Property to the wetland on the east side of the Subject Property.
- It is recommended that eaves trough downspouts be directed towards vegetated areas or low impact development features to increase infiltration to groundwater.

- Increased plantings within the 15 m wetland buffer where the agricultural field currently exists.
- The wetland buffer should be staked in the field prior to any site development.

5.2.4 Significant Wildlife Habitat

The SWH within the Subject Property has the potential to be impacted by the proposed development. The following mitigation measures should be implemented to minimize risk of impact associated with the proposed development.

5.2.4.1 Bat Maternity Colonies

The potential for Bat Maternal Colonies SWH exists within the forested ecosites on the Subject Property.

- To minimize the risk of impact to bat species during important life stages, removal of trees and woody vegetation should be kept to a minimum and should only take place between **October 1 and April 14**.
- Vegetation removal within the woodlands should be limited to the area of construction, and the disturbed area (buildings/structures) should not exceed 20% of the total developable area;
- The TPPP (as described in **Section 5.2.1**) should be created and implemented, as large trees with cavities (wildlife trees) provide suitable habitat for bats to rear their pups. The preservation of these large trees is important to minimize impacts to maternal bat colonies.
- Trees that are greater than 60 cm DBH should be preserved, along with snags that are greater than 60 cm DBH.

5.2.4.2 Old Growth Forest

The potential for the FOM3 ecosite on the Subject Property to be confirmed as Old Growth Forest SWH exists. To avoid impacts to this feature, no development is proposed within this feature as identified in **Figure 5**.

In addition, the TPPP (as described in **Section 5.2.1**) should be created and implemented, which has a focus on the preservation of large trees. Any large trees outside of the FOM3 ecosite will be preserved, maintaining the genetic, species and ecosystem diversity within the woodland.

5.2.4.3 Special Concern and Rare Wildlife Species – Eastern Wood-pewee

The Eastern Wood-pewee lives in the mid-canopy layer of forest clearings and edges of deciduous and mixed forests. It is most abundant in intermediate-age mature forest stands with little understory vegetation, as is found throughout the wooded communities on the Subject Property.

The Eastern Wood-pewee feeds on aerial insects and is thought to be impacted due to an overall decline in aerial insect abundance. Loss of habitat does not seem to be an issue that is causing population decline in Ontario for the Eastern Wood-pewee (COSSARO, 2013).

Based on COSSARO's assessment on the status of Eastern Wood-pewee in 2013, future development within the forested area with frontage onto the agricultural field will not cause adverse effects to local populations of Eastern Wood-pewee. A large abundance of aerial insects were observed within the Subject Property corridor, further suggesting that local Eastern Wood-pewee populations will not be impacted by future development within the Subject Property. Furthermore, some of the impacts to the forest edge habitat from the proposed development will be offset by plantings within the 5 m and 15 m buffers in the agricultural field, as described in Section 5.2.1.

5.3 Erosion and Sediment Control

It is recommended that an Erosion and Sediment Control Plan (ESCP) be developed and implemented to minimize the risk of sedimentation into the wetland during all phases of development.

The ESCP should include:

- Installation of sediment fence around the entire site before construction activities commence to prevent soil deposition into the wetland and watercourse.
- Waste material should be contained and stabilized outside of the wetland buffer area. Alternatively, waste materials should be removed off-site.
- Inspection and maintenance of erosion and sediment control measures and structures should take place during the course of construction.
- Erosion and sediment control measures and structures should be repaired, if damage occurs.
- Non-biodegradable erosion and sediment control materials are to be removed after all disturbed ground has been permanently stabilized.
- Site isolation measures for containing stockpiled material should be implemented.
- A response plan should be developed that will be implemented immediately in the event of a sediment release or spill of a deleterious substance.
- An emergency spill response kit, including the appropriate absorbency materials, will be on site at all times. Proper containment, clean up and reporting, in accordance with provincial requirements, is required.

5.4 Species at Risk/Wildlife

The background review and field investigations determined 19 species of conservation concern had recent or historically confirmed presence in the area surrounding the

Subject Property. The SAR Screening Assessment (**Table 2**) identified suitable habitat on the Subject Property for eight of those species within the woodland and wetlands.

5.4.1 Turtles

No confirmed SAR turtle habitat was identified through background research and field investigations on the Subject Property. However, it is anticipated that the Osaca PSW found on the east side of County Road 65 provides habitat for turtles, and the wetlands on the Subject Property could be used as a movement corridor for them. As such, it is suggested that turtle exclusionary fencing be installed to isolate the work site prior to the turtle nesting season and be maintained throughout the duration of construction. If work is taking place between **May 15 to September 30**, turtle exclusionary fencing should be installed prior to **May 15** and remain in place until **June 30,** to prevent turtles from nesting in the area. Following project completion, exclusionary fencing must be removed from the site.

5.4.2 Birds and Bats

Habitat for various SAR bird and bat species was identified as being present within, or adjacent to the area of the proposed development. As such, the following mitigation measures are required:

- Any vegetation clearing must occur outside of the breeding bird and bat roosting season of **April 15 to September 30**. If this time period is unavoidable, alternatively, a nest sweep for birds and an assessment of bat roosting activity must be conducted by a qualified biologist, prior to any clearing of vegetation on-site. Following a bird nest sweep and a roosting survey, vegetation removal must be completed within 72 hours. If it is not completed within this time period, an additional sweep is required.
- If, during a nest sweep or roosting survey, any bats or bird nests are encountered, all construction activities should cease and a buffer should be placed around the location until after **July 31** for a bird nest and after **September 30** for bat habitat. The size of the buffer will be dependent on the species and should be consulted with the MNRF and/or MECP.
- The MECP and/or MNRF must be contacted in the case that any rare or SAR species are identified during pre-construction or throughout the construction phases.

5.4.3 Butternuts

Butternut trees are classified as Endangered species and require protection under both the provincial ESA and federal SARA. While field investigations identified the presence of habitat which has the potential of supporting Butternut trees no Butternut's were observed during site investigations.

However, since development activities are proposed to occur within the forested ecosites, it is recommended that a detailed inspection of the development footprint

should be conducted by a qualified biologist/arborist prior to construction activities to confirm the presence or absence of Butternuts within the impacted habitat. Should the presence of a Butternut be confirmed, a Butternut Health Assessment should be completed by a Butternut Health Expert to determine if the tree is a hybrid as well as determine the health of the trees and whether they can be removed or not, if necessary.

6.0 Conclusions

Given the results of background review and on-site investigations, long-term adverse impacts to natural heritage features, associated habitat, and local wildlife populations are not anticipated to be resultant from the proposed development, provided that the environmental protection/mitigation measures outlined herein are implemented. Appropriate implementation of the mitigation measures outlined herein will ensure that proposed activities do not conflict with the natural heritage policies set out by the Northumberland County, the Province of Ontario or other relevant environmental legislation.

The establishment of a buffer on development will protect adjacent woodland and wetlands from potentially negative impacts while mitigation measures including the TPPP will ensure there are no negative impacts to the form and function of the woodland feature in areas where development is being proposed.

The buffer, where the agricultural fields currently exist, will be planted with native tree species to improve on existing conditions surrounding the wetlands and woodlands. By planting trees and allowing vegetation to grow in the buffer, the woodland and wetlands will be further protected from erosion and/or sedimentation from future construction activities. The limit of grading, drainage structures, and construction will be clearly delineated in the field (e.g., with heavy duty sediment fence) to prevent encroachment beyond the approved area. Prior to the installation of heavy duty sediment fence, the 5 m and 15 m buffers will be staked on the ground for easy recognition.

In addition, by maintaining flows that the HDF would normally provide, impacts to the wetland downstream will not occur.

Prior to development, a survey for Butternut trees should be completed so that no trees are impacted and there is no contravention of the ESA. A lot grading and drainage plan should also be prepared by a qualified engineer to ensure that surface runoff and infiltration is appropriately managed.

If you have any further questions, please do not hesitate to contact the undersigned.

Prepared by: 

Ben Radford, B.Sc.
Project Biologist

Reviewed by: 

Shawn Filteau, B.Sc.
Natural Sciences Lead

BR/SF/mp

7.0 References

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Appendix A

Statement of Limitations

Statement of Limitations

This report is provided solely for the benefit of Hillstreet Developments Ltd. and not for the benefit of any other party. No other party shall be entitled to rely on this report or any information, documents, records, data, interpretations, advice or opinions or other materials given to Hillstreet Developments Ltd. by D.M. Wills Associates Limited (Wills). The report relates solely to the specific project for which Wills has been retained and shall not be used or relied upon by any third party for any variation or extension of this project or any other purpose. Any unpermitted use by any third party shall be at such party's own risk.

The conclusions and recommendations outlined in the Environmental Impact Study are based on the results and findings associated with the scope of field investigations as outlined in **Section 2.2** of this report, as they relate to The Project, as described in **Section 1.0**.

Appendix B

NHIC Map

Legend

- Assessment Parcel
- ANSI
- Earth Science Provincially Significant/sciences de la terre d'importance provinciale
- Earth Science Regionally Significant/sciences de la terre d'importance régionale
- Life Science Provincially Significant/sciences de la vie d'importance provinciale
- Life Science Regionally Significant/sciences de la vie d'importance régionale
- Evaluated Wetland
- Provincially Significant/considérée d'importance provinciale
- Non-Provincially Significant/non considérée d'importance provinciale
- Unevaluated Wetland
- Woodland
- Conservation Reserve
- Provincial Park
- Natural Heritage System

0.3 0 0.16 0.3 Kilometres

Absence of a feature in the map does not mean they do not exist in this area.

This map should not be relied on as a precise indicator of routes or locations, nor as a guide to navigation. The Ontario Ministry of Natural Resources and Forestry(OMNRF) shall not be liable in any way for the use of, or reliance upon, this map or any information on this map.

NHIC Map

Environmental Impact Study

Part of Lot 27, Concession 5, County Road 65, Osaca, Ontario

D.M. Wills Associates Limited
150 Jameson Drive
Peterborough, Ontario
Canada K9J 0B9

P. 705.742.2297
F. 705.741.3568
E. wills@dmwills.com

Drawn By	BR	Scale	See Scale Bar
Checked		Date	Nov. 2022
Project No.	11056	Drawing File No.	

Appendix C

Records of Correspondence

From: Ben Radford
To: Warren, Catherine (NDMNRF)
Subject: Part Lot 27 Concession 5 Village of Osaca - Natural Heritage Information Request
Date: May 3, 2022 10:40:00 AM
Attachments: image001.jpg
Site Location.jpg
Subject Property.jpg

Good afternoon Catherine,

D.M. Wills Associates Ltd. (Wills) has been contracted to complete an EIS for a parcel of land located at Part Lot 27, Concession 5, Village of Osaca off of County Road 65. Please see the attached map for details on the Subject Property. Through background research, various natural heritage features have been identified. Multiple watercourses, unevaluated wetlands, woodlands, and the Osaca Wetland PSW are within 120 m of the Subject Property. In addition, a drainage feature appears to run through the northern portion of the Subject Property, just south of the watercourse.

Wills would like to request any additional information you may have on these natural heritage features, or others that were not identified through background research, as well as any fisheries information you may have for the watercourses (i.e. thermal regime/timing window for construction, historical fish species data, etc.). A review of Fish ON-Line did not provide any information. See the Fisheries Information Table below for more details. If this table could be completed with any fisheries information you may have these watercourses, that would be greatly appreciated. These watercourses appear to be tributaries of the Ganaraska River (which is not on the Subject Property), so I have included Fish On-Line information for the Ganaraska River.

If you have any questions, please do not hesitate to contact me.

Location*	**Waterbody Name***	**Waterbody GPS*** (Attach Google Earth map)	**Watercourse Classification** (i.e. warmwater, coldwater)	**Habitat Information** (Include details/locations for fish passage barriers, known spawning habitats, groundwater upwellings, migratory corridors, etc.)	**Historical Data** (Include details on the historical fish species present, and if the waterbody is considered to support any vulnerable, threatened, or endangered aquatic species.)	**MNRF Fisheries Management Objectives** (If applicable, include details)	**In-Water Timing Windows for Construction** (Provide dates)
Ganaraska River	Ganaraska River	44.016570°, -78.418070°			Fish ON-Line: Brook Trout, Brown Trout, Coho Salmon, Lake Trout, Largemouth Bass, Mooneye, Northern Pike, Pumpkinseed, Rainbow Trout, Rock Bass, Smallmouth Bass, Walleye, White Bass, White Sucker, Chinook Salmon		
South end of Subject Property – Watercourse 1	Unknown	44.002952°, -78.438051°					
North end of Subject Property – Watercourse 2	Unknown	44.007529°, -78.436758°					

Thanks,

Ben Radford, B.Sc. · Project Biologist

D.M. Wills Associates Limited
150 Jameson Drive · Peterborough, ON · K9J 0B9
Cell: 705-768-4296 · Fax: (705) 748-9944

From: Higgins, Colin (MNRF)
To: Ben Radford
Cc: Warren, Catherine (MNRF)
Subject: Part Lot 27 Concession 5 Village of Osaca - Natural Heritage Information Request
Date: October 27, 2022 11:46:42 AM
Attachments: image001.jpg

Hi Ben,

Apologies for the delay in response. Here is the fisheries table filled out…

Location*	**Waterbody Name***	**Waterbody GPS*** (Attach Google Earth map)	**Watercourse Classification** (i.e. warmwater, coldwater)	**Habitat Information** (Include details/locations for fish passage barriers, known spawning habitats, groundwater upwellings, migratory corridors, etc.)	**Historical Data** (Include details on the historical fish species present, and if the waterbody is considered to support any vulnerable, threatened, or endangered aquatic species.)	**MNRF Fisheries Management Objectives** (If applicable, include details)	**In-Water Timing Windows for Construction** (Provide dates)
Ganaraska River	Ganaraska River	44.016570°, -78.418070°	Cold	No specific spawning locations or barriers known. Corbett's Dam in Port Hope has a fishway bypass	Fish ON-Line: Brook Trout, Brown Trout, Coho Salmon, Lake Trout, Largemouth Bass, Mooneye, Northern Pike, Pumpkinseed, Rainbow Trout, Rock Bass, Smallmouth Bass, Walleye, White Bass, White Sucker, Chinook Salmon. Fish species-ARA database; Atlantic Salmon,Blacknose Dace,Bluntnose Minnow,Brook Stickleback,Brook Trout,Brown Trout,Carps and Minnows,Catostomus sp.,Central Mudminnow,Chinook Salmon,Coho Salmon,Common Shiner,Creek Chub,Fathead Minnow,Hornyhead Chub,Johnny Darter x Tesselated Darter,Largemouth Bass,Longnose Dace,Mottled Sculpin,Northern Redbelly Dace,Pumpkinseed,Rainbow Trout,Rock Bass,Sculpins,Slimy Sculpin,White Sucker	See section 6 of the FMZ17 FMP. https://docs.ontario.ca/documents/2644/264321.pdf	No in-water works Oct. 1 to July 15
South end of Subject Property – Watercourse 1	~~Unknown~~ Port Britain Creek	44.002952°, -78.438051°	Cold	Lamprey barrier present near Lake Ontario confluence	Fish Species-ARA database; American Brook Lamprey,Blacknose Dace,Bluegill,Bluntnose Minnow,Brook Trout,Chinook Salmon,Coho Salmon,Common Shiner,Creek Chub,Fathead Minnow,Ictalurus sp.,Iowa Darter,Johnny Darter,Johnny Darter x Tesselated Darter,Logperch,Longnose Dace,Mottled Sculpin,Northern Pike,Pumpkinseed,Rainbow Darter,Rainbow Trout,Round Goby,Sea Lamprey,Slimy Sculpin,White Sucker,Yellow Perch	See section 6 of the FMZ17 FMP. https://docs.ontario.ca/documents/2644/264321.pdf	No in-water works Oct. 1 to July 15
North end of Subject Property – Watercourse 2	~~Unknown~~ Trib. of Ganaraska River	44.007529°, -78.436758°	Cold	No specific spawning locations or barriers known. Corbett's Dam in Port Hope has a fishway bypass	Fish species-ARA database (same as Ganaraska River proper); Atlantic Salmon,Blacknose Dace,Bluntnose Minnow,Brook Stickleback,Brook Trout,Brown Trout,Carps and Minnows,Catostomus sp.,Central Mudminnow,Chinook Salmon,Coho Salmon,Common Shiner,Creek Chub,Fathead Minnow,Hornyhead Chub,Johnny Darter x Tesselated Darter,Largemouth Bass,Longnose Dace,Mottled Sculpin,Northern Redbelly Dace,Pumpkinseed,Rainbow Trout,Rock Bass,Sculpins,Slimy	See section 6 of the FMZ17 FMP. https://docs.ontario.ca/documents/2644/264321.pdf	No in-water works Oct. 1 to July 15

					Sculpin,White Sucker			

From: Ben Radford <BRadford@dmwills.com>
Sent: May 3, 2022 10:40 AM
To: Warren, Catherine (NDMNRF) <Catherine.Warren@ontario.ca>
Subject: Part Lot 27 Concession 5 Village of Osaca - Natural Heritage Information Request

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.
Good afternoon Catherine,
D.M. Wills Associates Ltd. (Wills) has been contracted to complete an EIS for a parcel of land located at Part Lot 27, Concession 5, Village of Osaca off of County Road 65. Please see the attached map for details on the Subject Property. Through background research, various natural heritage features have been identified. Multiple watercourses, unevaluated wetlands, woodlands, and the Osaca Wetland PSW are within 120 m of the Subject Property. In addition, a drainage feature appears to run through the northern portion of the Subject Property, just south of the watercourse.
Wills would like to request any additional information you may have on these natural heritage features, or others that were not identified through background research, as well as any fisheries information you may have for the watercourses (i.e. thermal regime/timing window for construction, historical fish species data, etc.). A review of Fish ON-Line did not provide any information. See the Fisheries Information Table below for more details. If this table could be completed with any fisheries information you may have these watercourses, that would be greatly appreciated. These watercourses appear to be tributaries of the Ganaraska River (which is not on the Subject Property), so I have included Fish On-Line information for the Ganaraska River.
If you have any questions, please do not hesitate to contact me.

Location*	**Waterbody Name***	**Waterbody GPS*** (Attach Google Earth map)	**Watercourse Classification** (i.e. warmwater, coldwater)	**Habitat Information** (Include details/locations for fish passage barriers, known spawning habitats, groundwater upwellings, migratory corridors, etc.)	**Historical Data** (Include details on the historical fish species present, and if the waterbody is considered to support any vulnerable, threatened, or endangered aquatic species.)	**MNRF Fisheries Management Objectives** (If applicable, include details)	**In-Water Timing Windows for Construction** (Provide dates)
Ganaraska River	Ganaraska River	44.016570°, -78.418070°			Fish ON-Line: Brook Trout, Brown Trout, Coho Salmon, Lake Trout, Largemouth Bass, Mooneye, Northern Pike, Pumpkinseed, Rainbow Trout, Rock Bass, Smallmouth Bass, Walleye, White Bass, White Sucker, Chinook Salmon		
South end of Subject Property – Watercourse 1	Unknown	44.002952°, -78.438051°					
North end of Subject Property – Watercourse 2	Unknown	44.007529°, -78.436758°					

Thanks,

Ben Radford, B.Sc.· Project Biologist

D.M. Wills Associates Limited
150 Jameson Drive · Peterborough, ON · K9J 0B9
Cell: 705-768-4296· Fax: (705) 748-9944

Colin Higgins|Management Biologist|Peterborough District
Ministry of Natural Resources and Forestry
300 Water St., 1st Floor, South Tower, Peterborough, ON, K9J 3C7
Tel. (705)-772-3638 Fax (705)-755-3125
colin.higgins@ontario.ca

From: Ben Radford
To: "Species at Risk (MECP)"
Subject: Part Lot 27, Concession 5, VIllage of Osaca - SAR Information Request
Date: May 2, 2022 3:55:00 PM
Attachments: image001.jpg
Site Location.jpg

Good afternoon,

My name is Ben Radford from D.M. Wills Associates Limited in Peterborough. We have been contracted to complete an EIS on a parcel of land located at Part Lot 27, Concession 5, in the Village of Osaca, see the attached map for details. The client is proposing to a Plan of Subdivision on their parcel of land. Through background research, we have identified the following Species at Risk (SAR) as having the potential to be present on the Subject Property:

- Bald Eagle (Special Concern)
- Bank Swallow (Threatened)
- Barn Swallow (Threatened)
- Bobolink (Threatened)
- Butternut (Endangered)
- Canada Warbler (Special Concern)
- Chimney Swift (Threatened)
- Eastern Meadowlark (Threatened)
- Eastern Small-footed Myotis (Endangered)
- Eastern Whip-poor-will (Threatened)
- Eastern Wood-pewee (Special Concern)
- Evening Grosbeak (Special Concern)
- Grasshopper Sparrow (Special Concern)
- Little Brown Myotis (Endangered)
- Northern Myotis (Endangered)
- Red-headed Woodpecker (Endangered)
- Snapping Turtle (Special Concern)
- Tri-coloured Bat (Endangered)
- Wood Thrush (Special Concern)

If you could please confirm and/or add/remove SAR from this list, that would be greatly appreciated.
In addition, could you please provide the Active Turtle Season and the Breeding Bird Season for the Subject Property.

Thanks,
Ben

Ben Radford, B.Sc. · Project Biologist

D.M. Wills Associates Limited
150 Jameson Drive · Peterborough, ON · K9J 0B9
Cell: 705-768-4296 · Fax: (705) 748-9944

Appendix D

Site Photographs

Client Name: Hillstreet Developments Ltd.	**Site Location:** Part of Lot 27, Concession 5, County Road 65, Osaca, Ontario

Photo Number: 1
Date: June 21, 2022
Direction Photo Taken: West
Description: View of SWM1.

Photo Number: 2
Date: June 21, 2022
Direction Photo Taken: East
Description: View of SWM1.

D.M. Wills Associates Limited
150 Jameson Drive, Peterborough, Ontario, Canada K9J 0B9
P. 705.742.2297 **F.** 705.748.9944 E. wills@dmwills.com

Client Name: Hillstreet Developments Ltd.	**Site Location:** Part of Lot 27, Concession 5, County Road 65, Osaca, Ontario

Photo Number: 3
Date: June 21, 2022
Direction Photo Taken: East
Description: View of SWM1.

Photo Number: 4
Date: June 21, 2022
Direction Photo Taken: Southeast
Description: View of FOM7.

D.M. Wills Associates Limited
150 Jameson Drive, Peterborough, Ontario, Canada K9J 0B9
P. 705.742.2297 **F.** 705.748.9944 E. wills@dmwills.com

Client Name: Hillstreet Developments Ltd.	**Site Location:** Part of Lot 27, Concession 5, County Road 65, Osaca, Ontario

Photo Number: 5
Date: June 21, 2022
Direction Photo Taken: Southwest
Description: View of FOD6.

Photo Number: 6
Date: June 21, 2022
Direction Photo Taken: Southeast
Description: View of FOD6.

Client Name: Hillstreet Developments Ltd.	**Site Location:** Part of Lot 27, Concession 5, County Road 65, Osaca, Ontario

Photo Number: 7
Date: June 21, 2022
Direction Photo Taken: East
Description: View of FOM3.

Photo Number: 8
Date: June 21, 2022
Direction Photo Taken: Southeast
Description: View of large, old Sugar Maple in FOM3.

Client Name: Hillstreet Developments Ltd.	**Site Location:** Part of Lot 27, Concession 5, County Road 65, Osaca, Ontario

Photo Number: 9
Date: June 21, 2022
Direction Photo Taken: South
Description: View of FOD3.

Photo Number: 10
Date: June 21, 2022
Direction Photo Taken: South
Description: View of FOD3.

D.M. Wills Associates Limited
150 Jameson Drive, Peterborough, Ontario, Canada K9J 0B9
P. 705.742.2297 **F.** 705.748.9944 E. wills@dmwills.com

Client Name: Hillstreet Developments Ltd.	**Site Location:** Part of Lot 27, Concession 5, County Road 65, Osaca, Ontario

Photo Number: 11
Date: June 21, 2022
Direction Photo Taken: North
Description: View of CUM1

Photo Number: 12
Date: June 21, 2022
Direction Photo Taken: Northeast
Description: View of CUM1 and the drainage feature.

Client Name: Hillstreet Developments Ltd.	**Site Location:** Part of Lot 27, Concession 5, County Road 65, Osaca, Ontario

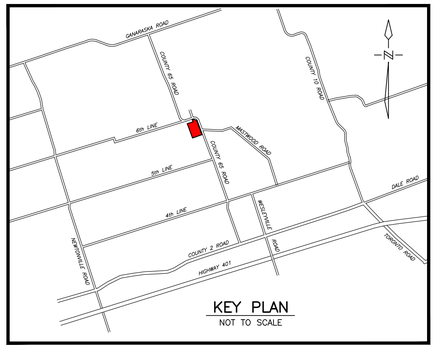
Photo Number: 13
Date: May 5, 2022
Direction Photo Taken: West
Description: Looking upstream at the HDF. Pooling is observed in tire tracks after tilling.

Photo Number: 14
Date: May 05, 2022
Direction Photo Taken: South
Description: HDF outlets into wetland.

D.M. Wills Associates Limited
150 Jameson Drive, Peterborough, Ontario, Canada K9J 0B9
P. 705.742.2297 **F.** 705.748.9944 E. wills@dmwills.com

Appendix E

Site Plan



LEGEND

- WETLANDS
- 15.0m SETBACK FROM WETLANDS
- WOODLANDS
- 5.0m SETBACK FROM WOODLANDS

LOT 32 AREA=0.348ha
LOT 31 AREA=0.354ha
LOT 30 AREA=0.372ha
LOT 29 AREA=0.393ha
LOT 28 AREA=0.415ha
LOT 27 AREA=0.440ha
LOT 26 AREA=0.424ha
LOT 25 AREA=0.448ha
LOT 18 AREA=0.276ha
LOT 19 AREA=0.256ha
LOT 20 AREA=0.256ha
LOT 21 AREA=0.259ha
LOT 22 AREA=0.273ha
LOT 23 AREA=0.245ha
LOT 24 AREA=0.221ha
LOT 17 AREA=0.315ha
LOT 16 AREA=0.254ha
LOT 15 AREA=0.213ha
LOT 14 AREA=0.213ha
LOT 13 AREA=0.210ha
LOT 12 AREA=0.210ha
LOT 11 AREA=0.211ha
LOT 10 AREA=0.210ha
LOT 9 AREA=0.210ha
LOT 8 AREA=0.210ha
LOT 7 AREA=0.210ha
LOT 6 AREA=0.210ha
LOT 5 AREA=0.210ha
LOT 4 AREA=0.210ha
LOT 3 AREA=0.211ha
LOT 2 AREA=0.212ha
LOT 1 AREA=0.221ha
LOT 33 AREA=0.280ha
LOT 34 AREA=0.341ha
LOT 35 AREA=0.356ha
LOT 36 AREA=0.372ha
LOT 37 AREA=0.313ha
LOT 38 AREA=0.293ha
LOT 39 AREA=0.229ha
LOT 40 AREA=0.211ha
LOT 41 AREA=0.210ha
LOT 42 AREA=0.210ha
LOT 43 AREA=0.210ha
LOT 44 AREA=0.233ha
LOT 45 AREA=0.266ha
LOT 46 AREA=0.337ha
LOT 47 AREA=0.311ha
LOT 48 AREA=0.226ha
LOT 49 AREA=0.220ha
LOT 50 AREA=0.222ha
LOT 51 AREA=0.251ha
LOT 52 AREA=0.249ha
LOT 53 AREA=0.210ha
LOT 54 AREA=0.213ha
LOT 55 AREA=0.218ha
LOT 56 AREA=0.269ha
LOT 57 AREA=0.329ha
LOT 58 AREA=0.236ha
LOT 59 AREA=0.228ha
BLOCK 60 OPEN SPACE
BLOCK 60 OPEN SPACE
BLOCK 60 OPEN SPACE
OTHER LANDS OWNED BY APPLICANT AREA=0.417ha
15.0m SETBACK
5.0m SETBACK
MAITLAND ROAD
COUNTY 65 ROAD

LAND USE SCHEDULE				
PROPOSED USE	LOT/BLK #	# OF LOTS/BLKS	# OF UNITS	AREA (ha)
LOW DENSITY RESIDENTIAL				
SINGLE DETACHED	LOTS 1 – 59	59	59	15.775
NON RESIDENTIAL				
OPEN SPACE	BLOCKS 60	1	1	6.617
ROADS	20.0m ROW			2.231
TOTALS		61	59	24.623

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51 OF THE PLANNING ACT

E NORTH –RURAL RESIDENTIAL
SOUTH –RURAL RESIDENTIAL
EAST –AGRICULTURAL
WEST –AGRICULTURAL
H –PIPED MUNICIPAL WATER
I –TILL
K –NO MUNICIPAL SERVICES AVAILABLE

OWNER'S AUTHORIZATION

I/WE LAND OWNER
BEING THE REGISTERED OWNER OF THE SUBJECT LANDS HEREBY AUTHORIZE
D.G.BIDDLE AND ASSOC. LTD.
TO PREPARE AND SUBMIT A DRAFT PLAN OF SUBDIVISION FOR APPROVAL

SIGNED _____ TITLE
DATE _____

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARY OF THE LANDS TO BE SUBDIVIDED AS SHOWN ON THIS PLAN AND THEIR RELATIONSHIP TO ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN

ONTARIO LAND SURVEYOR
ONTARIO LAND SURVEYORS

SIGNED _____ O.L.S
DATE _____

No.	REVISION	DATE	BY	APPROVED

REVISIONS

D.G. Biddle & Associates Limited
consulting engineers and planners
96 KING STREET EAST • OSHAWA,ON L1H 1B6
PHONE (905)576–8500 • FAX (905)576–9730
info@dgbiddle.com

PRELIMINARY

DRAFT PLAN

PART OF LOT 27, CONCESSION 5
FORMERLY IN THE TOWNSHIP OF HOPE
NOW IN THE
MUNICIPALITY OF PORT HOPE
COUNTY OF NORTHUMBERLAND

SCALE:	1:1000
DRAWN BY:	B.B.
DESIGN BY:	M.F.
CHECKED BY:	M.F.
PLOT DATE:	25/10/2022

122049

DP-1

Y:\JOB FILES\122000\122049 3868 COUNTY RD 65\122049 DRAWINGS\122049 ENGINEERING DRAWINGS\122049-2D-LOT PLAN - 4.DWG