



SIFTON PROPERTIES LIMITED

Environmental Impact Study

Reflection Shores, Municipality of Lambton Shores, Ontario



December 2025 – 21-1067

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1.0

Introduction

Dillon Consulting Limited (Dillon) was retained by Sifton Properties Limited (the “client”) to conduct natural environment studies and prepare an Environmental Impact Study (EIS) for the proposed residential subdivision development known as Reflection Shores located northeast of the intersection of Cedar Point Line and Cedarview Drive (the “Project Location”) within the Municipality of Lambton Shores, County of Lambton (**Figure 1**). For the purposes of documenting existing conditions of the natural environment, an area extending 120 metres (m) beyond the Project Location was used (the “Study Area”). The EIS will form part of an application package for submission to the Municipality of Lambton Shores.

The Project Location is 30 hectares (ha) in size and consists predominately of agriculture, with areas of meadow, woodland, fencerow, and green lands (an area associated with a former dwelling). The purpose of the EIS is to document existing conditions of the natural environment; determine the potential limits of development; evaluate the potential for environmental impacts associated with the proposed development activities; and recommend mitigation, restoration, enhancement measures, and/or compensation measures, where necessary, to avoid impacts to the natural environment as a result of the proposed development.

The Terms of Reference (**Appendix A**) for the parcel on adjacent lands to the northeast of the Project Location (Reflection Shores North) was sent to the County of Lambton and the St. Clair Region Conservation Authority (SCRCA) on October 5, 2018, and is in keeping with the general policies of the Municipality of Lambton Shores Official Plan (2015) and the County of Lambton Official Plan (2020). As the SCRCA has been actively engaged and provided comments on an adjacent property, we do not anticipate another Terms of Reference will be required.

2.0

Background and Policy Context

The following section has been prepared to identify the applicable land use planning policies related to the natural environment. Various regulatory agencies and legislative authorities have established policies with the purpose of protecting the ecological features and functions within the province of Ontario and within the County of Lambton specifically. This section is not intended to constitute a complete land use planning assessment as it focuses on the relevant environmental policies and regulations. The documents referenced below can be read in their entirety for a more detailed understanding of the land use policy framework applicable to the Study Area (**Figure 1**).

2.1

Information Sources

Secondary source information was used to identify known environmental constraint areas and to map the significant natural heritage features such as watercourses, woodlands, and potential wildlife occurrences. **Table 1** lists the relevant policies and legislation applicable to the protection of natural heritage features within the Municipality of Lambton Shores, and more specifically, the Study Area; as well as supporting guidance documents and resources consulted respective to each policy. This table also includes additional background information sources used to help identify and define natural heritage features within the province of Ontario, and Eco-region 7E specifically.

Table 1: Policies, Legislation, and Background Resources Searched

Source	Record Reviewed/Requested
Government of Canada	
Environment and Climate Change Canada (ECCC)	Species at Risk Registry: Accessed to determine the at-risk status of wildlife species under Schedule 1 of the Species at Risk Act (SARA; 2002)
Fisheries and Oceans Canada (DFO)	Aquatic Species at Risk Map: Accessed to determine aquatic at-risk occurrences
Government of Ontario	
Provincial Planning Statement (2024)	- Policies within Section 4.1 related to natural heritage features - Policies within Section 4.2 related to water
Ministry of Environment, Conservation and Parks (MECP)	- Endangered Species Act (ESA; 2007) - Species at Risk in Ontario (SARO) List (O. Reg. 230/08) - Client's Guide to Preliminary Screening for Species at Risk (2019)
Ministry of Natural Resources and Forestry (MNRF)	- Natural Heritage Information Centre (NHIC) database (Squares: 17MH1376, 17MH1377, 17MH1475, 17MH1476, 17MH1477, 17MH1575, 17MH1576, and 17MH1577; MNRF, 2020) - MNRF Make a Map: Natural Heritage Areas (MNRF, 2020) - Natural Heritage Reference Manual, Second Edition (OMNR, 2010)

Source	Record Reviewed/Requested
	• MNRF Significant Wildlife Habitat Technical Guide (OMNR, 2000) • Significant Wildlife Habitat Eco-region 7E Criterion Schedules (OMNRF, 2015)
Ontario Ministry of Municipal Affairs and Housing (MMAH)	• More Homes Built Faster Act (MHBFA, 2022)
Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA)	• Agricultural Information Atlas (OMAFRA, 2020); reviewed area drains
Municipal Government(s)	
County of Lambton	• Official Plan (2020)
Municipality of Lambton Shores	• Official Plan (2015)
Additional Sources	
Wildlife Atlases and Distribution Data	• Ontario Breeding Bird Atlas (OBBA; Cadman <i>et al.</i>, 2008). Second Atlas (2001-2005) – data for square 17MH17 – grid based on 10 km² system. • Christmas Bird Count (CBC; Birds Canada, 2020). Closest count circle Kettle Point (ONKP) – Historical Records from 1966 – 2019. • Rare Vascular Plants of Ontario (Fourth Edition; Oldham and Brinker, 2009). Distribution data for rare vascular plants. • Ontario Reptile and Amphibian Atlas (ORAA; Ontario Nature, 2020). List of reptile and amphibian species occurrences for square 17MH17. • Ontario Butterfly Atlas (OBA; Toronto Entomologists Association, 2020). List of butterfly species occurrences for square 17MH17. • Atlas of the Mammals of Ontario (Dobbyn, 1994). Distribution data for mammals. • Bumble Bees of North America (Williams <i>et al.</i>, 2014). Distribution data for bumble bees.
Bedrock Geology of Ontario, Southern Sheet	• Reviewed bedrock geology of Ontario (Ontario Geological Survey, 1991)
Physiography of Southern Ontario	• Reviewed the physiography of Ontario (Chapman and Putnam, 1984)
Soil Survey of Lambton County	• Reviewed the soil classification of Lambton County (Matthews <i>et al.</i>, 1957)
Geotechnical Slope Assessment	• Reviewed the geological mapping for the Project Location (Golder Associates Ltd., 2023)

2.1.1 Provincial Planning Statement

The Provincial Planning Statement (PPS; 2024), provides overall policy direction on matters of provincial interest related to land use planning and development in Ontario. The PPS sets the policy foundation for

regulating the development and use of land province-wide, helping achieve the provincial goal of meeting the needs of the province while enhancing the quality of life for all Ontarians. This report deals specifically with Policy 4.1, Natural Heritage, and Policy 4.2, Water, which provides for the protection and management of natural heritage and water resources, which include the following:

- significant wetlands;
- significant coastal wetlands;
- significant woodlands;
- significant valleylands;
- significant wildlife habitat;
- significant areas of natural and scientific interest (ANSIs);
- coastal wetlands;
- fish habitat;
- habitat of endangered species and threatened species;
- sensitive surface water features; and
- sensitive ground water features.

The PPS defines “significant” to mean:

- in regard to wetlands, coastal wetlands, and areas of natural and scientific interest, an area identified as provincially significant using evaluation criteria and procedures established by the province, as amended from time to time;
- in regard to woodlands, an area which is ecologically important in terms of features such as species composition, age of trees and stand history; functionally important due to its contribution to the broader landscape because of its location, size or due to the amount of forest cover in the planning area; or economically important due to site quality, species composition, or past management history. These are to be identified using criteria and procedures established by the province; and
- in regard to other features and areas in policy in 4.1, 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.

In regard to surface and ground water features, the PPS defines “sensitive” to mean:

- features that are particularly susceptible to impacts from activities or events including, but not limited to, water withdrawals, and additions of pollutants.

2.1.2 Endangered Species Act

In June 2008, the Endangered Species Act (ESA; 2007) came into effect in Ontario. The purpose of the ESA is to identify SAR based on the best available scientific information; to protect SAR and their habitats, to

promote the recovery of SAR; and to promote stewardship activities to assist in the protection and recovery of SAR in Ontario. There are several applicable regulations under the ESA. These regulations serve to identify which species and habitat receive protection and provide direction on the current implementation of the ESA by the MECP.

In addition, preliminary screening for SAR was carried out using select sources from **Table 1**. After considering suitable habitat preferences and species ranges, our preliminary screening results show the potential for several SAR in the general area. For more information about the preliminary screening results for SAR, refer to **Section 3.2.7**.

2.1.3 More Homes Built Faster Act

In November 2022, the More Homes Built Faster Act (MHBFA; 2022) came into effect in Ontario. The purpose of the MHBFA is to help build more homes and make life more affordable for Ontario Citizens. Specifically, as of January 1, 2023, the Act has set clear limits on what Conservation Authorities are permitted to comment on as part of the planning approvals process, keeping their focus on Natural Hazards and Flooding. Under the MHBFA Schedule 2, Section 16, the Conservation Authorities Act was amended, and O.Reg 171/06 (SCRCA) was revoked. Therefore, regulation of areas is now determined only under Section 28 of the Conservation Authority Act, which is to be repealed and substituted on April 1, 2024.

2.1.4 County of Lambton Official Plan

The County of Lambton Official Plan (OP) is a policy document, adopted in accordance with the provisions of the Planning Act. It is intended to provide a general framework for land use, economic, natural heritage, social, and cultural decision-making within the County (County of Lambton, 2020).

The County's OP designates the Project Location as Secondary Settlement (Map 1 – Growth Strategy; **Appendix B**), with Primary Corridor (Group "C" Feature) and Group "B" Features designations as well (Map 2 – Natural Heritage System; **Appendix B**).

2.1.5 Municipality of Lambton Shores Official Plan

As a long-term land use planning strategy, the Municipality's OP includes goals, objectives, and policies to guide growth and development in Lambton Shores over the next 20 years to 2035. Reflecting sustainable community planning and design principles, the OP policies also consider the effects of development on Lambton Shores' cultural resources, social, economic, and natural environments and the quality of life for its residents (Municipality of Lambton Shores, 2015).

The Municipality's OP designates the Project Location as Residential, Lakeshore, General Regulation Area, Lakeshore Area 1, and Lakeshore Area 2 (Schedule "A5"; **Appendix B**). General Regulation Area, Environmentally Significant Areas (Lamb Study 1979-1980), Lakeshore Area 1, Lakeshore Area 2, and Significant Woodlot also exists within the Project Location (Schedule "A5" Natural Heritage; **Figure 2; Appendix B**). Development is not permitted in Shoreline Area 1 and new development is generally directed outside of Shoreline Area 2 in the hazardous areas along the Lake Huron shoreline. Development and site alteration is not permitted in a significant woodland unless it can be demonstrated that there will be no negative impacts on the natural features or their ecological functions.

As per the policies of the Municipality OP, Wetlands, Woodlands, and Habitat of Endangered and Threatened Species are listed as Natural Heritage Areas. No development or site alteration is permitted within these features unless it can be demonstrated that there will be no negative impacts to the features or their functions. In accordance with Section 3.5 of the Municipality OP, an EIS will be required for development on lands adjacent to natural heritage features (within 120 m of Provincially Significant Wetlands (PSW), Significant Woodlands, Significant Wildlife Habitat (SWH), and 30 m of Locally Significant Wetlands). The EIS must demonstrate that there will be no negative impact on the natural features or on the ecological functions that cannot be adequately mitigated within the Study Area.

2.1.6

St. Clair Region Conservation Authority

In accordance with Schedule 2, Section 16 of the MHBFA (2022), SCRCA is no longer authorized to implement and enforce the Regulation of Development, Interference with Wetlands, and Alterations to Shorelines and Watercourses (*O. Reg. 171/06*). However, under Section 28 of the Conservation Authorities Act (1990), SCRCA regulations still apply in the area under its jurisdiction. Such areas include, but are not limited to, those adjacent or close to the shoreline of inland lakes, river or stream valleys, hazardous lands, and wetlands.

In participating in the review of applications under the Planning Act and Environmental Assessment Act(s), SCRCA ensures that applicants and approval authorities are aware of any Section 28 Regulation requirements under the *Conservation Authorities Act*, where applicable. Further, SCRCA assists in the coordination of these applications to avoid ambiguity, conflict, and unnecessary delay or duplication in the process.

The shoreline area of the Project Location is within SCRCA's Regulated Area (**Appendix B**).

3.0

Results of Background Review

The Project Location is located northeast of the intersection of Cedar Point Line and Cedarview Drive. The Project Location consists predominately of agriculture, with areas of meadow, woodland, fencerow, and green lands (an area associated with a former dwelling); with no drains within the Project Location. The surrounding land uses are varied and are described as follows:

- Northeast: agriculture and natural heritage;
- Southeast: active agriculture with irrigation ponds and a treed area;
- Southwest: active agriculture, residential, and natural heritage; and
- Northwest: treed slope and Lake Huron.

The following sections provide a brief summary of the existing environmental conditions within the Study Area as identified through the background review. This information provides the basis upon which the biophysical inventory and overall EIS is based.

3.1

Aquatic Environment

The Study Area lies within the St. Clair Region watershed and the Lambton Shores Tributaries sub-watershed, one of 14 sub-watersheds situated within the St. Clair Region watershed. The smallest sub-watershed within the St. Clair Region is the Lambton Shores Tributaries sub-watershed, covering an area of approximately 127 km². The dominant land use within this sub-watershed is agriculture, with natural environment and settled areas comprising the remaining land uses. According to the St. Clair Region Watershed Report Card (SCRCA, 2018), within the Lambton Shores Tributaries surface water quality is fair, forest conditions are fair, and wetland cover is poor.

The potential for aquatic environments to be present within the Study Area is discussed further in **Section 5.1**.

3.2

Terrestrial Environment

3.2.1

Landforms, Soils, and Geology

The Study Area lies over Upper Devonian, consisting of shale and Middle Devonian, consisting of limestone, dolostone, and shale (Ontario Geological Survey, 1991). The physiography of the area is described as Bevelled Till Plain (Chapman and Putnam, 1984). A review of the Soil Survey of Lambton County (Matthews *et al.*, 1957) indicates that soils within the Study Area have been described as Perth Clay which has an imperfect drainage with a gently sloping topography. The Project Location itself has a relatively even topography further inland from the shore, with strong sloping closer to the shore. Agricultural tile drainage is located to the east of the Project Location (OMAFRA, 2020).

3.2.2 Significant Woodlands

Under the PPS, “woodlands” means “treed areas that provide environmental and economic benefits to both the private landowner and the general public, such as erosion prevention, hydrological and nutrient cycling, provision of clean air and the long-term storage of carbon, provision of wildlife habitat, outdoor recreational opportunities, and the sustainable harvest of a wide range of woodland products. Woodlands include treed areas, woodlots or forested areas and vary in their level of significance at the local, regional and provincial levels. Woodlands may be delineated according to the Forestry Act definition or the province’s Ecological Land Classification system definition for forest.”.

A review of background mapping and resources did identify treed areas designated as Primary Corridor (Group “C” Feature), Group “B” Features, Environmentally Significant Areas, Lakeshore Area 1, Lakeshore Area 2, and Significant Woodlot within the Project Location (**Appendix B**).

The potential for Significant Woodlands to be present within the Study Area is discussed further in **Section 5.2.6**.

3.2.3 Significant Wetlands

Under the PPS, “wetlands” means “lands that are seasonally or permanently covered by shallow water, as well as lands where the water table is close to or at the surface. In either case the presence of abundant water has caused the formation of hydric soils and has favoured the dominance of either hydrophytic plants or water tolerant plants. The four major types of wetlands are swamps, marshes, bogs, and fens. Periodically wet or soaked lands being used for agricultural purposes which no longer exhibit wetland characteristics are not considered to be wetlands for the purposes of this definition.”.

A review of background mapping and resources did identify unevaluated wetlands within the Study Area. There are mapped and evaluated PSW’s over 280 m away to the northeast and southeast associated with the Cedar Point, Dolmage & Rawlings Rd Wetland Complex (SC 56; **Figure 2; Appendix B**).

The potential for Significant Wetlands to be present within the Study Area is discussed further in **Section 5.2.7**.

3.2.4 Significant Valleylands

Under the PPS, “valleylands” means “a natural area that occurs in a valley or other landform depression that has water flowing through or standing for some period of the year.”.

A review of background mapping and resources, it appears that valleylands are not present within the Study Area.

3.2.5 Areas of Natural and Scientific Interests (ANSI)

A review of background mapping and resources did not identify ANSI's within the Study Area. The closest ANSI (Gustin Grove Marsh/Shashawandah Cree) is located approximately 1.5 km northeast of the Project Location.

3.2.6 Significant Wildlife Habitat

Under the PPS, "wildlife habitat" means "areas where plants, animals and other organisms live, and find adequate amounts of food, water, shelter and space needed to sustain their populations. Specific wildlife habitats of concern may include areas where species concentrate at a vulnerable point in their annual or life cycle; and areas which are important to migratory or non-migratory species."

To assist planning authorities, the MNRF developed the Significant Wildlife Habitat (SWH) Technical Guide (OMNR, 2000) that provides information on the identification, description, and prioritization of SWH in Ontario. To account for the ecological diversity across the province, MNRF developed the SWH Ecoregional Criteria Schedules to support the SWH Technical Guide. These schedules are specific to each geographic area of each eco-region. The Study Area is located in Ecoregion 7E (Lake Erie - Lake Ontario); under the Criteria Schedule for Ecoregion 7E (OMNRF, 2015), SWH has been divided into four broad categories consisting of:

Seasonal Concentration Areas of Animals

This category identifies habitat where wildlife species gather annually, at certain times of the year. This SWH category requires the presence of a given species, or several species, in specific densities based on approved survey protocol in order to meet the criteria for significance.

Rare Vegetation Communities or Specialized Habitat for Wildlife

The criterion for rare vegetation communities considers the provincial Sub-national rank (SRank) of a species or community type, and includes SRanks of S1 (extremely rare and critically imperiled), S2 (very rare and imperiled), and S3 (rare to uncommon and vulnerable). The criteria for specialized habitat for wildlife captures sizeable habitat requirements for listed species to carry out key life processes.

Habitat for Species of Conservation Concern

The Significant Wildlife Habitat Technical Guide (OMNR, 2000) defines Species of Conservation Concern (SCC) as species that are globally, nationally, provincially, regionally, or locally rare (SRank of S1 to S3), species that are listed as SC under the ESA, and species listed as endangered or threatened federally, but do not include SAR listed as endangered or threatened under the ESA. This category identifies habitat for wildlife species that are listed as SC, rare (SRank of S1-S3), and/or declining.

Animal Movement Corridors

Animal movement corridors identify areas that wildlife move between habitats in order to carry out their life processes. Confirmed or candidate SWH are identified by the MNRF or the planning authority.

Through background review, several SCC listed in **Table 2** have been identified with the potential to occur within the vicinity of the Study Area, and will help to determine the potential for SWH.

Table 2: Species of Conservation Concern with the potential to occur within the vicinity of the Study Area

Scientific Name	Common Name	SARA ¹	ESA ²	SRank ³	Info Source ⁴
Birds					
<i>Contopus virens</i>	Eastern Wood-Pewee	SC	SC	S4B	NHIC, OBBA
<i>Hirundo rustica</i>	Barn Swallow	THR	SC	S4B	MNRF, OBBA
<i>Hylocichla mustelina</i>	Wood Thrush	THR	SC	S4B	NHIC, OBBA
Lepidoptera					
<i>Danaus plexippus</i>	Monarch	END	SC	S2N,S4B	OBA
Reptiles					
<i>Chelydra serpentina</i>	Snapping Turtle	SC	SC	S3	ORAA, NHIC

¹Status identified under the federal Species at Risk Act: END = Endangered, THR = Threatened, SC = Special Concern; ²Status identified under the provincial Endangered Species Act: SC = Special Concern; ³SRank is an indicator of commonness in the Province of Ontario. A scale between 1 and 5: S4 = common and apparently secure, S3 = rare to uncommon and vulnerable, S2 = very rare and imperiled, B = breeding, N = non-breeding;

⁴Information sources include: MNRF = Information request correspondence from the Ministry of Natural Resources and Forestry, NHIC = MNRF Natural Heritage Information Centre, OBA = Ontario Butterfly Atlas, OBBA = Ontario Breeding Bird Atlas, ORAA = Ontario Reptile and Amphibian Atlas; --- denotes no information or not applicable.

A review of background data suggests that several SWH types, as described in the Eco-Region 7E Criterion Schedules (OMNRF, 2015) may occur within the Study Area, including, but not limited to, the following:

- Bat Maternity Colonies;
- Reptile Hibernaculum;
- Colonially-nesting Bird Breeding Habitat (Bank and Cliff);
- Bald Eagle and Osprey Nesting, Foraging, and Perching Habitat;
- Amphibian Breeding Habitat (Woodland); and
- Special Concern and Rare Wildlife Species.

The potential for SWH to be present within the Study Area is discussed further in **Section 5.2.8**.

3.2.7

Species at Risk

Species at Risk are defined as those species that are listed as threatened or endangered under the ESA and aquatic species listed under Schedule 1 federally, as well as migratory birds listed under both Schedule 1 federally and the Migratory Birds Convention Act (MBCA; 1994). The purpose of this section is not to acknowledge what species are listed within the Species at Risk in Ontario List (O. Reg. 230/08), but rather

what the definition of SAR is as it pertains to this EIS (i.e. which SAR receive legislative protection under the ESA). Through background review, several SAR listed in **Table 3** have been identified with the potential to occur within the vicinity of the Study Area.

Table 3: Species at Risk with the potential to occur within the vicinity of the Study Area

Scientific Name	Common Name	SARA ¹	ESA ²	SRank ³	Info Source ⁴
Birds					
<i>Charadrius melodus circumcinctus</i>	Piping Plover	END	END	S1B	NHIC
<i>Chaetura pelagica</i>	Chimney Swift	THR	THR	S4B, S4N	NHIC
<i>Riparia riparia</i>	Bank Swallow	THR	THR	S4B	OBBA
<i>Hylocichla mustelina</i>	Wood Thrush	THR	SC	S4B	NHIC, OBBA
<i>Dolichonyx oryzivorus</i>	Bobolink	THR	THR	S4B	MNRF, NHIC, OBBA
<i>Sturnella magna</i>	Eastern Meadowlark	THR	THR	S4B	MNRF, NHIC, OBBA
Fishes					
<i>Acipenser fulvescens</i>	Lake Sturgeon	---	END	S2	NHIC
Mammals					
<i>Taxidea taxus jacksoni</i>	American Badger	END	END	S2S3	MWH
<i>Myotis leibii</i>	Eastern Small-footed Myotis	END	END	S2S3	MWH
<i>Myotis lucifugus</i>	Little Brown Myotis	END	END	S4	MWH
<i>Myotis septentrionalis</i>	Northern Myotis	END	END	S3	MWH
<i>Pipistrellus subflavus</i>	Tri-colored Bat	END	END	S3?	MWH
<i>Lasiurus borealis</i>	Eastern Red Bat	---	END	S4	MWH
<i>Lasiurus cinereus</i>	Hoary Bat	---	END	S4	MWH
<i>Lasionycteris noctivagans</i>	Silver-haired Bat	---	END	S4	MWH
Reptiles					
<i>Pantherophis gloydi</i>	Eastern Foxsnake	END	THR	S2	MNRF
<i>Heterodon platirhinos</i>	Eastern Hog-nosed Snake	THR	THR	S3	MNRF
Plants					
<i>Cornus florida</i>	Eastern Flowering Dogwood	END	END	S2?	NHIC
<i>Castanea dentata</i>	American Chestnut	END	END	S2	NHIC
<i>Fraxinus nigra</i>	Black Ash	THR	END	S4	NHIC
<i>Juglans cinerea</i>	Butternut	END	END	S2?	NHIC
<i>Panax quinquefolius</i>	American Ginseng	END	THR	S2	MNRF, NHIC

¹Status identified under the federal Species at Risk Act: END = Endangered, THR = Threatened; ²Status identified under the provincial Endangered Species Act: END = Endangered, THR = Threatened, SC = Special Concern; ³SRank is an indicator of commonness in the Province of Ontario. A scale between 1 and 5: S4 = common and apparently secure, S3 = rare to uncommon and vulnerable, S2 = very rare and imperiled, S1 = extremely rare and critically imperiled, SU or ? = uncertain due to insufficient information, B = breeding, N = non-breeding; ⁴Information sources include: MNRF = Information request correspondence from the Ministry of Natural Resources and Forestry, MWH = Digital Distribution Maps of the Mammals

of the Western Hemisphere, version 3.0, NHIC = MNRF Natural Heritage Information Centre, OBBA = Ontario Breeding Bird Atlas; --- denotes no information or not applicable.

The potential for SAR to be present within the Study Area is discussed further in **Section 5.2.9**.

4.0

Methodology of Biophysical Inventory

The results of the background review were used to assist in scoping the field program. Field work conducted by for the EIS occurred in 2019 and 2023 when weather conditions and timing were deemed suitable based on the survey protocols being implemented (**Table 4**). Fieldwork consisted of Ecological Land Classification (ELC), breeding bird surveys, plant surveys, tree inventory, and woodland assessment. Incidental wildlife observations made during the surveys were also documented. The following sub-sections outline the survey methodologies used in the field.

Table 4: Survey Dates and Weather Conditions

Survey Date	Weather Conditions
Ecological Land Classification	
August 23, 2019	21°C, no precipitation, 80% cloud cover
Breeding Bird Surveys	
May 28, 2019	14-16°C, no precipitation, 100% cloud cover
June 14, 2019	13°C, no precipitation, 0% cloud cover
Plant Surveys	
August 23, 2019	21°C, no precipitation, 80% cloud cover
Tree Inventory	
January 24, 2023	0-2°C, no precipitation, 10-50% cloud cover
Woodland Assessment	
January 24, 2023	0-2°C, no precipitation, 10-50% cloud cover

4.1

Aquatic Environment

During the field surveys, the Project Location was assessed for the potential presence of aquatic features.

Results regarding potential aquatic features are discussed in **Section 5.1**.

4.2

Terrestrial Environment

4.2.1

Ecological Land Classification

During the summer vegetation survey, vegetation was characterized using the ELC System for Southern Ontario protocol (Lee *et al.*, 1998) with 2008 updates (Lee, 2008) in order to classify and map ecological communities to the vegetation type level, where appropriate. The ecological community boundaries were determined through the review of aerial photography and then further refined through on-site plant

surveys. Plant surveys involved identifying the dominant species in each vegetation community type, based on visual estimates of species abundance and biomass. Species nomenclature is based on the species lists for Ontario maintained by the NHIC which uses international standards for taxonomy and nomenclature. Furthermore, during the other surveys conducted, ELC was noted and confirmed throughout the Project Location.

The ELC protocol recommends that a vegetation community be a minimum of 0.5 ha in size before it is defined. Based on the composition of vegetation communities within the Study Area, patches of vegetation less than 0.5 ha or disturbed/planted vegetation were described, provided they clearly fit within an ELC vegetation type. Soil samples were inspected and outlined in the Geotechnical Slope Assessment (Golder, 2023).

Results of the ELC survey is discussed in **Section 5.2.1**.

4.2.2 Breeding Bird Surveys

Diurnal breeding bird surveys conducted within the Project Location followed the methods outlined in the Ontario Breeding Bird Atlas Guide for Participants (Ontario Breeding Bird Atlas, 2001), and were completed in late May and mid-June 2019 (two surveys). Specifically, surveys consisted of 10 minute point counts generally conducted between a half hour before sunrise or dawn and five hours after sunrise, that were used to establish quantitative estimates of bird abundance in suitable habitat types within the Project Location. As outlined in Birds Canada (2021), depending on certain times of the active season and weather variables, it is not necessary that counts be done only in the very early morning as some birds may not be active until an hour or two after sunrise. During the surveys, evidence of breeding behaviour was recorded, which generally includes, but is not limited to, singing males, nest building, egg incubation, territorial defence, carrying food/fecal sacs, and feeding young. Breeding evidence for each bird species was documented using Breeding Bird Atlas Evidence Codes.

To supplement the surveys, area searches of the habitats were completed using binoculars to observe species presence and breeding activity. Area searches involved noting all individual bird species and their corresponding breeding evidence while traversing the habitat on foot. The point count locations are displayed on **Figure 3**.

Results of the breeding bird surveys are discussed in **Section 5.2.2**.

4.2.3 Plant Surveys

A plant survey was conducted during the growing season by using wandering transects to determine species presence, richness, and abundance of floral species within the Project Location. Search effort was concentrated throughout the entirety of the Project Location, but due to current land uses, effort was

mostly concentrated away from agriculture. Species nomenclature is based on the species lists for Ontario maintained by the NHIC which uses international standards for taxonomy and nomenclature.

Results of the plant surveys are discussed in **Section 5.2.3**.

4.2.4 Tree Inventory

A tree inventory was conducted on January 24, 2023, by a qualified Dillon Biologist within the Project Location. Trees subject to the inventory were those with a diameter-at-breast-height (DBH) of 10 centimetres (cm) or greater. The collected data pertained to trees that: 1) may be found within areas defined as woodlands within the Forestry Act (1990) and/or within areas defined as woodlot within the County of Lambton Woodlands Conservation By-Law (2012) and 2) trees that may require removal to facilitate development or trees that may be retained and protected during construction operations. The information recorded consisted of the following:

- Identification of species or genus where determinable using reasonable assumptions based on location, leaves, bark, bud, branches, and growth habit;
- Measurement of DBH at 1.4 metres (m) from the ground;
- Assignment of a unique identification number for trees ≥ 10 cm DBH, where applicable. Note: Trees with multiple stems split below breast height were given one unique identification number;
- A Level 2 (basic) qualitative visual assessment to determine tree or tree grouping condition, following the condition health rating system (detailed below); and
- Marking coordinates using a handheld Global Positioning System (GPS) unit.

The Level 2 basic assessment that was completed for trees within the Project Location is a detailed visual inspection of the trees and surrounding area to obtain an opinion of the health condition of each tree. It includes a non-invasive inspection of each tree (i.e. looking at the site conditions, buttress roots, trunk, and branches). This basic assessment is the standard basic assessment though conditions that are detected from the ground.

The condition rating designated to each tree was based on the results of the basic assessment. The hazard potential of trees was assessed using the method outlined in the International Society of Arboriculture publication *A Photographic Guide to the Evaluation of Hazard Trees in Urban Area - 2nd Edition* (Mattheny and Clark, 1994). Using this guide, an overall condition rating (i.e. dead, hazard, poor, fair, good, or excellent) was given to each tree meeting a 10 cm or greater DBH. These condition ratings are useful when evaluating the retention and/or replacement value of individual trees.

Trees were identified using all reasonable means possible (i.e. leaf, bud, and bark characteristics, tree form, and branch orientations).

Results of the tree inventory is discussed in **Section 5.2.4**.

4.2.5

Woodland Assessment

On January 24, 2023, a qualified Dillon Biologist, skilled in tree identification and treed area/woodland assessments, conducted a woodland assessment on the southwestern part of the designated Significant Woodland closest to the shoreline. The dripline was captured for the Significant Woodland closest to the shoreline as well as the inland woodland near the southern part of the Project Location. Also, to obtain a more accurate quantity of treed areas that are not designated as significant and that the ELC communities do not capture, areas meeting those definitions were mapped on the ground. To determine the extent/boundary/size of the driplines and the treed areas, the dripline of the treed area was marked with a handheld GPS unit to record a track. This measurement of the dripline is approximate and should not be considered a legal survey.

When a treed area was measured close to a designated Significant Woodland, as was the case for the woodland closest to the shore, to assess tree density, a tally (total number) of all trees and/or woody stems that would fall under the Forestry Act (1990) and the County of Lambton Woodlands Conservation By-Law (2012) were taken within the treed area.

Results of the woodland assessment is discussed in **Section 5.2.5**.

5.0

Results of Biophysical Inventory

A biophysical inventory of natural features within the Study Area was completed in accordance with the methods detailed in **Section 4.0**. The analysis of data collected from secondary source information and during the field studies was used to evaluate the significance of natural heritage features within the Study Area.

5.1

Aquatic Environment

Based on the results of the site assessment, no drains/watercourses were observed, but part of Lake Huron is within the Project Location. No development is proposed near Lake Huron and an appropriate setback is proposed within this area, so Lake Huron is not anticipated to be impacted by the proposed development.

5.2

Terrestrial Environment

5.2.1

Ecological Land Classification

Nine ELC communities were identified within the Study Area (**Table 5**). The location, type, and boundaries of these communities are delineated on **Figure 3**. Reference photos for the plant communities observed can be found in **Appendix C**.

The Study Area consists of Mixed Meadow (MEM), Sumach Deciduous Shrub Thicket (THDM2-1), Sugar Maple Deciduous Woodland Type (WODM4-3), Fresh-Moist Poplar Deciduous Woodland Type (WODM5-1), Annual Row Crops (OAGM1), Fencerow (TAGM5), Green Lands (CGL), Residential (CVR_1), and Open Water (OAO). Communities within the Study Area are further described in **Table 5** and a full plant list is presented in **Appendix D**. Other communities (largely cultural) exist outside of the Project Location (**Figure 3**). None of the observed communities are considered rare in Ontario.

Potential impacts related to vegetation communities within the Project Location are included in **Sections 8.1.1 and 8.1.2**.

Table 5: Ecological Land Classification Communities within the Study Area

ELC Community	Location	Dominant Species (listed in approximate order of abundance)	Photos (Appendix C)
Natural Communities			
MEM – Mixed Meadow (4.15 ha within the Project Location)	This community is located in the northwestern part of the Project Location.	Meadow Fescue (<i>Schedonorus pratensis</i>), Eastern Late Goldenrod (<i>Solidago altissima</i> ssp. <i>altissima</i>), young Eastern Cottonwood (<i>Populus deltoides</i> ssp. <i>deltoides</i>), and Staghorn Sumac (<i>Rhus hirta</i>).	1 and 4
THDM2-1 – Sumach Deciduous Shrub Thicket (0 ha within the Project Location)	This community is located in the northeastern part of the Study Area.	Staghorn Sumac.	N/A
WODM4-3 – Sugar Maple Deciduous Woodland Type (0 ha within the Project Location)	This community is located between the proposed development and Lake Huron.	Sugar Maple (<i>Acer saccharum</i>), Staghorn Sumac, Broad-leaved Enchanter's Nightshade (<i>Circaea canadensis</i>), and False Solomon's Seal (<i>Maianthemum racemosum</i>).	2 and 8-9
WODM5-1 – Fresh-Moist Poplar Deciduous Woodland Type (0.04 ha within the Project Location)	This community in the extreme eastern corner of the Project Location.	Eastern Cottonwood, Gray Dogwood (<i>Cornus racemosa</i>), Staghorn Sumac, and European Common Reed (<i>Phragmites australis</i> ssp. <i>australis</i>).	3 and 7
Cultural Communities			
OAGM1 – Annual Row Crops (24.7 ha within the Project Location)	This community is located throughout the Study Area.	The last observed crop was Soy Bean (<i>Glycine max</i>) in 2019.	2-7
TAGM5 – Fencerow (1.15 ha within the Project Location)	This community is located along the northeastern boundary of the Project Location and in the western part associated with a former dwelling.	Freeman's Maple (<i>Acer x freemanii</i>), Bur Oak (<i>Quercus macrocarpa</i>), Common Buckthorn (<i>Rhamnus cathartica</i>), and Staghorn Sumac.	3 and 5
CGL – Green Lands (0.55 ha within the Project Location)	This community is located in the western part of the Project Location associated with a former dwelling.	Regularly-maintained lawn associated with a former dwelling.	N/A
CVR_1 – Residential (0 ha within the Project Location)	This community is located in the western part of the Study Area.	Regularly-maintained lawn.	N/A
OA0 – Open Water (0 ha within the Project Location)	This community is located in the northwestern part of the Study Area.	N/A – Lake Huron	N/A

5.2.2 Breeding Bird Surveys

A total of 26 bird species were observed during the breeding bird surveys (**Table 6**). Each of the observed birds is considered common and apparently secure (S4) or widespread and secure (S5) in the province of Ontario based on the provincial conservation rankings assigned by the NHIC.

One species; Barn Swallow (*Hirundo rustica*) is listed as Special Concern under the ESA. Being a SCC, this species is discussed further in **Section 5.2.8**.

One species; Chimney Swift (*Chaetura pelagica*) is listed as Threatened under the ESA. Being a SAR, this species is discussed further in **Section 5.2.9**.

Table 6: Breeding Bird Survey Results

Scientific Name	Common Name	SARA ¹	ESA ²	SRank ³	Breeding Evidence ⁴
<i>Ardea herodias</i>	Great Blue Heron	---	---	S4	flyover
<i>Cathartes aura</i>	Turkey Vulture	---	---	S5B	flyover
<i>Charadrius vociferus</i>	Killdeer	---	---	S5B,S5N	X
<i>Larus delawarensis</i>	Ring-billed Gull	---	---	S5B,S4N	X
<i>Zenaidura macroura</i>	Mourning Dove	---	---	S5	flyover
<i>Coccyzus erythrophthalmus</i>	Black-billed Cuckoo	---	---	S5B	S
<i>Chaetura pelagica</i>	Chimney Swift	THR	THR	S4B,S4N	flyover
<i>Picoides pubescens</i>	Downy Woodpecker	---	---	S5	X
<i>Empidonax traillii</i>	Willow Flycatcher	---	---	S5B	T
<i>Tyrannus tyrannus</i>	Eastern Kingbird	---	---	S4B	X
<i>Vireo gilvus</i>	Warbling Vireo	---	---	S5B	T
<i>Corvus brachyrhynchos</i>	American Crow	---	---	S5B	flyover
<i>Cyanocitta cristata</i>	Blue Jay	---	---	S5	X
<i>Hirundo rustica</i>	Barn Swallow	THR	SC	S4B	flyover
<i>Tachycineta bicolor</i>	Tree Swallow	---	---	S4B	flyover
<i>Poecile atricapillus</i>	Black-capped Chickadee	---	---	S5	X
<i>Troglodytes aedon</i>	House Wren	---	---	S5B	S
<i>Turdus migratorius</i>	American Robin	---	---	S5B	CF
<i>Geothlypis trichas</i>	Common Yellowthroat	---	---	S5B	T
<i>Setophaga petechia</i>	Yellow Warbler	---	---	S5B	T

Scientific Name	Common Name	SARA ¹	ESA ²	SRank ³	Breeding Evidence ⁴
<i>Melospiza melodia</i>	Song Sparrow	---	---	S5B	T
<i>Cardinalis cardinalis</i>	Northern Cardinal	---	---	S5	S
<i>Agelaius phoeniceus</i>	Red-winged Blackbird	---	---	S4	A
<i>Icterus galbula</i>	Baltimore Oriole	---	---	S4B	S
<i>Molothrus ater</i>	Brown-headed Cowbird	---	---	S4B	X
<i>Passer domesticus</i>	House Sparrow	---	---	SNA	X

¹Status identified under the federal Species at Risk Act: THR = Threatened; ²Status identified under the provincial Endangered Species Act: THR = Threatened, SC = Special Concern; ³SRank is an indicator of commonness in the Province of Ontario. A scale between 1 and 5: S5 = widespread and secure, S4 = common and apparently secure, SNA = not applicable, B = breeding, N = non-breeding; ⁴Breeding Bird Codes from Ontario Breeding Bird Atlas Guide for Participants (Ontario Breeding Bird Atlas, 2001); --- denotes no information or not applicable.

Observed: X = Species observed in its breeding season (no breeding evidence)

Possible: H = Species observed in its breeding season in suitable nesting habitat
S = Singing male(s) present, or breeding calls heard, in suitable nesting habitat in breeding season

Probable: M = At least 7 individuals singing or producing other sounds associated with breeding (e.g. calls or drumming), heard during the same visit to a single square and in suitable nesting habitat during the species' breeding season
P = Pair observed in suitable nesting habitat in nesting season
T = Permanent territory presumed through registration of territorial song, or the occurrence of an adult bird, at the same place, in breeding habitat, on at least two days a week or more apart, during its breeding season
D = Courtship or display, including interaction between a male and a female or two males, including courtship feeding or copulation
V = Visiting probable nest site
A = Agitated behaviour or anxiety calls of an adult
B = Brood Patch on adult female or cloacal protuberance on adult male
N = Nest-building or excavation of nest hole, by a wren or a woodpecker

Confirmed: NB = Nest-building or excavation of nest hole by a species other than a wren or a woodpecker
DD = Distraction display or injury feigning
NU = Used nest or egg shells found (occupied or laid within the period of the survey)
FY = Recently fledged young (nidicolous species) or downy young (nidifugous species) incapable of sustained flight
AE = Adult leaving or entering nest sites in circumstances indicating occupied nest
FS = Adult carrying fecal sac
CF = Adult carrying food for young
NE = Nest containing eggs
NY = Nest with young seen or heard

5.2.3 Plant Surveys

A total of 39 flora species were documented during the field studies (excluding the tree inventory). Of these 39 species, approximately 56% are listed as native species and 44% are listed as non-native species, therefore a status ranking is not applicable as the species is not a suitable target for conservation activities (SE or SNA rank).

No species observed are considered SCC or SAR. The relatively low numbers of plant species observed does not necessarily mean that additional plant surveys should be required. Given that most of the

woodland closest to Lake Huron is to remain intact, the plant surveys mainly focused only on the "natural" communities that were proposed to be impacted.

A list of flora species observed is provided in **Appendix D**. Floristics data including native vs. non-native species, mean coefficient of conservatism, floristic quality index, and mean coefficient of wetness, as provided in Oldham *et al.* (1995), are provided in **Appendix E**. Photographs taken during the site visits are provided in **Appendix C**. Potential impacts related to vegetation within the Project Location is included in **Sections 8.1.1 and 8.1.2**.

5.2.4 Tree Inventory

The inventory documented 109 trees with a DBH of 10 cm or greater within the inventoried areas (i.e. mainly within the Fencerow communities and the western part of the Significant Woodland closest to the shoreline). Fifteen species of trees were documented, with 11 species identified to the species level and four species identified to the genus level. Freeman's Maple (*Acer x freemanii*) was the dominant species, accounting 36% of the trees inventoried, followed by Bur Oak (*Quercus macrocarpa*) at 14%. A summary of inventoried trees can be found in **Table 7** below.

Overall, out of the 109 documented trees, 91 (84%) are native to Ontario, while 7 (6%) are non-native species. The remaining 11 trees (10%) could not be classified as non-native or native because identification only to genus level was possible.

Table 7: Summary of Inventoried Trees by Species

Family	Scientific Name	Common Name	SARA ¹	ESA ²	SRank ³	Invasive Priority for Control ⁴	Count
Cupressaceae	<i>Juniperus virginiana</i>	Eastern Red Cedar	---	---	S5	---	7
Pinaceae	<i>Picea abies</i>	Norway Spruce	---	---	SNA	---	1
	<i>Pinus sylvestris</i>	Scotch Pine	---	---	SNA	C3	1
Fagaceae	<i>Quercus macrocarpa</i>	Bur Oak	---	---	S5	---	15
Juglandaceae	<i>Carya sp.</i>	Hickory species	---	---	---	---	2
Rosaceae	<i>Prunus avium</i>	Sweet Cherry	---	---	SNA	---	5
Salicaceae	<i>Populus deltoides ssp. deltoides</i>	Eastern Cottonwood	---	---	S5	---	9
	<i>Salix sp.</i>	Willow species	---	---	---	---	1
Aceraceae	<i>Acer sp.</i>	Maple species	---	---	---	---	9
	<i>Acer negundo</i>	Manitoba Maple	---	---	S5	C2	1
	<i>Acer saccharum</i>	Sugar Maple	---	---	S5	---	13
	<i>Acer x freemanii</i>	Freeman's Maple	---	---	SNA	---	39

Family	Scientific Name	Common Name	SARA ¹	ESA ²	SRank ³	Invasive Priority for Control ⁴	Count
Oleaceae	<i>Fraxinus sp.</i>	Ash species	---	---	---	---	1
	<i>Fraxinus pennsylvanica</i>	Green Ash	---	---	S4	---	2
Ulmaceae	<i>Ulmus americana</i>	American Elm	---	---	S5	---	3
Total							109

¹Status identified under the federal Species at Risk Act; ²Status identified under the provincial Endangered Species Act; ³SRank is an indicator of commonness in the Province of Ontario. A scale between 1 and 5: S5 = widespread and secure, S4 = common and apparently secure, SNA = not applicable; ⁴Invasive Exotic Plant Species Rankings for Southern Ontario (Society for Ecological Restoration Ontario, 2025). Category 1 (C1) - Top Priority. Widespread invasive species that exclude most other species and dominate sites indefinitely. Some are an imminent threat to human health, and some are restricted by Ontario laws. They are the top priority for control but control may be difficult and some are beyond control at present. Bio-controls may be the only effective long-term control option. Plants in this category are a threat to natural areas wherever they occur because they disperse widely and quickly, and benefit from human disturbances. Control where possible and do not plant. Category 2 (C2) – Medium Priority. Less widespread or localized invasives that are a serious concern because they have a large or permanent effect once they become dominant and they will spread more widely in time. They may dominate the niche so the native plants that would have been present are excluded, or they alter a natural process that maintains the habitat. Some are capable of becoming Category 1 species if given time and may already be so in some places, so are a priority for removal. These species disperse widely and so are a threat to biodiversity wherever they occur. Control where possible and do not plant. Category 3 (C3) – Local Priority. Species that spread locally or persist and reproduce from initial introductions, but may have a negligible affect on biodiversity over the long term because they eventually become integrated into natural systems or will be dominated by natives, die out, or are only found on highly disturbed habitats and don't remain dominant over the long term. They take up space that could be occupied by native species and do not provide the same natural functions as the natives they replace. Some may be Category 2 in some parts of Ontario or in particular vegetation community types. Replace with native species wherever possible and do not plant. Category 4 (C4) – Species to Watch. Species that have been observed spreading occasionally and currently appear to have minimal effects on biodiversity but may in the future. These species should be monitored to assess impacts. Control where desired and do not plant; --- denotes no information or not applicable.

5.2.5

Woodland Assessment

As the dripline of the Significant Woodland closest to the shoreline was being captured, the far western part of this area closest to Cedar Point Line was decidedly different than the adjacent woodland community (WODM4-3). Within this area, a tree/woody stem tally was conducted. The results of the tree/woody stem tally is detailed below in **Table 8**.

Table 8: Densities of Trees within the Treed Area

Forestry Act (1990) Criteria	Density of Treed Area	Does the Density of Treed Area meet Forestry Act (1990) Criteria?
1,000 trees, of any size, per hectare	563 stems of any size/ha (563 total trees)	No
750 trees, measuring over five centimetres in diameter, per hectare	3 trees >5 cm DBH/ha (3 trees >5 cm total)	No
500 trees, measuring over 12 centimetres in diameter, per hectare, or	3 trees >12 cm DBH/ha (3 trees >12 cm total)	No
250 trees, measuring over 20 centimetres in diameter, per hectare	3 trees >20 cm DBH/ha (3 trees >20 cm total)	No

A total of 11 separate treed areas (0.71 ha total) of groups of trees were mapped. Refer to **Appendix C** for photographs of some of the specific treed areas. These areas were mapped to obtain a more accurate quantity of treed areas beyond the ELC community mapping. Each treed area does not meet the size criteria (>2 ha) to be designated as Significant Woodland as defined by Lambton Shores Official Plan. According to the *Forestry Act* (1990) and after the woodland assessment conducted in the southwestern part of the WODM4-3 community, that area does not contain densities of trees to meet the threshold for designation of woodland/forest as presented in **Table 8**.

5.2.6 Significant Woodlands

The biophysical inventory results are generally consistent with the background review. Significant Woodland exists between the active agriculture and the Lake Huron shore (WODM4-3). The identified woodlands were associated with the narrow area between the Lake Huron shoreline and the more upland areas associated with the remainder of the Project Location. The southwestern part of the WODM4-3 community should not be considered a contiguous part of the Significant Woodland and exists outside of the Significant Woodland dripline.

The other woodland (WODM5-1) is not designated by the Municipality as significant. Following the field surveys, we conclude that it is not significant by size criteria or by any other significant metric. The nearest breeding bird point count to that woodland did not capture any breeding evidence for SCC or SAR. The results of the plant surveys and woodland assessment also did not capture any SCC or SAR. The woodland instead is characterized by dominant, fast-growing Eastern Cottonwood with dominant, non-native European Common Reed in the ground layer and understory.

Potential impacts related to vegetation communities within the Project Location Area are included in **Sections 8.1.1 and 8.1.2**.

5.2.7 Significant Wetlands

The biophysical inventory results are not entirely consistent with the background review. Field studies confirmed that there are no wetlands present within the Study Area. Background results indicated unevaluated wetlands just off the Lake Huron shore and also within the Fresh-Moist Poplar Deciduous Woodland Type (WODM5-1) which is mainly outside of the Project Location and therefore the proposed development as well. Lake Huron is an aquatic community and the Woodland was not found to be a wetland.

5.2.8

Significant Wildlife Habitat

Based on the observations made during the site investigations, as well as the results of the ELC (**Figure 3**), the following candidate and confirmed SWH were observed within the Study Area.

Bat Maternity Colonies: Forest and/or swamp communities were not observed within the Project Location. As such, the communities observed within the Project Location do not qualify as candidate SWH for bat maternity colonies.

Reptile Hibernacula: No hibernacula (i.e. animal burrows, crevasses, or cracks) or snake egg-laying sites were observed within or adjacent to the Project Location.

Colonially-nesting Bird Breeding Habitat (Bank and Cliff): Steep slopes are present within the woodland community facing Lake Huron, but the habitat is predominately treed and therefore does not provide exposed sandy banks that would be suitable for bank and cliff nesting habitat.

Bald Eagle and Osprey Nesting, Foraging, and Perching Habitat: Although the Project Location is adjacent to a lake (i.e. Lake Huron), no Osprey and/or Bald Eagle individuals and/or large, stick nests were observed within the Project Location during the field surveys.

Amphibian Breeding Habitat (Woodland): Amphibian Breeding Habitat (woodland) was not observed within the Project Location. The treed areas did not contain any wetlands or vernal pooling that can support breeding amphibians.

Special Concern and Rare Wildlife Species: During the field surveys, one special concern or rare wildlife species (Barn Swallow) was observed. One observation of two Barn Swallow individuals were observed flying through the Project Location. The individuals were most likely foraging and further, no suitable nesting habitat and no breeding evidence was observed within the Study Area. No other special concern or rare wildlife species were observed during the field surveys.

Potential impacts to wildlife and/or their habitat are addressed in **Section 8.1.1**.

5.2.9

Species at Risk

SAR Birds: One SAR was observed within the Project Location during the field surveys. One observation of two Chimney Swift individuals were observed flying through the Project Location. The individuals were most likely foraging and further, no suitable nesting habitat and no breeding evidence was observed within the Study Area. No other SAR birds and/or SAR bird habitat were observed during the field surveys.

SAR Bats: With respect to SAR bats, specific cavity/snag searches were conducted during the tree inventory. Certain trees may be potentially suitable for SAR bat roosting and/or other wildlife use. Potential trees would largely be retained within the woodland communities or other treed areas.

SAR Snakes: Both SAR snakes (i.e. Eastern Foxsnake and Eastern Hog-nosed Snake) identified by the MNRF, have minimal, marginal, suitable habitat present within the Project Location. Despite this, both species do not have recent observations near the Study Area. The closest Eastern Foxsnake observation is near Kettle Point and was last observed in 1990. The most recent Eastern Foxsnake observation is from 2019, south of Sarnia. The closest Eastern Hog-nosed Snake observation is near Kettle Point and was last observed in 2017. We conclude that both Eastern Foxsnake and Eastern Hog-nosed Snake are outside of their range within the Study Area. Nevertheless, suitable habitat is proposed to be largely retained within the Project Location.

SAR Plants: No SAR plants were observed during the plant surveys, tree inventory, or woodland assessment.

5.2.10

Incidental Wildlife

Incidental wildlife species observed within the Project Location are listed in **Table 9**. Each of the observed species is considered common and apparently secure (S4) or widespread and secure (S5) in the province of Ontario based on the provincial conservation rankings assigned by the NHIC. Of the six incidental species observed, none are listed as endangered or threatened under the ESA.

Table 9: Incidental Wildlife Observations

Scientific Name	Common Name	SARA ¹	ESA ²	SRank ³	Evidence
Birds					
<i>Anas platyrhynchos</i>	Mallard	---	---	S5	Flyover (eight individuals)
Lepidoptera					
<i>Epargyreus clarus</i>	Silver-spotted Skipper	---	---	S4	Observed
<i>Boloria bellona</i>	Meadow Fritillary	---	---	S5	Observed
<i>Danaus plexippus</i>	Monarch	END	SC	S2N,S4B	Observed
<i>Papilio polyxenes</i>	Black Swallowtail	---	---	S5	Observed
<i>Pieris rapae</i>	Cabbage White	---	---	SNA	Observed

¹Status identified under the federal Species at Risk Act: END = Endangered; ²Status identified under the provincial Endangered Species Act: SC = Special Concern; ³SRank is an indicator of commonness in the Province of Ontario. A scale between 1 and 5: S5 = widespread and secure, S4 = common and apparently secure, S2 = very rare and imperiled, SNA = not applicable, B = breeding, N = non-breeding; --- denotes no information or not applicable.

Potential impacts related to wildlife within the Study Area are included in **Section 8.1.1**.

Refer to **Section 9.0** for recommended mitigation measures to prevent impacts to SCC, SAR, and/or their habitats.

6.0

Ecological Function

The Project Location was assessed based on existing characteristics (if any) to determine the presence of potential natural heritage features, SWH, SAR habitat, etc. As most of the Project Location is comprised of active agriculture, ecological function is predominately restricted to the natural communities within the Project Location. Ecological function of the natural communities within the Project Location includes providing habitat for wildlife, prevention of erosion and runoff, facilitating hydrological and nutrient cycling, water retention, improving localized soil, and water and air quality.

At the larger landscape scale, the Study Area exists as part of an agricultural-dominant landscape that is common throughout most of the Municipality and throughout southwestern Ontario. Agriculture dominates the landscape with scattered residential lands largely restricted to town centres and small, fragmented woodlands largely restricted to watercourses and wetland pockets. As a result, there exists little to no natural feature connectivity or linkages. The deciduous woodland community closest to the shore does provide connectivity and linkage to other natural areas along the Lake Huron shoreline to the south (e.g. Highland Glen Conservation Area) and north (e.g. extensive forests and wetlands of Kettle Point, Port Franks, and Pinery Provincial Park). This woodland community still serves an important ecological function by providing shelter, feeding, and nesting opportunities for animals and may also provide potential habitat for SAR bat species. The woodland community between the active agriculture and the shoreline will be retained with a 6 m setback (open space) in place.

In conclusion, one SCC (foraging Barn Swallow) and one SAR (foraging Chimney Swift) were observed within the Project Location with no breeding evidence observed. As such, no confirmed SWH was observed, however potential SAR habitat for bats may exist within the retained woodland. Potential impacts and recommended mitigation measures to prevent impacts to wildlife and their habitats, as well as significant natural features are discussed in **Sections 8.0 and 9.0**.

7.0

Description of the Proposed Development

The overall proposed development will generally include:

- Residential subdivision with associated driveways, roads, and walkways; and
- Parks/open space specifically located to minimize negative impacts on trees and treed areas (**Figures 4 and 5**).

The proposed main access points to this development will be heading northeast from Cedar Point Line (**Figure 4**). Construction of the proposed development would include the removal of approximately 0.44 ha of Greenlands, 3.74 ha of Mixed Meadow, 23.78 ha of Annual Row Crops, 1.06 ha of narrow Fencerow, and 0.04 ha of Fresh-Moist Poplar Deciduous Woodland (**Figure 5**). A total of 0.62 ha of the treed areas out of a total of 0.71 ha, are proposed to be removed (**Figure 5**). The Significant Woodland (WODM4-3) is recommended to be retained and also includes a 6 m setback from the dripline of this community. Landscaping may include, but is not limited to, fencing, sod, and tree plantings within the open space lands. The associated impacts of the development and recommended mitigation measures will be discussed in **Section 8.0** and **Section 9.0**.

8.0 Potential Impact Identification and Analysis

8.1 Potential Direct Impacts

Potential direct impacts are those that are immediately evident as a result of the development. Typically, the adverse effects of direct impacts are most evident during the site preparation and construction phase of a development. The potential direct impacts of the proposed development include the following:

- Loss of/disturbance to wildlife and wildlife habitat;
- Tree and vegetation removal;
- Diversion of surface water flows and stormwater management; and
- Erosion and sedimentation into natural features.

Each of these potential impacts are discussed in subsequent sections.

8.1.1 Loss of/Disturbance to Wildlife and Wildlife Habitat

In general, wildlife may be impacted due to minimal vegetation clearing within the proposed development area (i.e. within the natural communities or more treed communities of the Mixed Meadow, narrow Fencerow, and part of the Fresh-Moist Poplar Deciduous Woodland communities). Wildlife habitat for fauna may be impacted by construction in the following ways:

- Displacement, injury, or death resulting from ignition, operation, and/or contact with heavy equipment during clearing and grading activities; and
- Disturbance to wildlife as a result of noise associated with construction activities, particularly during breeding periods.

Mitigation measures to avoid impacts to wildlife are discussed in **Section 9.3**.

8.1.2 Tree and Vegetation Removal

The proposed development plan indicates tree and ground vegetation removal limited to minimal vegetation within the Mixed Meadow (3.74 ha), narrow Fencerow (1.06 ha), and the Fresh-Moist Poplar Deciduous Woodland (0.04 ha; **Figure 5**) to facilitate grading and construction of the development. A total of 0.62 ha of the treed areas are proposed to be removed (**Figure 5**). Tree removal will result in a reduction of tree and vegetation cover and marginal wildlife habitat loss. On a site level, the impacts of tree and vegetation removal may include:

- Direct loss of trees and ground vegetation;
- Decreased floral species richness and abundance;

- Altered soil conditions and water availability;
- Alteration of microclimate;
- Loss of native seed banks; and
- Physical injury, root damage, and compaction of trees not intended for removal that may result from construction operations.

Refer to **Sections 9.3, 9.4, and 9.5** for mitigation and enhancement opportunities.

8.1.3

Diversion of Surface Water Flows and Stormwater Management

The potential impacts of changes to land use and land cover on the health of a watershed have been well documented and can include changes to groundwater infiltration, run off, stream flow regime, water quality, stream channel erosion, and wildlife habitat. More specifically, changes may include:

- Direct “footprint” effects such as the loss of natural land cover;
- Indirect “flow related” effects such as increased frequency of high stream flows, accelerated stream channel erosion, and deterioration of water quality; and
- Cumulative effects such as changes in aquatic community composition may arise from a combination of changes affecting upstream areas.

The proposed development will increase the amount of impervious land on the property leading to increased surface runoff. The stormwater system is proposed to outlet into the existing drain within the Lake Huron slope in the northeastern part of the Project Location (**Figure 4**). In addition, as noted in Golder (2023), from this stormwater system outlet, water will drain onto the slope and follow existing gullies. Downslope from the identified slope drains (**Figures 4 and 5**) within the woodland community, there exist drain and gully features that are expected to continue to drain stormwater (**Figures 4 and 5**). The proposed SWM for the development will use best management practices to mitigate potential negative effects is further discussed in **Section 9.1**. Additional rehabilitation measures and recommendations are provided within the Golder report (2023). Provided these mitigation measures are followed, the potential ecological impact of stormwater discharge is expected to be minimal.

Refer to **Section 9.2** for mitigation measures related to surface flows.

8.1.4

Erosion and Sedimentation into Natural Features

Construction activity, especially operations involving the handling of earthen material, increases the availability of sediment for erosion and transport via surface drainage. Due to the anticipated reduction in infiltration rates post-development, there is the potential for natural features within the area to be impacted as a result of the development if construction best management practices are not implemented.

Potential impacts to these features may include, but are not limited to:

- Reduced water quality and degradation of nearby drains and
- Disturbance to or loss of additional vegetation due to the deposition of dust and/or overland mobilization of soil.

Due to the potential impacts, control measures must be selected that are appropriate for the erosion potential of the site and it is important that they be implemented and modified on a staged basis to reflect the site activities. Furthermore, their effectiveness decreases with sediment loading and therefore inspection and maintenance is required.

Refer to **Section 9.2** for mitigation measures related to erosion and sedimentation.

8.2 Potential Indirect Impacts

Potential indirect impacts are those that do not always manifest in the core development area, but in the lands adjacent to the development. Indirect impacts can begin in the construction phase; however, they can continue post-construction. Typical indirect impacts from the proposed development include increased anthropogenic disturbance and colonization of non-native and/or invasive species.

8.2.1 Anthropogenic Disturbance

Disturbance to local wildlife communities due to indirect impacts on the surrounding/adjacent lands to the proposed development could result if left unmitigated. Noise, light, vibration, and human presence are potential indirect impacts that can adversely influence the population size and breeding success of local wildlife. These effects are more pronounced when new development is introduced in non-urban areas. Although lands within the Study Area are already partially disturbed by anthropogenic land uses, mitigation measures that further address anthropogenic disturbance have been included in **Sections 9.1** and **9.2**.

8.2.2 Colonization of Non-native and/or Invasive Species

Physical site disturbance may increase the likelihood that non-native and/or invasive flora species will be introduced to the surrounding vegetation communities. Non-native and invasive flora can establish in disturbed sites more efficiently than native flora and can then encroach into adjacent undisturbed areas. This type of colonization is currently occurring within the Project Location. Species including European Common Reed (*Phragmites australis* ssp. *australis*), Garlic Mustard (*Alliaria petiolata*), and Common Buckthorn (*Rhamnus cathartica*) were identified within the Project Location. In order to maximize ecological function on adjacent lands, removal of invasive species paired with planting of native tree and shrub species is recommended.

9.0 Mitigation Measures and Opportunities for Enhancement

Mitigation involves the avoidance or minimization of development impacts through good design, construction practices, or restoration and enhancement activities. The feasibility of mitigation options has been evaluated based on the natural features within and adjacent to the Project Location. The impact assessment highlighted four potential direct impacts, which include loss of/disturbance to wildlife and wildlife habitat, tree and vegetation removal, diversion of surface water flows and stormwater management, and erosion and sedimentation into natural features.

A variety of mitigation techniques can be used to minimize or eliminate the potential impacts noted above. These measures include Stormwater Management Plan, Erosion and Sediment Control (ESC) Plan, Wildlife Impact Mitigation Plan, Natural Feature Setback, and Environmental Monitoring Plan. Each mitigation measure recommended for the proposed development is introduced below.

9.1 Stormwater Management Plan

The SWM outlet is proposed to outlet into the existing drain within the Lake Huron slope in the northeastern part of the Project Location (**Figures 4 and 5**). In order to mitigate loss of/and/or impacts to surface water and hydrological functions within the Study Area, rehabilitation measures and recommendations are provided within the Golder report (2023).

9.2 Erosion and Sediment Control Plan

In order to mitigate the adverse environmental impacts caused by the release of sediment-laden runoff, measures for Erosion and Sediment Control (ESC) are recommended for the construction site. Mitigation measures include the installation of geotextile silt fences and designated topsoil stockpile areas. Additional mitigation measures include:

- Standard duty silt fencing (OPSD 219.110) and/or other equivalent erosion and sediment controls should be installed around the perimeter of the work area to clearly demarcate the development area and prevent erosion and sedimentation into adjacent habitats. Erosion and sediment control measures should be monitored regularly to ensure they are functioning properly and if issues are identified, should be dealt with promptly;
- Stockpiling of excavated material should not occur outside the delineated work area. If stockpiling is to occur outside of this area, silt fencing should be used to contain any spoil piles to prevent sedimentation into adjacent areas. Further, stockpiling of excavated materials should not occur within 30 m of watercourses and woodlands/forests/valleylands;

- A spill response plan should be developed and implemented as required;
- The use of silt socks, dewatering ponds, etc. should be implemented to avoid sedimentation and erosion into adjacent areas as required. If dewatering requires more than 50,000 Liters (L) of water to be pumped per day, appropriate permits must be obtained from the MECP prior to the dewatering; and
- Use of mud mats at the construction entrance prior to commencing earthworks to minimize the tracking of mud onto municipal roads.

9.3 Wildlife Impact Mitigation Plan

Strategies to mitigate impacts to general wildlife prior to and during construction are recommended:

- Tree/vegetation removal should be conducted outside of the breeding bird season (no removal between April 1 to August 31). Should removals be required during this season, appropriate nest searches should be conducted by a qualified biologist. Bird nest searches are recommended to be completed 48 hours prior to clearing activities. If active nests are found, work within a species-specific setback from the nest should be established by a qualified biologist, until the nest fate is either successful (i.e. young have fledged and can leave the area on their own accord) or unsuccessful (i.e. the nest is no longer active). Confirmation of nest inactivity should be confirmed by a qualified biologist prior to encroachment into the buffer. If no nests are present, clearing may occur. This is in accordance with the federal *Migratory Birds Convention Act* (1994);
- Tree removal should be conducted outside of the active bat active season (no removal between April 1 to September 30). Should removals be required during this season, appropriate bat exit surveys should be conducted by a qualified biologist. Ideally, bat exit surveys should be conducted during June. Each candidate roost should be monitored on two separate evenings under appropriate weather conditions (i.e. temperature above 10 degrees Celsius, no rain, and low wind). Monitoring should take place from 30 minutes before sunset until 60 minutes after sunset;
- Visual monitoring for wildlife species and avoidance, where encountered, if possible;
- If necessary, have a qualified biologist monitor construction in the areas of potential wildlife habitat. If wildlife is found within the construction area, they should be relocated by a qualified biologist (someone who is both trained in proper snake handling and maintains a Wildlife Scientific Collector's Authorization) to an area outside of the development into an area of appropriate habitat, as necessary;
- If an injured or deceased SAR is found, the individual must be placed in a non-airtight container that is maintained at an appropriate temperature and an Authorized Wildlife Custodian (authorized under the Fish and Wildlife Conservation Act) in the area should be contacted and the MECP notified as soon as reasonably possible;

- General awareness training for staff prior to commencement of construction regarding typical SAR species that could potentially enter the construction site;
- Construction and/or vegetation clearing equipment that is parked overnight at the project site between April 1 and October 31 will be surveyed for the presence of snakes before use the following morning. Visual inspections should include all lower components of the machinery including operational extensions and running gear;
- The protocol when a SAR is observed within the active construction site is to stop work immediately within the general vicinity of the SAR and contact a qualified biologist to properly address the situation; and
- Wildlife exclusionary fencing should be installed around the Project Location as a mechanism to control erosion during construction and to exclude any potential snakes, turtles, and other wildlife from entering the construction area. In order for the fencing to be an effective barrier, it should be buried at a depth of 20 cm.

9.4 Natural Feature Setback

The role of a setback is to protect important natural features or slopes from the adverse effects of nearby development. The proposed development area will be limited to the boundaries shown on **Figure 4**, with a 6 m natural feature setback from the mapped Significant Woodland dripline. Through discussions with Lambton Shores, the 6 m setback from the Significant Woodland dripline will mark the rear yard boundary in that area. The rear yard boundary will also have appropriate fencing with the future option for private gated access. From the dripline, a 6 m, open space, setback will be in place at the rear of the properties closest to the shore. The setback distance is adequate to not only avoid the slope itself, but also to protect the natural feature/Significant Woodland. The Significant Woodland community between the proposed development and the shore is mainly restricted to the slope and is proposed to remain retained and remain in private ownership. The setback is dominated by active agricultural lands and also exists outside of the woodland community. As described in **Section 8.2.2**, to prevent the colonization of invasive species and maximize ecological function within the setback, planting of native species is recommended. Plantings will also increase the quality of habitat within the setback and provide better protection to plants and wildlife utilizing the woodland natural feature.

The proposed development plan will require the removal of select trees and ground vegetation within the Study Area (**Figure 5**). To facilitate the proposed development, the Mixed Meadow (3.74 ha), narrow Fencerow (1.06 ha), and the Fresh-Moist Poplar Deciduous Woodland (0.04 ha; **Figure 5**) will be impacted. Within the mapped treed areas, a total of 0.62 ha of the treed areas are proposed to be impacted (**Figure 5**). As outlined in the Lambton Shores OP, any trees or forest cover removed for development, site alteration, infrastructure and public service facilities must be planted at twice the area removed. With 0.62 ha of treed areas being removed, we recommend at least 1.24 ha of open space and/or setback areas be available for compensation plantings.

The following monitoring and maintenance measures within the compensation planting areas are also recommended:

- Removal of invasive tree and shrubs, where applicable;
- Watering and weeding of newly-planted areas as required for proper establishment of plantings; and
- Replacement of dead material from previous year's planting.

9.5 Environmental Monitoring Plan

The Environmental Monitoring Plan (EMP) should be carried out through the duration of construction activities on-site to ensure that the erosion and sediment control measures operate effectively and to monitor the potential impacts, if any, upon the natural environment. The duration of construction is defined as the period of time from the beginning of earthworks until the site is stabilized. Site stabilization is defined as the point in time when the roads have been paved, buildings have been built, lawns have been sodded, and compensation plantings have been completed.

The EMP would consist of monitoring the erosion and sediment measures and the compensation plantings. Erosion and sediment control measures would be regularly monitored and they will require periodic cleaning (e.g. removal of accumulated silt), maintenance and/or re-construction. Inspections of all of the erosion and sediment controls on the construction site should be undertaken by a monitor who is a Canadian Certified Inspector of Sediment and Erosion Control (CAN-CISEC). If control measures are found to be compromised/impaired, they should be repaired and/or replaced as soon as possible.

The following monitoring and maintenance measures within the compensation planting areas are also recommended:

- Removal of invasive tree and shrubs, where applicable;
- Watering and weeding of newly-planted areas as required for proper establishment of plantings; and
- Replacement of dead material from previous year's planting.

Compensation planting and protected vegetation areas within the open spaces will require periodic monitoring to ensure that they are not impacted by adjacent development. Should any negative impacts be observed, necessary steps will be taken to ensure that the impacted vegetation is either restored or replaced.

10.0

Summary

This EIS was prepared for the proposed residential subdivision development located northeast of the intersection of Cedar Point Line and Cedarview Drive, within the Municipality of Lambton Shores. This EIS has been prepared due to the presence of natural heritage features within the Study Area. The EIS will form part of an application package for submission to the Municipality of Lambton Shores.

A review of background resources, including Land Information Ontario, the County of Lambton Official Plan, and the Municipality of Lambton Shores Official Plan, indicated that the greater area is designated as Secondary Settlement, Primary Corridor (Group “C” Feature), Group “B” Features, Residential, Lakeshore, General Regulation Area, Lakeshore Area 1, Lakeshore Area 2, General Regulation Area, Environmentally Significant Areas (Lamb Study 1979-1980), and Significant Woodlot.

The most recent detailed field studies were conducted in 2023 to confirm the presence/absence of significant wildlife habitat, SCC, and/or SAR within the Project Location. The field study results were used to determine the potential ecological function of any natural features within the Study Area and also to determine potential impacts on any natural features as a result of the proposed development. The biophysical inventory confirmed no SWH within the Project Location, one SCC (observed as two flyover individuals with no breeding evidence observed), and one SAR (observed as two flyover individuals with no breeding evidence observed).

As the Project Location is predominately comprised of agriculture, limited vegetated areas are proposed for removal, an appropriate setback is proposed adjacent to the Significant Woodland, the development is anticipated to have no negative impacts on natural features. The Significant Woodland is recommended to be retained and remain in private ownership. The proposed development will require the removal of minimal vegetation within the Mixed Meadow (3.74 ha), narrow Fencerow (1.06 ha), and the Fresh-Moist Poplar Deciduous Woodland. To compensate for group of tree area loss (0.62 ha), we recommend the planting of at least double the area (1.24 ha) within open space and/or setback areas be available for compensation plantings of woody vegetation.

Provided the mitigation measures and best management practices outlined in this EIS are followed, the proposed development should result in no negative impacts on the natural features or their ecological function.

Figures



REFLECTION SHORES

PROJECT LOCATION
FIGURE I

-  Project Location (30 ha)
-  Study Area (120m Buffer)



0 10 20 40 Meters

SCALE 1:4,000



MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR

MAP CREATED BY: ZJB/EGG
MAP CHECKED BY: BM/WM
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

FILE LOCATION: K:\2024\248510\Product\Client\EIS\EIS.aprx



PROJECT: 24-8510
STATUS: DRAFT
DATE: 2025-12-09



REFLECTION SHORES

NATURAL HERITAGE FEATURES
FIGURE 2

-  Project Location (30 ha)
-  Study Area (120m Buffer)
- Lambton Shores Official Plan
 -  Significant Woodland
- MNRF
 -  Provincially Significant Wetland
 -  Unevaluated Wetland

0 10 20 40 Meters

SCALE 1:4,000



MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR, LAMBTON SHORES

MAP CREATED BY: ZJB/EGG
MAP CHECKED BY: BM/WM
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

FILE LOCATION: K:\2024\248510\Product\Client\EIS\EIS.aprx



PROJECT: 24-8510
STATUS: DRAFT
DATE: 2025-12-09



REFLECTION SHORES

SURVEY LOCATIONS AND
ECOLOGICAL LAND CLASSIFICATION
FIGURE 3

- Project Location (30 ha)
- Study Area (120m Buffer)
- Bird Survey Location
- Ecological Land Classification**
 - CGL: Greenlands (0.55 ha within Project Location)
 - CVR_1: Residential (0.00 ha within Project Location)
 - MEM: Mixed Meadow (4.15 ha within Project Location)
 - OAGM1: Annual Row Crops (24.70 ha within Project Location)
 - OAO: Open Water (0.00 ha within Project Location)
 - TAGM5: Fencerow (1.15 ha within Project Location)
 - WODM4-3: Sugar Maple Deciduous Woodland Type (0.00 ha within Project Location)
 - WODM5-1: Fresh-Moist Poplar Deciduous Woodland Type (0.04 ha within Project Location)
 - THDM2-1: Sumach Deciduous Shrub Thicket (0.00 ha within Project Location)

0 10 20 40 Meters

SCALE 1:4,000



MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR
MAP CREATED BY: ZJB/EGG
MAP CHECKED BY: BM/WM
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N
FILE LOCATION: K:\2024\248510\Product\Client\EIS\EIS.aprx



PROJECT: 24-8510
STATUS: DRAFT
DATE: 2025-12-10



FILE PATH: K:\2024\248510\Product\Client\EIS\EIS.aprx

REFLECTION SHORES

PROPOSED CONCEPT PLAN FIGURE 4

-  Study Area (120m Buffer)
-  Project Location (30 ha)
-  Dripline
-  Gully
-  Drain Location

Zoning

-  Low Density Residential
-  Low/Medium Density Residential
-  Medium Density Residential
-  Future Development
-  Parks/Open Space
-  Walkway
-  Proposed Road

0 25 50 100 Meters

SCALE 1:4,000



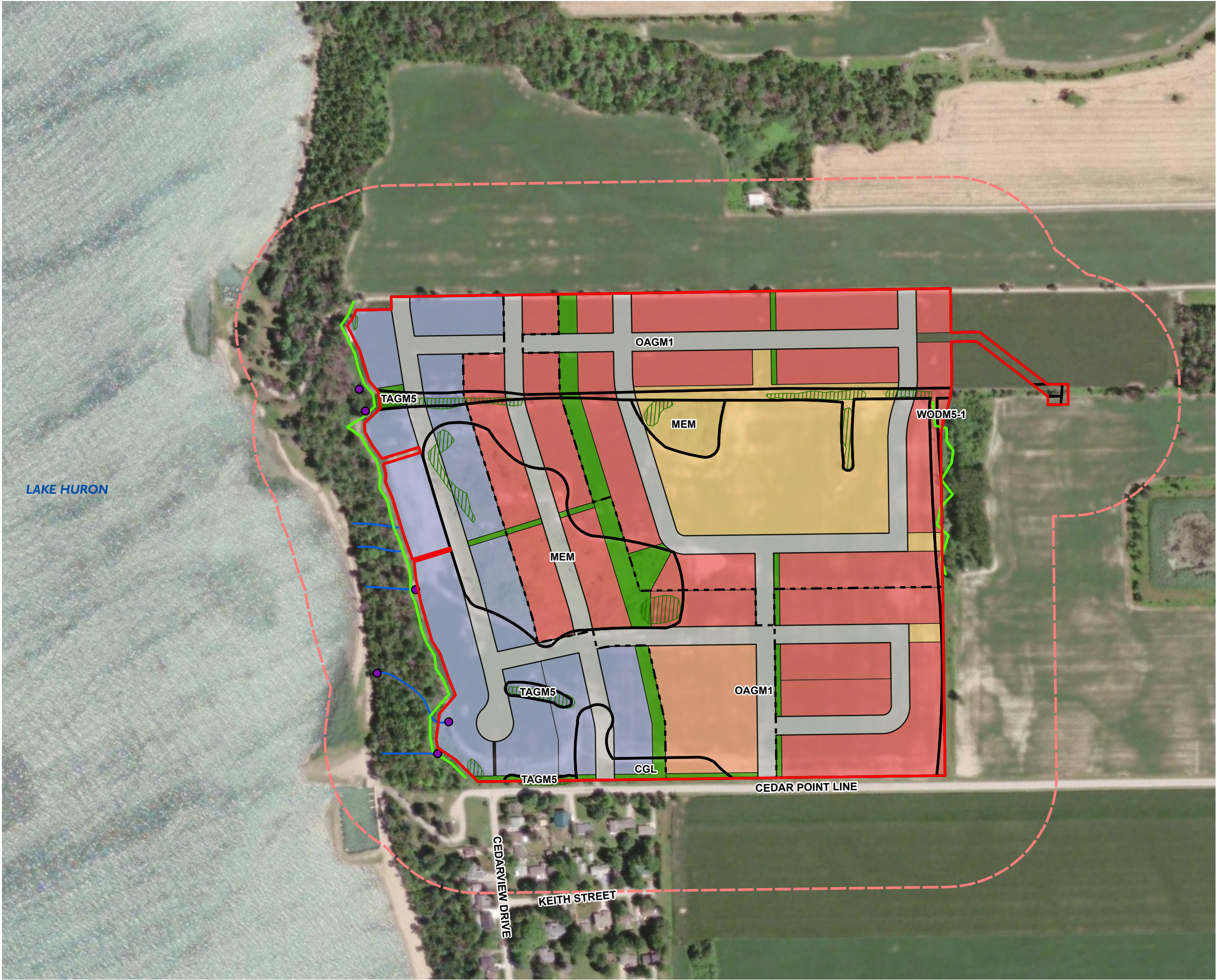
MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR

MAP CREATED BY: ZJB/EGG
MAP CHECKED BY: BM/WM
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

FILE LOCATION: K:\2024\248510\Product\Client\EIS\EIS.aprx



PROJECT: 25-8510
STATUS: DRAFT
DATE: 2025-12-09



REFLECTION SHORES

POTENTIAL IMPACTS

FIGURE 5

- Project Location (30 ha)
- Study Area (120m Buffer)
- Group of Trees (0.71 ha total area, 0.62 ha to be removed)
- Dripline
- Gully
- Drain Location
- Phase Limits
- Low Density Residential
- Medium Density Residential
- Low/Medium Density Residential
- Future Development
- Parks/Open Space
- Walkway
- Proposed Road
- Ecological Land Classification
 - CGL: Greenlands (0.44 ha to be removed)
 - MEM: Mixed Meadow (3.74 ha to be removed)
 - OAGM1: Annual Row Crops (23.78 ha to be removed)
 - TAGM5: Fencerow (1.06 ha to be removed)
 - WODM5-1: Fresh-Moist Poplar Deciduous Woodland Type (0.04 ha to be removed)

0 25 50 100 Meters

SCALE 1:4,000



MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR

MAP CREATED BY: ZJB/EGG
MAP CHECKED BY: BM/WM
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

FILE LOCATION: K:\2024\248510\Product\Client\EIS\EIS.aprx



PROJECT: 24-8510
STATUS: DRAFT
DATE: 2025-12-10

Appendix A

Terms of Reference



MEMO

TO: Will Nywening, Senior Planner, Municipality of Lambton Shores
Sarah Hodgkiss, Planning Ecologist, St. Clair Region Conservation Authority

FROM: Whitney Moore, Dillon Consulting Limited
Ron Antuma, Project Manager, Dillon Consulting Limited

DATE: October 5, 2018

SUBJECT: Environmental Impact Study Terms of Reference for the Reflection Shores North development in the Municipality of Lambton Shores, Ontario

OUR FILE: 14-1275

Introduction

Dillon Consulting Limited (Dillon) has been retained by Sifton Properties Ltd. to undertake environmental studies for a proposed Draft Plan of Subdivision, located in the Municipality of Lambton Shores, legally described as "Part Lot 74, Lake Road West, 25R2229 except Part 1 and 4, 25R2611 and Part 1, 25R4034; Part Lot 75, Lake Road West", Ontario (referred to as the "Study Area" herein; **Figure 1**). Sifton Properties Ltd. and Dillon are taking a pro-active approach to environmental-first planning and undertaking the appropriate environmental studies that are required to complete an Environmental Impact Study (EIS) and utilizing the results in the planning of this property.

In keeping with the general policies of the Municipality of Lambton Shores' (the "Municipality") Official Plan (2015), we have prepared the following EIS Terms of Reference (TOR). Below we present the TOR in a check-list format to confirm that the required work and/or studies are known and agreed to prior to the commencement of work, to facilitate a stream-lined and timely review process.

Terms of Reference

General

- ☒ The EIS will be undertaken by a qualified professional in environmental or related sciences to provincial standards and/or the satisfaction of the Municipality and/or Technical Advisory Committee (TAC).
- ☒ The EIS will describe the proposed development and required development applications.
- ☒ The EIS will describe and illustrate the boundaries of the Study Area, along with existing land use and details regarding the type of development.

Municipal and Agency Requirements

- ☒ The EIS will include the zoning and designations of the OP pertaining to the Study Area. This includes any land use designations from other applicable municipal planning and/or policy documents, such as Secondary Plans.
- ☒ Land use designations from any other applicable planning documents will be clearly described and the limits identified in the report mapping.
- ☒ The EIS will outline relevant federal, provincial, municipal, and agency legislation and policies related to the natural areas and designations that will be applied to the development, including but not limited to, the PPS, Municipal OP, St. Clair Region Conservation Authority (SCRCA) Policies and Regulations, subwatershed studies, etc. that may be relevant to the Study Area.
- ☒ The EIS will describe relevant municipal and agency issues that are to be addressed by this development (i.e. lot layout, grading, servicing, etc.) that may negatively impact the natural features and functions of a site including but not limited to, stormwater management, barriers, municipal or private sanitary, and water services, etc., based on information available from other disciplines.

Biophysical Inventory

- ☒ The EIS will identify the extent of natural heritage features, should they be located within or adjacent to the Study Area. Boundaries of natural heritage features will be confirmed in the field by the proponent, mapped on a figure in the report, and approved by the Municipality and/or TAC.
- ☒ Designated environmental features (i.e. natural hazard features or other natural heritage features identified in the OPs) are to be identified in the mapping and described in the report. These features include provincial or regional Areas of Natural and Scientific Interest (ANSIs), Provincially and Locally Significant Wetlands (PSWs and LSWs), Environmentally Significant Areas (ESAs), Significant Wildlife Habitat, Significant Woodlands, Significant Valleylands, unevaluated wetlands, etc.
- ☒ A description of the soils, landforms and surficial geology based on a review of available mapping and literature will be described in the report. Topographical information will be provided on constraints mapping and will include any staking done to date as well as the calculated hazard limits (i.e. top of bank or top of slope).
- ☒ Hydrological and hydrogeological resources and issues, including, surface water features, recharge/discharge zones, groundwater quality and quantity, groundwater elevations and flow directions, and connections between groundwater and surface water features will be identified in the report, based on information available from the other disciplines.

- ☒ The vegetation communities will be identified using the Ecological Land Classification (ELC) system to vegetation type during the appropriate season for the plant communities present, where possible. The communities will be identified in the mapping, as well as described in the text. As a component of the ELC, a plant list organized by ELC unit will be included in the report. The list will indicate any provincially, regionally and/or locally rare, Threatened or Endangered species. This should include information from the MNRF Aylmer District Office and NHIC.

Note: ELC was completed in July 2018.

- ☒ A single-season (summer) plant survey, as part of ELC, is required and will be included in the report. The list will include any provincially, regionally and/or locally rare status, including Species at Risk (SAR) listed as Threatened or Endangered under the Endangered Species Act (2007). This should include information from the MNRF Aylmer District Office and NHIC.

Note: The summer plant survey was completed in conjunction with ELC in July 2018.

- ☒ The EIS requires breeding bird surveys. The surveys will be conducted during the breeding bird season at an appropriate time of day in appropriate weather conditions and by a qualified professional. A minimum of two surveys are required and they will follow generally accepted scientific protocols, not necessarily atlas methods. A list of the breeding birds will be included in the report. The list will include an analysis for the presence of SAR and Species of Conservation Concern. Watershed rarity status will be determined in conjunction with SCRCA.

Note: Breeding bird surveys were completed in June 2018.

- ☐ The EIS requires amphibian breeding surveys. The surveys will be conducted during the breeding amphibian season and by a qualified professional. For calling amphibians a minimum of three surveys are required. These surveys will use the Marsh Monitoring Program protocol. For non-calling amphibians, appropriate methodology will be used. A list of the breeding amphibians will be included in the report. The list will include an analysis for the presence of federal, provincial, threatened or endangered species. Watershed rarity status will be determined in conjunction with SCRCA.

Note: Due to the timing of project initiation, amphibian breeding surveys were not conducted. It should be noted that areas of wetland (including designated PSW) will be protected through the planning process with a 30 m buffer and as a result, potential amphibian breeding habitat within the Study Area will be also be protected. If amphibian surveys are required they can be completed as an addendum to the EIS in spring 2019.

- ☒ A fisheries habitat assessment will be provided due to the presence of suitable fish habitat. Existing data regarding fish species will be obtained from SCRCA and/or the MNRF and used for the fisheries assessment. The assessment will include a description of watercourses or other fish habitat on and/or adjacent to the Study Area.

Note: Two tributaries were identified within the Study Area. An aquatic assessment was complete in July 2018.

- ☐ The fisheries assessment will include community sampling through electrofishing and/or netting during the appropriate season, under a collection permit issued by the MNRF.

Note: No community sampling is proposed for the Study Area. Existing data regarding fish species will be obtained from SCRCA and/or the MNRF. Watercourses will be protected through the planning process.

- ☒ Incidental wildlife observed will be reported on and included in the report. The list will include an analysis for the presence of SAR, and Species of Conservation Concern. Watershed rarity status will be determined in conjunction with SCRCA.

Biophysical Analysis

- ☒ A biophysical analysis of the Study Area describing the ecology of the natural heritage features and functions (including components of the natural heritage system) within and adjacent to the Study Area should be provided. The analysis may include ecological function, wetland functions, natural heritage features and landscapes, benefits of importance to humans, and corridors and linkages, as required. A figure is to be provided which clearly shows the limits of features (including hazards), as well as their proposed setbacks and rationales.
- ☒ Mapping (at a minimum) will consist of the following:
- a) Mapping will include a title, figure number, north arrow, legend and scale or scale bar.
 - b) The extent of natural heritage features identified will be clearly demarcated on an air photo base, if applicable.
 - c) Vegetation communities will be delineated and identified using ELC.
 - d) The location of SAR, rare species, and/or populations will be identified, if appropriate.
 - e) The location of important wildlife features (i.e. hibernacula, den, stick nest, etc.) will be identified.
 - f) Mapping will be done at a scale as agreed to by Municipality and/or TAC).
- ☒ The biophysical analysis will address current policy, technical documents and legislation including but not limited to, the PPS (2014), Natural Heritage Reference Manual (2010), Significant Wildlife Habitat Technical Guide (2000), Significant Wildlife Habitat Ecoregion 7E Criteria Schedules (2015), etc.
- ☒ A visit to the site may be requested by the Municipality and/or TAC prior to, during, or upon receipt of the EIS.
- ☒ The staking of significant natural features boundaries (i.e. woodland, wetland boundaries, etc.) by Municipality and/or TAC may be requested. Staking will generally occur between the end of May and the end of October. Any staking that occurs outside of this time may require a confirmatory visit between May and October.

Development Proposal

- ☒ The EIS will, at a minimum, include a preliminary site plan showing the type(s) and location(s) of the proposed development overlaid on a recent orthophoto. The site plan will clearly show setbacks and/or buffers, including distances from proposed development areas and proposed structures to lot lines and/or to environmental features and functions designated for protection, where applicable.
- ☒ The EIS will describe other relevant issues (i.e. servicing, stormwater management, municipal drainage, open space dedication, hazards, etc.) from an ecological perspective, pending receipt of relevant reports from other disciplines, should they have the potential to impact the identified natural hazard/heritage features. These can be highlighted within the proposed development description or, where applicable, under the potential impact assessment.

Assessment of Ecological Impacts

- ☒ The potential impacts to the features and functions of natural areas will be identified and discussed.
- ☒ An assessment of the potential impact on significant wildlife habitat at a local, watershed and provincial (if applicable) level will be provided using the Ecoregion 7E Criterion Schedules (MNR 2015).
- ☒ In the case of significant natural heritage features and other significant natural features (as confirmed through field studies), the EIS will demonstrate that there is no development or site alteration within the feature with the exception of uses as specified in the OP and/or prior approvals. The EIS should determine appropriate buffers from significant natural features.
- ☒ If applicable, where natural features or natural vegetation communities are proposed for removal, the quantity of removal will also be included.
- ☒ The EIS should include one or more figures which overlays the proposed development on the ecological constraints of the site. The analyses should determine the area(s) and type(s) of natural features and function that may be directly and/or indirectly impacted by the proposed development. Proposed buffers which will protect natural features and functions should be clearly shown on figures, and rationale for buffer distances provided.

Analysis of Mitigation Measures

- ☒ Avoidance of natural heritage features is the preferred approach to mitigation unless otherwise specified in the OP and/or prior approvals.

- ☒ In cases where a natural hazard feature has been identified on a property, the EIS will demonstrate how natural heritage, natural resource and/or servicing considerations (i.e. grading) should be integrated into the proposed development plan.
- ☒ The EIS should provide a detailed outline of mitigation measures intended to eliminate or reduce potential construction-related impacts to areas designated for protection. Recommendations for Best Management Practices during construction should be provided. This may include silt fencing, tree protection, fencing, identification of timing or seasonal constraints to construction or restoration, etc.
- ☒ The EIS will list and describe mitigation measures to eliminate or reduce negative impacts to the natural areas features and functions, including but not limited to, edge management plans, buffer plantings, sediment control, low impact designs (LID), etc.
- ☒ Mitigation for negative impacts on the natural features or their ecological functions (or to achieve no net negative impact) may include, at the discretion of the Municipality and/or TAC, approaches to replace lost areas or functions. If acceptable, replacement will, to the extent possible, occur within the same subwatershed as the proposed development or site alteration. The appropriate amount of replacement will be determined through discussions with Municipality and/or TAC and will be agreed to by all parties in writing. Should there be a potential for the loss of a feature, or part of a feature, the potential removal and/or compensation will be addressed through correspondence with Municipality and/or TAC.
- ☒ If monitoring is required, the details of a monitoring program will be agreed to in writing by SCRCA, planning authority, and other parties.

Conclusions

The EIS will address the following:

- ☒ Conformity with the policies and requirements of the County of Lambton Official Plan.
- ☒ Conformity with the policies and requirements of the Municipality of Lambton Shores Official Plan.
- ☒ Conformity with the requirements of SCRCA.

Species at Risk

Should any SAR or their habitat be identified during the EIS process and confirmed in the field, the MNRF will be notified and we will address any SAR requirements as outlined in the *Endangered Species Act* (2007) under separate cover with MNRF. SCRCA will be informed of MNRF approvals that are required, as necessary.

Information Request

At this time we are requesting any of the following background information from SCRCA, if available:

- Watercourse/drain classifications and thermal stream classifications
- Fish community information
- Natural environment studies in and/or adjacent to the Study Area
- Regionally or locally significant/rare flora, fauna, vegetation communities
- Any additional natural environment data you may have for the indicated area
- GIS mapping
 - regulation limits,
 - floodplain mapping.

We would to thank you for your time in establishing these Terms of Reference with us and look forward to working together with you on this and other projects as we move forward.

Please let me know if you have any questions.

Yours sincerely,

DILLON CONSULTING LIMITED



Whitney Moore, B.Sc. (Hons)
Biologist

DILLON CONSULTING LIMITED

3200 Deziel Drive, Suite 608, Windsor, Ontario, N8W 5K8 ♦ Telephone: (519) 948-5000 ♦ Fax: (519) 948-5054

www.dillon.ca

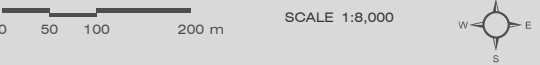


Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

**SIFTON PROPERTIES LIMITED
REFLECTION SHORES NORTH
MUNICIPALITY OF LAMBTON SHORES**

PROJECT LOCATION
FIGURE 1

-  Property Boundary
-  Watercourse
-  Waterbody



MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR

MAP CREATED BY: CE
MAP CHECKED BY: WM
MAP PROJECTION: NAD 1983 UTM Zone 17N



PROJECT: 14-1275
STATUS: DRAFT
DATE: 2018-04-27

Appendix B

Background Mapping



County of Lambton

OFFICIAL PLAN

MAP 1 - Growth Strategy

Reference

Growth Strategy DESIGNATION BOUNDARIES are SCHEMATIC

Disclaimer: These digital mapping products have been produced on the County of Lambton's Geographic Information System. Data provided herein is derived from sources with varying levels of accuracy and currency. This is not a survey product. The County of Lambton disclaims all responsibility for the accuracy or completeness of information contained herein. The County of Lambton assumes no responsibility for errors arising from use of these digital mapping products.

The Lambton County Official Plan information contained herein is current as of the last recorded amendment noted under "County Official Plan Amendments".

Projection: UTM NAD 83 Zone 17

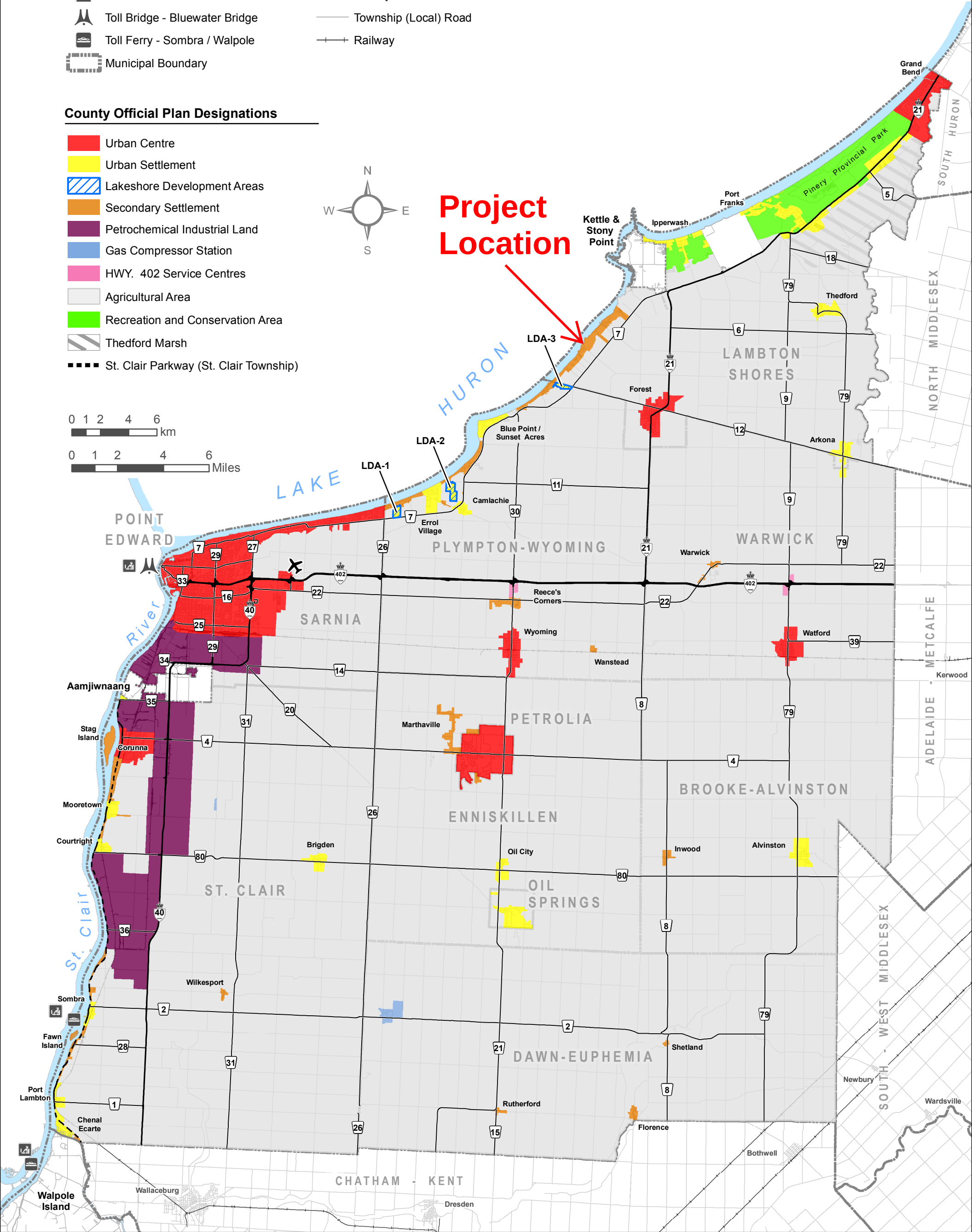
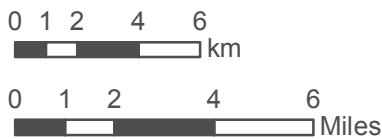
COUNTY OF LAMBTON
Planning and Development Services,
August, 2019. www.lambtononline.ca

Legend

- Airport - Sarnia
- Canada / USA Customs
- Toll Bridge - Bluewater Bridge
- Toll Ferry - Sombra / Walpole
- Municipal Boundary
- Provincial Highway
- County Road
- Township (Local) Road
- Railway

County Official Plan Designations

- Urban Centre
- Urban Settlement
- Lakeshore Development Areas
- Secondary Settlement
- Petrochemical Industrial Land
- Gas Compressor Station
- HWY. 402 Service Centres
- Agricultural Area
- Recreation and Conservation Area
- Thedford Marsh
- St. Clair Parkway (St. Clair Township)





County of Lambton

OFFICIAL PLAN

MAP 2 - Natural Heritage System

Legend

- Provincial Highway
- County Road
- Township (Local) Road
- Railway
- Municipal Boundary

Natural Heritage System Features

Refer to "Chapter 8" of the Official Plan regarding features not identified on MAP 2

- Core Area - Feature Inventory Identifier
- Feature Inventory Identifier (Generalized)
- Cross Municipal - Feature Inventory Identifier
- Conservation Area / Habitat Management Area (HMA) Identifier
- Group "A" Features
(Provincially, Locally Significant Wetlands (PSW, LSW))
- Group "B" Features
(ANSI, LS, ESA, SAA, CGP, CC, WA, PC)
- Primary Corridor (Group "C" Feature)
- Thedford Marsh
- Cross Municipal Corridor Feature

County Official Plan Amendments

OPA # xx, xxxxxx xx, 20xx

Reference

Natural Heritage System BOUNDARIES are SCHEMATIC

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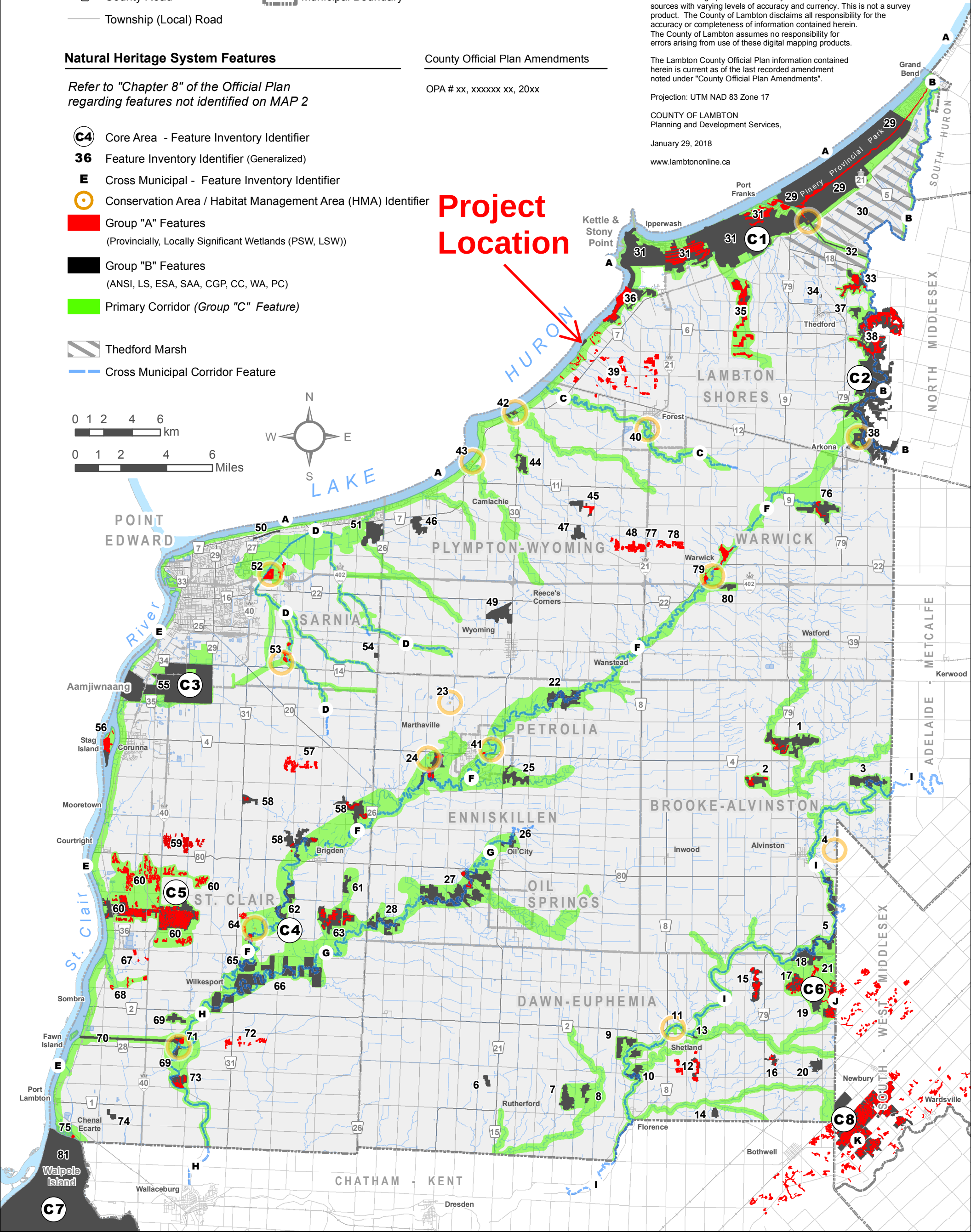
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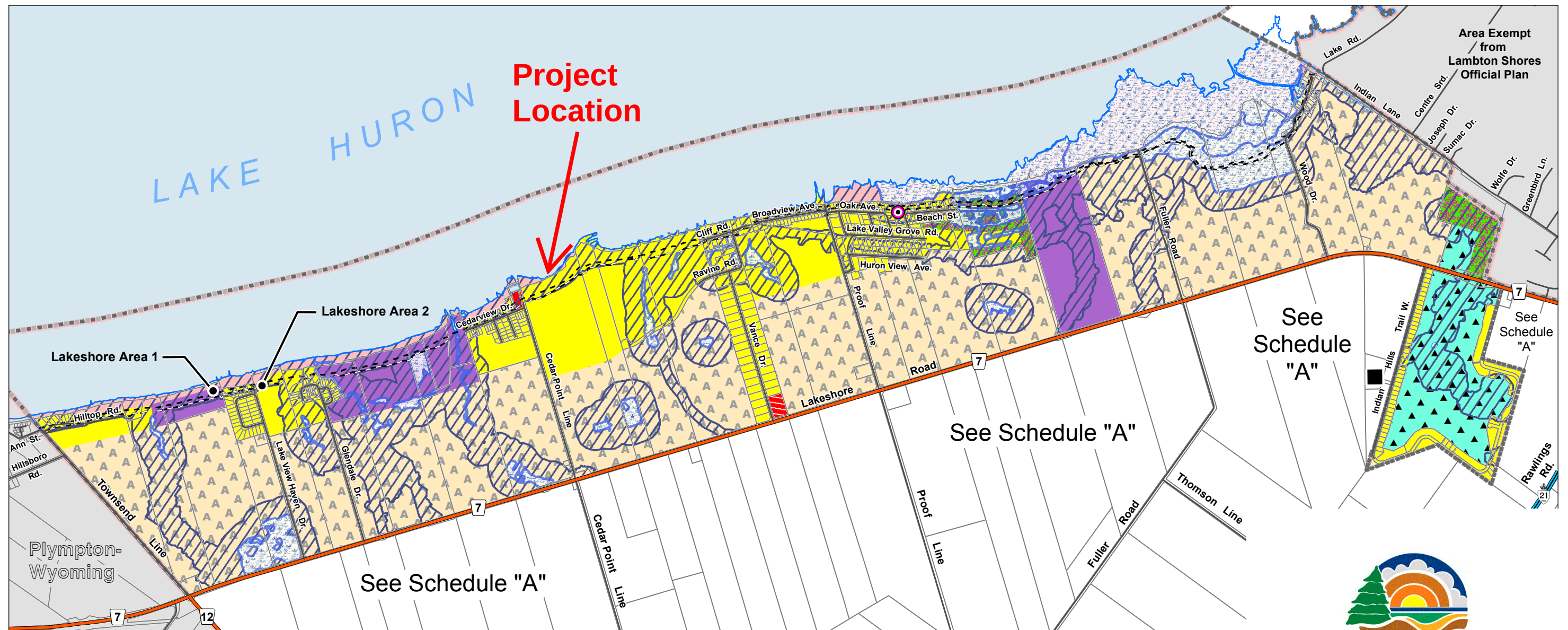
COUNTY OF LAMBTON
Planning and Development Services,

January 29, 2018

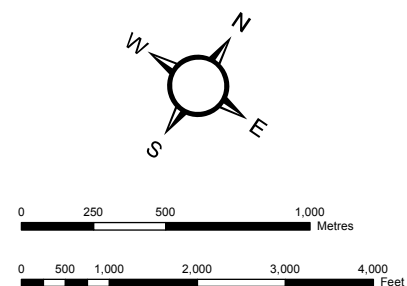
www.lambtononline.ca

Project Location





The Municipality of
Lambton Shores
OFFICIAL PLAN
SCHEDULE "A5"
(West Bosanquet)

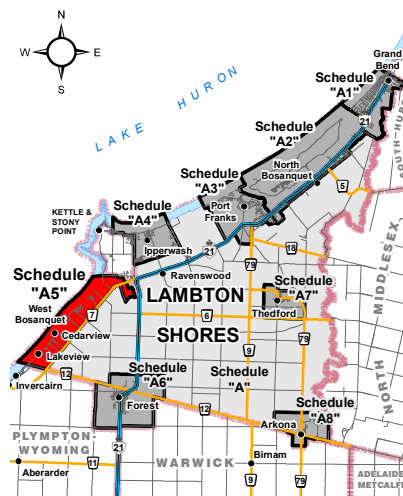


LEGEND

- | | |
|-----------------------------|--|
| Assessment Parcels | Waterbodies |
| Rivers - Streams - Drainage | Sewage Treatment Works |
| Roads | Active or Former Waste Disposal Site (Anderson Dataset : Lambton GWS 2004) |
| County Road | Municipal Boundary |
| Provincial Highway | Schedule Inset Boundary |
| Railroad | |
| Cemetery | |

Official Plan - Designations

- | | |
|-----------------------------|-------------------------|
| Agriculture | Wetland (MNR - OWES) |
| Residential | General Regulation Area |
| Commercial | Hazard Area |
| Highway Commercial | Lakeshore Area 1 |
| Campgrounds & Trailer Parks | Lakeshore Area 2 |
| Open Space | |
| Lakeshore | |
| Natural Environment | |



Reference

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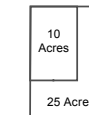
- Cadastral database is current to June 2013.
- Wetlands database is current to June 2014 (MNR).
- General Regulation and Hazard Areas are determined by local Conservation Authorities and are Subject to Change (Dec 2013).

Projection: UTM NAD 83 Zone 17

COUNTY OF LAMBTON
Planning and Development Services, January 2019

www.lambtononline.ca

Area Estimator



Notes: Area Estimator generalized blocks (shown at left) are scaled to represent typical area measures.

Area Estimator is properly scaled for Main Map ONLY.

Acre area measures can be converted to hectares (ha) by dividing by (2.471).



The Municipality of
Lambton Shores
OFFICIAL PLAN
SCHEDULE "A5"
(West Bosanquet)

to By-law No. 106 of 2015

Passed this 24 day of Nov, 2015

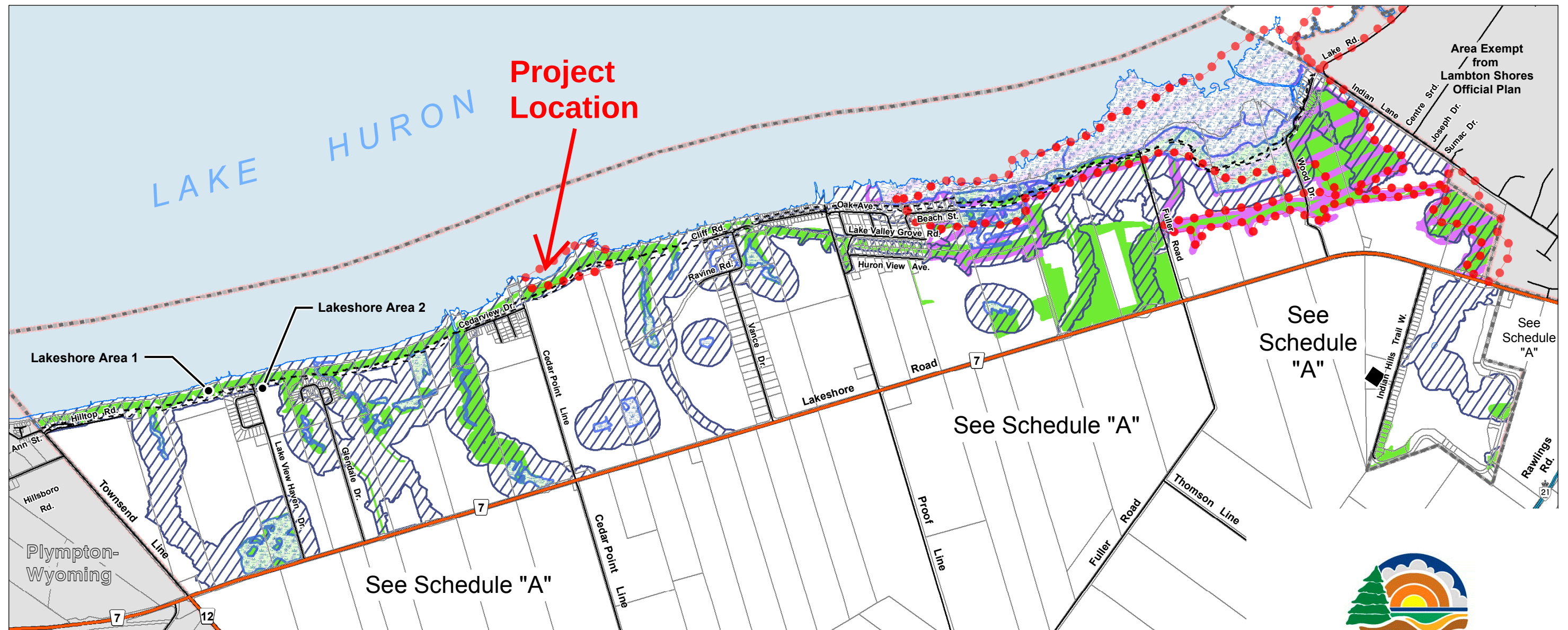
Bill Weber, Mayor

Carol McKenzie, Clerk

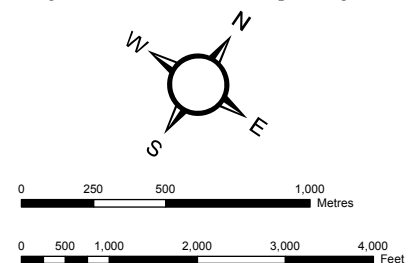
Official Plan Amendments

OPA # xx, xxxxxx xx, 20xx





The Municipality of Lambton Shores OFFICIAL PLAN SCHEDULE "A5" Natural Heritage (West Bosanquet)

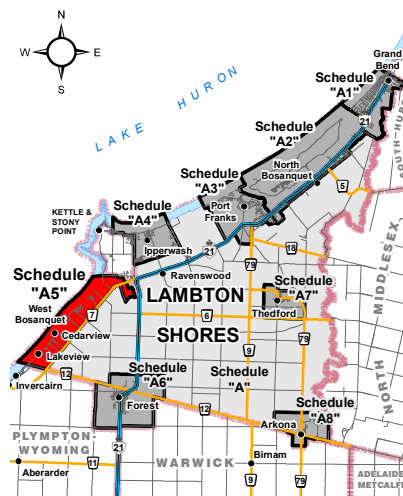


LEGEND

- | | |
|-----------------------------|--|
| Assessment Parcels | Waterbodies |
| Rivers - Streams - Drainage | Sewage Treatment Works |
| Roads | Active or Former Waste Disposal Site (Anderson Dataset : Lambton GWS 2004) |
| County Road | Municipal Boundary |
| Provincial Highway | Schedule Inset Boundary |
| Railroad | |

Official Plan - Designations

- ANSI (MNR)
- Wetland (MNR - OWES)
- General Regulation Area
- ESA (Lamb Study 1979-1980)
- Lakeshore Area 1
- Lakeshore Area 2
- Significant Woodlot (LCNHS)



Reference

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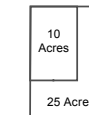
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Projection: UTM NAD 83 Zone 17

COUNTY OF LAMBTON
Planning and Development Services, January 2019

www.lambtononline.ca

Area Estimator



Notes: Area Estimator generalized blocks (shown at left) are scaled to represent typical area measures.

Area Estimator is properly scaled for Main Map ONLY.

Acre area measures can be converted to hectares (ha) by dividing by (2.471).



The Municipality of Lambton Shores OFFICIAL PLAN SCHEDULE "A5" - Natural Heritage (West Bosanquet)

to By-law No. 106 of 2015

Passed this 24 day of Nov, 2015

Bill Weber, Mayor

Carol McKenzie, Clerk

Official Plan Amendments

OPA # xx, xxxxxx xx, 20xx



Project
Location

Shoreline Hazard Areas 1 and 2

Specific development guidelines apply in these areas.

-  Shoreline Area 1
-  Shoreline Area 2

Areas Affected by O. Regulation 41/24

If development is proposed in these areas, a permit may be required.



Watercourses\Drains



Lots and Concessions



SCRCA Owned/Managed Lands

Lands that are owned and/or managed by the SCRCA or it's Foundation.



SCRCA Watershed Boundary



100 m
500 ft





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

Conservation Reserve

Provincial Park

Natural Heritage System



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Projection: Web Mercator



Appendix C

Site Photographs

Photograph 1

August 23, 2019

Looking east from within the Mixed Meadow community.



Photograph 2

August 23, 2019

Looking southwest from the northern corner of the Project Location.

Note: Annual Row Crops (OAGM1; left) and Sugar Maple Deciduous Woodland Type (WODM4-3; right).



Photograph 3

August 23, 2019

Looking northeast from the southern corner of the Project Location.

Note: Annual Row Crops (OAGM1; left and right), Fencerow (TAGM5; centre), and Fresh-Moist Poplar Deciduous Woodland Type (WODM5-1; background).



Photograph 4

August 23, 2019

Looking south from the northern corner of the Project Location.

Note: Annual Row Crops (OAGM1; foreground) and Mixed Meadow (MEM; background).



Photograph 5

August 23, 2019

Looking southeast from the northern corner of the Project Location.

Note: Fencerow (TAGM5; left) and Annual Row Crops (OAGM1; right).



Photograph 6

August 23, 2019

Looking northwest from the southern corner of the Project Location.

Note: Annual Row Crops (OAGM1).



Photograph 7

January 24, 2023

Looking south from north of the inland woodland.

Note: Fresh-Moist Poplar Deciduous Woodland Type (WODM5-1; left) and Annual Row Crops (OAGM1; right).



Photograph 8

January 24, 2023

Near the western part of the Significant Woodland looking north.

Note: This treed area does not have appropriate woody stem densities representative of a woodland/forest. The Significant Woodland (WODM4-3) is seen in the background.



Photograph 9

January 24, 2023

Near the western part of the Significant Woodland looking east.

Note: This treed area does not have appropriate woody stem densities representative of a woodland/forest. The Significant Woodland (WODM4-3) is seen to the left.



Appendix D

Plant List

Table 1: Plant Species identified within the Project Location

Family	Scientific Name	Common Name	SARA Status ¹	ESA Status ²	SRank ³	CC ⁴	CW ⁵	Invasive Priority for Control ⁶	Noxious	WODM4-3	MEM
Cupressaceae	<i>Juniperus virginiana</i>	Eastern Red Cedar	---	---	S5	4	3	---	---	•	•
Poaceae	<i>Dactylis glomerata</i>	Orchard Grass	---	---	SNA	---	3	C3	---	•	•
Poaceae	<i>Phragmites australis ssp. australis</i>	European Common Reed	---	---	SNA	---	-4	C1	---	•	•
Poaceae	<i>Schedonorus pratensis</i>	Meadow Fescue	---	---	SNA	---	4	C2	---		•
Poaceae	<i>Setaria viridis</i>	Green Foxtail	---	---	SNA	---	5	---	---		•
Liliaceae	<i>Maianthemum racemosum</i>	False Solomon's-seal	---	---	S5	4	3	---	---	•	
Apiaceae	<i>Daucus carota</i>	Wild Carrot	---	---	SNA	---	5	C4	---	•	•
Asteraceae	<i>Ambrosia artemisiifolia</i>	Annual Ragweed	---	---	S5	0	3	---	Y		•
Asteraceae	<i>Cirsium arvense</i>	Canada Thistle	---	---	SNA	---	3	C3	---		•
Asteraceae	<i>Cirsium vulgare</i>	Bull Thistle	---	---	SNA	---	4	---	Y		•
Asteraceae	<i>Euthamia graminifolia</i>	Grass-leaved Goldenrod	---	---	S5	2	-2	---	---		•
Asteraceae	<i>Solidago altissima ssp. altissima</i>	Eastern Late Goldenrod	---	---	S5	1	3	---	---	•	•
Brassicaceae	<i>Alliaria petiolata</i>	Garlic Mustard	---	---	SNA	---	0	C1	---	•	
Cornaceae	<i>Cornus racemosa</i>	Gray Dogwood	---	---	S5	2	-2	---	---	•	•
Dipsacaceae	<i>Dipsacus fullonum</i>	Fuller's Teasel	---	---	SE5	---	5	C3	---		•
Fabaceae	<i>Robinia pseudoacacia</i>	Black Locust	---	---	SNA	---	4	C3	---	•	
Betulaceae	<i>Ostrya virginiana</i>	Eastern Hop-hornbeam	---	---	S5	4	4	---	---	•	
Fagaceae	<i>Quercus macrocarpa</i>	Bur Oak	---	---	S5	5	1	---	---	•	
Asclepiadaceae	<i>Asclepias syriaca</i>	Common Milkweed	---	---	S5	0	5	---	---		•
Balsaminaceae	<i>Impatiens capensis</i>	Spotted Jewelweed	---	---	S5	4	-3	---	---	•	
Lamiaceae	<i>Leonurus cardiaca</i>	Common Motherwort	---	---	SNA	---	5	---	---	•	

Table 1 – Plant Species 2

Family	Scientific Name	Common Name	SARA Status ¹	ESA Status ²	SRank ³	CC ⁴	CW ⁵	Invasive Priority for Control ⁶	Noxious	WODM4-3	MEM
<i>Tiliaceae</i>	<i>Tilia americana</i>	American Basswood	---	---	S5	4	3	---	---	•	
<i>Onagraceae</i>	<i>Circaea canadensis</i>	Broad-leaved Enchanter's Nightshade	---	---	S5	3	3	---	---	•	
<i>Polygonaceae</i>	<i>Rumex crispus</i>	Curly Dock	---	---	SNA	---	-1	---	---		•
<i>Rhamnaceae</i>	<i>Rhamnus cathartica</i>	Common Buckthorn	---	---	SNA	---	3	C1	Y	•	
<i>Vitaceae</i>	<i>Parthenocissus quinquefolia</i>	Virginia Creeper	---	---	S4?	6	1	---	---	•	•
<i>Vitaceae</i>	<i>Vitis riparia</i>	Riverbank Grape	---	---	S5	0	-2	---	---	•	•
<i>Rosaceae</i>	<i>Prunus avium</i>	Sweet Cherry	---	---	SNA	---	5	---	---	•	
<i>Rosaceae</i>	<i>Rosa multiflora</i>	Multiflora Rose	---	---	SNA	---	3	C2	---		•
<i>Rosaceae</i>	<i>Rubus idaeus ssp. idaeus</i>	Common Red Raspberry	---	---	SNA	---	5	---	---	•	•
<i>Salicaceae</i>	<i>Populus deltoides ssp. deltoides</i>	Eastern Cottonwood	---	---	S5	4	-1	---	---		•
<i>Salicaceae</i>	<i>Populus tremuloides</i>	Trembling Aspen	---	---	S5	2	0	---	---	•	
<i>Aceraceae</i>	<i>Acer negundo</i>	Manitoba Maple	---	---	S5	0	-2	C2	---	•	
<i>Aceraceae</i>	<i>Acer saccharum</i>	Sugar Maple	---	---	S5	4	3	---	---	•	
<i>Anacardiaceae</i>	<i>Rhus hirta</i>	Staghorn Sumac	---	---	S5	1	5	---	---	•	•
<i>Anacardiaceae</i>	<i>Toxicodendron radicans</i>	Climbing Poison Ivy	---	---	S5	5	-1	---	Y	•	
<i>Oleaceae</i>	<i>Fraxinus pennsylvanica</i>	Green Ash	---	---	S4	3	-3	---	---	•	
<i>Moraceae</i>	<i>Morus alba</i>	White Mulberry	---	---	SNA	---	0	C1	---	•	
<i>Ulmaceae</i>	<i>Ulmus americana</i>	American Elm	---	---	S5	3	-2	---	---	•	

1 – Status identified by the Committee on the Status of Endangered Wildlife in Canada under the federal Species at Risk Act, 2002;

2 – Species at Risk in Ontario List under the provincial Endangered Species Act, 2007;

3 – Ontario Conservation SRank; S5 = widespread and secure; S4 = common and apparently secure; S3 = rare to uncommon and vulnerable; S2 = very rare and imperilled; S1 = extremely rare and critically imperilled; SH = possibly extirpated (historical); SNR = unranked; SNA = not applicable; SX = extirpated; SU or ? = uncertain due to insufficient information;

4 – Coefficient of Conservatism (CC) (Floristic Quality Assessment System for Southern Ontario 1995). Each native taxon is assigned a rank of 0 to 10 ("coefficient of conservatism") based on its degree of fidelity to a range of synecological parameters. Species found in a wide variety of plant communities, including disturbed sites, are assigned ranks of 0 to 3. Species that are typically associated with

a specific plant community, but tolerate moderate disturbance, are assigned ranks of 4 to 6. Rankings of 7 to 8 were applied to those species associated with a plant community in an advanced successional stage that has undergone minor disturbance. Those species with high degrees of fidelity to a narrow range of synecological parameters are assigned a value of 9 to 10;

5 – Coefficient of Wetness (CW) (Floristic Quality Assessment System for Southern Ontario 1995). The wetness index gives an indication of where plant species are typically found. A wetness value (coefficient of wetness) between -5 and 5. A value of -5 was assigned to Obligate Wetland (OBL) species and a value of 5 to Obligate Upland species (UPL), with intermediate values assigned to the remaining categories. The wetland categories and their corresponding values are as follows:

OBL (-5) Obligate Wetland - Occurs almost always in wetlands under natural conditions (estimated > 99% probability).

FACW+ (-4) Facultative Wetland - Usually occurs in wetlands, but occasionally found in non-wetlands (estimated 67-99% probability).

FACW (-3)

FACW- (-2)

FAC + (-1) Facultative - Equally likely to occur in wetlands or non-wetlands (estimated 34-66% probability).

FAC 0

FAC- (1)

FACU+ (2) Facultative Upland - Occasionally occurs in wetlands, but usually occurs in non-wetlands (estimated 1-33 % probability).

FACU (3)

FACU- (4)

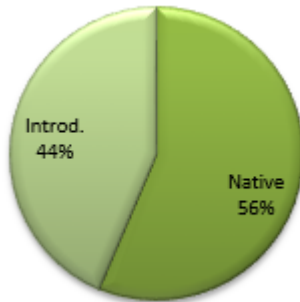
UPL (5) Obligate Upland - Occurs almost never in wetlands under natural conditions (estimated <1 % probability).

6 – Invasive Exotic Plant Species Rankings for Southern Ontario (Society for Ecological Restoration Ontario, 2025). Category 1 (C1) - Top Priority. Widespread invasive species that exclude most other species and dominate sites indefinitely. Some are an imminent threat to human health, and some are restricted by Ontario laws. They are the top priority for control but control may be difficult and some are beyond control at present. Bio-controls may be the only effective long-term control option. Plants in this category are a threat to natural areas wherever they occur because they disperse widely and quickly, and benefit from human disturbances. Control where possible and do not plant. Category 2 (C2) – Medium Priority. Less widespread or localized invasives that are a serious concern because they have a large or permanent effect once they become dominant and they will spread more widely in time. They may dominate the niche so the native plants that would have been present are excluded, or they alter a natural process that maintains the habitat. Some are capable of becoming Category 1 species if given time and may already be so in some places, so are a priority for removal. These species disperse widely and so are a threat to biodiversity wherever they occur. Control where possible and do not plant. Category 3 (C3) – Local Priority. Species that spread locally or persist and reproduce from initial introductions, but may have a negligible affect on biodiversity over the long term because they eventually become integrated into natural systems or will be dominated by natives, die out, or are only found on highly disturbed habitats and don't remain dominant over the long term. They take up space that could be occupied by native species and do not provide the same natural functions as the natives they replace. Some may be Category 2 in some parts of Ontario or in particular vegetation community types. Replace with native species wherever possible and do not plant. Category 4 (C4) – Species to Watch. Species that have been observed spreading occasionally and currently appear to have minimal effects on biodiversity but may in the future. These species should be monitored to assess impacts. Control where desired and do not plant.

Appendix E

Floristics Data

Floristics data for all communities as shown in Appendix D - Plant List

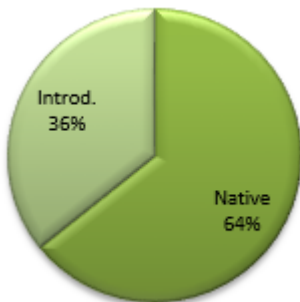


Mean Coefficient of Conservatism		
Native Spp.	All Spp.	Scale
		10.00
		9.50
		9.00
		8.50
		8.00
		7.50
		7.00
		6.50
		6.00
		5.50
		5.00
		4.50
		4.00
		3.50
		3.00
2.59		
	1.46	2.50
		2.00
		1.50
		1.00
		0.50
		0.00
		0.00

Floristic Quality Index (FQI)			
Native Spp.	All Spp.	Scale	
		100.00	>50 Extremely rare and represent a significant component of Ontario's native biodiversity and natural landscapes
		95.00	
		90.00	
		85.00	
		80.00	
		75.00	
		70.00	
		65.00	
		60.00	
		55.00	
		50.00	
		45.00	
		40.00	
		35.00	
		30.00	
25.00			
20.00	<20 Minimal significance from a natural quality perspective		
15.00			
10.00			
12.15			
	9.13	5.00	
		0.00	

Mean Coefficient of Wetness			
Native Species	All Species	Scale	
		5.0	<i>Strong</i>
		4.5	
		4.0	
		3.5	
		3.0	
		2.5	
		2.0	
		1.5	
	1.79		Pedominance of upland species
1.32	1.0		
	0.5	<i>Slight</i>	
	0.0		
		-0.5	<i>Slight</i>
		-1.0	
		-1.5	
		-2.0	
		-2.5	
		-3.0	
		-3.5	
		-4.0	
			Predominance of wetland species
	-4.5		
	-5.0		
			<i>Strong</i>

Floristics data for the WODM4-3 community as shown in Appendix D - Plant List

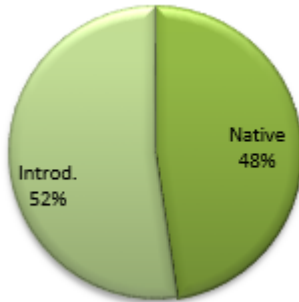


Mean Coefficient of Conservatism		
Native Spp.	All Spp.	Scale
		10.00
		9.50
		9.00
		8.50
		8.00
		7.50
		7.00
		6.50
		6.00
		5.50
		5.00
		4.50
		4.00
		3.50
		3.00
2.83		2.50
	1.82	2.00
		1.50
		1.00
		0.50
		0.00

Floristic Quality Index (FQI)		
Native Spp.	All Spp.	Scale
		100.00
		95.00
		90.00
		85.00
		80.00
		75.00
		70.00
		65.00
		60.00
		55.00
		50.00
		45.00
		40.00
		35.00
		30.00
		25.00
		20.00
		15.00
		10.00
		5.00
		0.00
		>50 Extremely rare and represent a significant component of Ontario's native biodiversity and natural landscapes
		>35 Possess sufficient conservatism and richness to be floristically important from a Provincial perspective
		<20 Minimal significance from a natural quality perspective
12.02		
	9.64	

Mean Coefficient of Wetness			
Native Species	All Species	Scale	
1.17		5.0	<i>Strong</i>
		4.5	
		4.0	
		3.5	
		3.0	
		2.5	
		2.0	
		1.5	
		1.0	
	0.5	<i>Slight</i>	
	0.0		
	-0.5		
	-1.0	<i>Slight</i>	
	-1.5		
	-2.0		
	-2.5		
	-3.0		
-3.5			
-4.0			
-4.5			
-5.0	<i>Strong</i>		
		Predominance of upland species	
		Predominance of wetland species	

Floristics data for the MEM community as shown in Appendix D - Plant List



Mean Coefficient of Conservatism		
Native Spp.	All Spp.	Scale
		10.00
		9.50
		9.00
		8.50
		8.00
		7.50
		7.00
		6.50
		6.00
		5.50
		5.00
		4.50
		4.00
		3.50
		3.00
		2.50
2.00		2.00
		1.50
		1.00
	0.95	0.50
		0.00

Floristic Quality Index (FQI)			
Native Spp.	All Spp.	Scale	
		100.00	>50 Extremely rare and represent a significant component of Ontario's native biodiversity and natural landscapes
		95.00	
		90.00	
		85.00	
		80.00	
		75.00	
		70.00	
		65.00	
		60.00	
		55.00	
		50.00	
		45.00	
		40.00	
		35.00	
		30.00	
25.00			
20.00	<20 Minimal significance from a natural quality perspective		
15.00			
10.00			
6.32		5.00	
		0.00	

Mean Coefficient of Wetness			
Native Species	All Species	Scale	
		5.0	<i>Strong</i> Pedominance of upland species
		4.5	
		4.0	
		3.5	
		3.0	
		2.5	
		2.0	
		1.5	
		1.0	
		0.5	
2.00	2.29	0.0	<i>Slight</i>
		-0.5	<i>Slight</i> Predominance of wetland species
		-1.0	
		-1.5	
		-2.0	
		-2.5	
		-3.0	
		-3.5	
		-4.0	
		-4.5	
		-5.0	
			<i>Strong</i>

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