3563 Bostwick Road, Westwinds Subdivision

Environmental Impact Study (EIS)

Project Location:
3563 Bostwick Road
Lot 75 East of Talbot Road, Westminster
London, ON

Prepared for:
Amiraco Properties Inc.
470 Dundas St. Suite 106
London, ON N6B 1W3

Prepared by:
MTE Consultants Inc.
123 St. George Street
London, ON N6A 3A1

September 20, 2023

MTE File No.: 49130-100

Engineers, Scientists, Surveyors.

CONTENTS

Figures

Tables

Appendices

Appendix A – IPR Summary and Scoping Checklist
Appendix B – Species at Risk Assessment
Appendix C – Ecological Land Classification Data
Appendix D – Site Photos
Appendix E – Significant Wildlife Habitat Table
Appendix F – Floral Inventory Data
Appendix G – Breeding Bird Survey Data
Appendix H – Amphibian Breeding Survey Data
Appendix I – Bat Habitat Survey Data
Appendix J – Snake Coverboard Survey Data
Appendix K – Headwater Drainage Feature Assessment (HDFA) Data
Appendix L – NRSI Woodland Patch Assessment (2016)
Appendix M – “Living with Natural Areas” Brochure (UTRCA, 2005)
Appendix N – Environmental Management Plan (EMP)

1.0 INTRODUCTION

Amiraco Properties Inc. (the Proponent) has initiated the Draft Plan of Subdivision approval and zoning amendment process for residential development at 3563 Bostwick Road, southwest of the intersection with Pack Road, in the City of London. Amendments to the London Plan Map 1 and Zoning By-Law have been proposed to permit these uses. The property is located on Lot 75 East of Talbot Road, Westminster, in the City of London. The area of proposed development includes the entire legal parcel and is referred to as the Subject Lands for the purpose of this report (**Figure 1**). A 120 m study area of adjacent lands has been applied to the Subject Lands for the purpose of evaluating contiguous or nearby natural features.

Life science data collection on the Subject Lands was completed between 2017 and 2022. This report compiles the data collection for these years.

1.1 Report Objective

This report is an Environmental Impact Study (EIS), with the first sections meeting the requirements of a Subject Lands Status Report (SLSR) to identify natural heritage features in the study area. An EIS was requested by the City of London in pre-consultation. The objective of the SLSR component of the report is to describe the natural heritage features, based on field surveys and background information, and to identify functions to be protected or replicated on the Subject Lands. The EIS component evaluates the potential for impacts to natural heritage features and functions to result from the Project, and provides recommendations for avoidance or mitigation of impacts, potential restoration and enhancement measures, and a monitoring program to protect significant natural heritage features and functions.

The process and reporting are also designed to provide a support document for additional approvals that may be required, including permit applications that may be submitted to the Upper Thames River Conservation Authority (UTRCA).

1.2 Format

Natural heritage features and functions identified in this EIS are evaluated through a review of the Natural Heritage Reference Manual (NHRM, 2010) for policy 2.1 of the Provincial Policy Statement (MMAH, 2020), and Section 6 (Environmental Policies) of The London Plan (May 2022).

This report will be circulated to the City of London for agency review and comment on the findings and recommendations.

This EIS contains the following components, in accordance with the standards noted above:

Section 2.0	Land Use Setting and Policy Overview
Section 3.0	Triggers for EIS
Section 4.0	Description of the Natural Environment
Section 5.0	Natural Heritage Policy Considerations
Section 6.0	Description of the Development
Section 7.0	Impacts and Mitigation
Section 8.0	Summary and Conclusions
Section 9.0	References

1.3 Background Documents

The following additional documents were reviewed to provide context for the Project and conditions within study area:

- Woodland Patch 10066 Assessment Score Sheet (NRSI, 2016)
- Southwest Area Secondary Plan (City of London, 2019)
- Dingman Creek Subwatershed Stormwater Servicing Study (Aquafor Beech Limited, 2020)
- Upper Thames River Source Protection Area Assessment Report (Thames-Sydenham and Region Source Protection Committee, 2015)
- Hydrogeological Assessment (EXP, 2023)
- Implementation Plan for Woodland Patch 10069, W3 Farms Subdivision (Matrix Solutions Inc., 2023)
- Westwinds Subdivision Stormwater Management Brief (AGM, 2023)

1.4 Pre-Consultation and Site History

A proposal review meeting was held on August 11, 2021, with the Proponent, their Authorized Agents (MHBC Planning Limited c/o Scott Allen & AGM) and City of London staff from Development Planning, Urban Development, Heritage Planning, Natural Heritage, Parks and Recreation, Wastewater and Drainage Engineering, Water Engineering, Stormwater Management, Transportation Planning, Development Finance, Development Engineering. A record of consultation and comments was received on September 15, 2021. Additional comments were received from the Ministry of Natural Resources and Forestry (MNRF) and the Upper Thames River Conservation Authority (UTRCA).

With respect to natural heritage features, City Planning Ecologist James MacKay noted that a SLSR and EIS would be required for the Subject Lands, scoped in consultation with the City and other relevant stakeholders. A hydrogeological study and water balance would also be required to address wetlands as part of the EIS. The City also requested that the woodland on the Subject Property be evaluated per London Plan policies and the City's Environmental Management Guidelines. Impacts to natural heritage features (e.g., wetlands, woodlands) will be addressed in this EIS.

Based on the comments received from the City of London, a request for an EIS Scoping Meeting was submitted to the City of London on September 24, 2021. The EIS Scoping Meeting was held on January 28, 2022, with Margot Ursic (City of London Ecologist), Shane Butnari (City of London Ecologist), Michael Clark (City of London), David Ailles (Project Manager), Mike Meddaoui (Proponent), Christine Creighton (UTRCA), Tara Tchir (UTRCA), Sandy Levin (EEPAC), Heather Jaggard (EXP), Melissa Cameron (MTE), and Allie Leadbetter (MTE). Additional details on the hydrology of the Subject Lands and an amphibian survey in the spring of 2022 was requested, and additional field investigations were completed in 2022. The finalized Scoping Checklist was submitted to the City of London on March 1, 2022, and approval was received from Margot Ursic by email the same day. City staff noted a preference for the SLSR and EIS to follow the updated Environmental Management Guidelines, which were approved on December 21, 2021. The approved Scoping Checklist is provided in **Appendix A**.

2.0 LAND USE SETTING AND POLICY OVERVIEW

Provincial and municipal legislation and policies were reviewed to inform the evaluation of significant natural heritage features on the Subject Lands.

The Subject Lands are located at 3563 Bostwick Road on Lot 75 East of Talbot Road, Westminster, in the City of London (**Figure 1**). This area is primarily active agriculture, with isolated woodlands, occasional hedgerows, and some small wetland features. Thornicroft Drain and its associated

woodlands is located to the east, across Bostwick Road. Two rural residential properties with pasturelands and barns also border the Subject Lands. Residential development is planned or underway to the north, west and south (Lambeth) of the Subject Lands, while a commercial district is located beyond Thornicroft Drain bordering Wonderland Road.

2.1 The London Plan

The London Plan (2022) includes environmental policies that provide direction for the long-term protection and conservation of natural heritage features and areas and the ecological functions, processes, and linkages that they provide in the City of London. The general environmental goals of the London Plan include, but are not limited to, the following:

- Achieve healthy terrestrial and aquatic ecosystems in the city's subwatersheds.
- Provide for the identification, protection, rehabilitation, and management of natural heritage features and areas and their ecological functions.
- Protect, maintain, and improve surface and groundwater quality and quantity by protecting wetlands, groundwater recharge areas and headwater streams.
- Maintain, restore, monitor and improve the diversity and connectivity of natural heritage features and areas and the long-term ecological function and biodiversity of Natural Heritage Systems.
- Provide opportunities for appropriate recreational activities based on the ecological sensitivities of the area.

Natural Heritage features are identified and mapped on Map 5 of the London Plan (May 2022). Development and site alteration is not permitted within or adjacent to Unevaluated Wetlands, Provincially Significant Wetlands, Significant Valleys, and Woodlands, Habitat of Endangered or Threatened Species, Areas of Natural and Scientific Interest, and Environmentally Significant Areas unless evaluated by a professional and proven to have no negative impacts on the features or ecological functions.

2.1.1 Land Use Designations

The Subject Lands are primarily designated as Neighbourhoods on Map 1 of the London Plan (2022), with a woodland in the southwest corner designated Environmental Review (**Figure 2**). Adjacent lands are similarly designated Neighbourhoods.

2.1.2 Environmental Classifications

The southwest woodlot is considered an Unevaluated Woodland with an included Unevaluated Wetland on Map 5 (**Figure 4**). Another small Unevaluated Wetland is located in the southeast corner of the Subject Lands. A Valleyland extends from the south edge of the woodlot, adjacent to the Unevaluated Wetland, toward a larger woodland 200 m to the south. Thornicroft Drain, east across Bostwick Road, includes areas of Unevaluated Wetlands, Unevaluated Woodlands, and Significant Valleylands.

2.2 Southwest Area Secondary Plan

The Southwest Area Secondary Plan (SWAP) applies to lands (~2,700 ha) in the southwest portion of London bounded by Southdale Road West, White Oak Road, Exeter Road, Wellington Road South, Green Valley Road, and the London Urban Growth Boundary. The purpose of the Secondary Plan is to establish policies and principles for the development of the specified planning area that consider a range of residential forms, sustainability practices, preservation of cultural heritage, and high-quality urban design among other factors. The Southwest Area Secondary Plan provides a greater level of detail than the more general policies in the London Plan.

The Subject Lands are located in the Bostwick Residential Neighbourhood, as shown on Schedule 8 of the Southwest Area Secondary Plan. The agricultural areas within the Subject Lands are designated Low Density Residential and Medium Density Residential on the Bostwick Residential Neighbourhood Land Use Designations Schedule 8 (**Figure 3**). The southwest woodlot is designated Open Space and Environmental Review. The land use designations are consistent with Map 1 of the London Plan (2022).

2.3 City of London Zoning Bylaws

The agricultural areas within the Subject Lands are zoned Urban Reserve 4 (UR4) while the southwest woodlot is zoned Environmental Review (ER) (**Figure 5**). A zoning by-law amendment would be required for residential development within both existing zones.

2.4 Upper Thames River Conservation Authority (UTRCA) Regulation

The UTRCA regulates lands within its watershed under Ontario Regulation 157/06, pursuant to Section 28 of the *Conservation Authorities Act*. The UTRCA has jurisdiction over riverine flooding and erosion hazards and requires that landowners obtain written approval from the Authority prior to undertaking any site alteration or development within these regulation limits.

According to maps provided by the UTRCA, the northeast corner of the Subject Lands is within an UTRCA regulation area associated with a hydrological feature in a woodland located northeast across the intersection of Pack Road and Bostwick Road (UTRCA, 2018). Since this feature is outside the Subject Lands and does not appear to be associated an erosion or flood hazard, no permit is required for the Subject Lands.

2.5 Planning Act

The Provincial Policy Statement (PPS; MMAH, 2020) was issued under the *Planning Act, 1990* to provide direction to regional and local municipalities regarding planning policy, ensuring that decisions made by planning authorities were consistent with provincial policy. With respect to natural heritage features and resources, the PPS defines seven natural heritage features:

- Significant Wetlands and Significant Coastal Wetlands
- Significant Woodlands
- Significant Valleylands
- Significant Wildlife Habitat (SWH)
- Significant Areas of Natural and Scientific Interest (ANSI's)
- Fish Habitat, and,
- Habitat of Endangered and Threatened Species

The Subject Lands are within Ecoregion 7E where no development or site alteration are permitted in Provincially Significant Wetlands or Coastal Wetlands. Development and site alteration are not permitted in Habitat of Endangered or Threatened Species or Fish Habitat or, except in accordance with provincial and federal legislation. For the remaining features, development and site alteration shall not be permitted unless it has been demonstrated through an EIS that there will be no negative impacts on the features or their ecological functions.

While not all features and functions of provincial interest noted above are provided on provincial maps, a review of the Make a Natural Heritage Map (NHIC, 2019) suggests there are no additional mapped features not already covered by the Official Plan Maps. However, the policies noted above are reviewed later in this report supported by site specific field work and consultation with the municipal review agencies.

2.6 Endangered Species Act

The *Endangered Species Act, 2007* protects species listed as Threatened, Endangered or Extirpated in Ontario (SARO, 2007) from killing, harm, harassment or possession, and also protects their habitats from damage or destruction. Activities that may impact a protected species or its habitat require prior authorization from the Ministry of Environment, Conservation and Parks (MECP), unless the activities are exempt under a Regulation.

A Species Summary Report has been submitted to MECP to inform them of the intended development and demonstrate that no contraventions to the *ESAct* are anticipated. Mitigation measures proposed in the document are included in this EIS.

2.7 Fisheries Act

The federal *Fisheries Act, 1985* (amended 2019) manages fisheries resources, as well as conserves and protects fish and fish habitat, including by preventing pollution. The Act presents two main prohibitions: the prohibition of any work, undertaking, or activity that result in the harmful alteration, disruption or destruction of fish habitat [section 35(1)] and the prohibition of any work, undertaking, or activity that results in the death of fish by any other means other than fishing [section 34.4(1)]. Authorizations to proceed with a proposed work, undertaking, or activity that may harm fish or fish habitat may be provided by the Minister of Fisheries and Oceans, in accordance with sections 34.4(2)(b) and 35(2)(b).

There are no identified waterbodies within the Subject Lands and the Federal Fisheries Act will not apply. Downstream fish habitat will be discussed later in this report.

2.8 Migratory Birds Convention Act

The federal *Migratory Birds Convention Act, 1994* aims to protect and conserve migratory birds as populations and individual birds in Canada and the United States. No work is permitted to proceed that would result in the destruction of active nests (nests with eggs or young birds), or the wounding or killing of bird species protected under the Migratory Birds Convention Act, 1994 and/or Regulations under that Act. Many bird species not protected by the MBCA (e.g., raptors) are protected under the FWCA.

2.9 Fish and Wildlife Conservation Act

The *Fish and Wildlife Conservation Act, 1997* (FWCA) regulates hunting, trapping, fishing, and related activities in Ontario in order to address the conservation of fish and wildlife resources in the province, including mammals, birds, reptiles, amphibians and fish. Under the Act, a person that hunts or traps wildlife requires a license administered by the Ministry of Natural Resources and Forestry (MNRF). Deliberate capture of wildlife or fish for the purpose of salvage and relocation is regulated under the FWCA.

3.0 TRIGGERS FOR EIS

The City of London requires an EIS to be completed when a development proposal requires a Planning Act application and development, or site alteration is proposed within or adjacent to Natural Heritage System as set out in Table 13 (Areas Requiring Environmental Study) of the London Plan (2022). A Planning Act application may include a Draft Plan submission or proposed amendments to the Official Plan and/or zoning by-law).

The proponent is planning a residential development at the southwest corner of Bostwick Road and Pack Road in London, Ontario. Based on the London Plan Maps 1, 5 and 6 (2022) and the

presence of unmapped natural areas addressed by London Plan policy, the triggers for the Environmental Impact Study (EIS) are as follows:

- Proposed development within 30 m of a Wetland
- Proposed development within 30 m of a Woodland
- Proposed development within 120 m of an Unevaluated Wetland
- Proposed development within 120 m of a Valleyland

As well, application for a permit under the UTRCA Ontario Regulation 157/06 may require an EIS

- Subject Lands are within the UTRCA's regulation limits

In addition, the *Endangered Species Act* (2007) protects species and habitat not specifically identified on London Plan Maps. To be consistent with the Provincial Policy Statement (Ministry of Municipal Affairs and Housing (MMAH), 2020), the requirements for an additional study can be triggered without any adjacent features identified on the London Plan Maps.

The following section (Section 4.0) reviews the natural heritage setting of the Subject Lands. Section 5.0 reviews the proposed land use change in conjunction with generic natural heritage issues that may require consideration in the application process.

4.0 DESCRIPTION OF THE NATURAL ENVIRONMENT

The following section reviews the abiotic and biotic features on and within 120 m of the Subject Lands that contribute to the overall natural heritage features and functions of the Subject Lands and adjacent lands. This review provides relevant background information for interpreting environmental features and functions for evaluation in Section 5.0. Areas outside the property limits were studied from the edge of the property or through interpretation of satellite imagery.

4.1 Physical Setting

The physical setting of the Subject Lands and 120 m adjacent lands is outlined below based on online resources and a review of the site-specific Hydrogeological Assessment (EXP, 2023). For additional details consult the EXP report submitted as part of the complete application package.

4.1.1 Physiography

The Subject Lands are underlain by Middle Devonian-aged limestone, dolostone, and shale of the Dundee Formation (Ontario Geological Survey, 1991). Bedrock was not encountered during the drilling program completed for the Hydrogeological Assessment (EXP, 2023).

4.1.2 Soils

The Soils of Middlesex County (Hagerty & Kingston, 1992) state that the soils within the Subject Lands are primarily Brant 4 soil associates (silt loam, loam, and very fine sandy loam with well to imperfect drainage) along with some Bennington 4 Till associates (silt loam and loam with glacial till in the substratum and well to imperfect drainage). The OGSEarth Surficial Geology mapping provided by the Ministry of Energy, Northern Developments, and Mining (2017) identifies this region as having 5d till (clay to silt-textured till derived from glaciolacustrine deposits or shale).

Site-specific surficial geology was investigated using boreholes and test pits by EXP in 2018. In general, there is a low permeability clayey silt/silty clay till surficial layer across the Subject Lands (EXP, 2023). Topsoil is also found at surface across the site. A pocket of silt is present within the till near a southwest wetland in the woodlot, and sand and silt are generally found underlying the till across the site.

4.1.3 Topography

In the general vicinity of the Subject Lands, the topography is very gently sloping with some areas that are nearly level (Hagerty & Kingston, 1992). On a site-specific scale, the Subject Lands generally slope to the woodlot in the southwest, the southeast corner, and the northeast corner towards the intersection of Pack Road and Bostwick Road (EXP, 2023).

4.1.4 Surface Water Features

Based on orthographic imagery interpretation and review of drainage maps (OMAFRA, 2020), there are two ephemeral flow paths within the Subject Lands. One flows from the southwest woodlot to south adjacent lands and is regularly farmed through. The other flowpath is also farmed through and directs seasonal overland flow from the high point of the site to a low point in the southeast where a small drain flows east under Bostwick Road to Thornicroft Drain.

A wetland in the south woodlot has standing water in the spring and after major rainfall, but the community remains dry throughout the summer. This is supported by surface water measurements by EXP that showed the wetland was dry from August 2022 to December 2022 (EXP, 2023).

The two seasonally wet drainage features were confirmed to be present during a headwater drainage feature assessment (HDFA) completed by MTE staff in 2022, as well as site investigations by EXP for the Hydrogeological Assessment (EXP, 2023). Further details are provided in Section 4.5 of this EIS.

4.1.5 Hydrogeology

The Subject Lands are located within the Upper Thames River Source Water Protection Area (Thames-Sydenham & Region Source Protection Committee, 2015). The Subject Lands are not located in a Significant Groundwater Recharge Area (SGRA), although the adjacent lands to the northeast (across Bostwick Road) are in an SGRA. There are no Wellhead Protection Zones within or adjacent to the Subject Lands.

Site-specific groundwater levels were monitored from November 2018 to December 2022 for the Hydrogeological Assessment (EXP, 2023). Groundwater elevations on site generally showed cyclical seasonal variations with high elevations in the late fall to spring. On a local scale, shallow groundwater flow in the subsurface till layer was interpreted to follow the site topography and generally flow to the south (EXP, 2023).

4.2 Biological Setting

Life science data were collected on the Subject Lands and adjacent lands by MTE Consultants between 2017 and 2022. This section summarizes the background review of natural heritage features in the area of the Subject Lands and compiles the data collected by MTE.

4.2.1 Records Review

Designated Natural Heritage Features

The Land Information Ontario (LIO) mapping (MNRF, 2021) and Natural Heritage Information Centre (NHIC) online database (2021) were reviewed for natural heritage features of provincial significance on the Subject Lands or adjacent lands.

No Areas of Natural and Scientific Interest (ANSI), Provincially Significant Wetlands (PSW), or Environmentally Significant Areas (ESA) are located on or within 120 m of the Subject Lands.

Species Records

Protected Species are those listed as Endangered or Threatened on the Species at Risk in Ontario (SARO) List of the *Endangered Species Act* (*ESA*, 2007). Only species listed as Endangered or Threatened on the SARO List receive protection for individuals or habitat under the *ESA*. Species of Conservation Concern (SOCC) are those listed as Special Concern on the SARO list, species with a provincial ranking of S1-S3, or locally-designated species. Provincial status rankings for plants, vegetation communities, and wildlife are based on the number of occurrences in Ontario and have the following meanings:

S1: critically imperiled; often fewer than 5 occurrences
S2: imperiled; often fewer than 20 occurrences
S3: vulnerable; often fewer than 80 occurrences
S4: apparently secure
S5: secure
S?: unranked, or, if following a ranking, rank uncertain (e.g. S3?)

Provincial status rankings are established by the NHIC and do not provide an indication of regional abundance or rarity (i.e., species uncommon in the province may still be locally abundant in some regions).

A review of publicly available species records in the NHIC, Ontario Breeding Bird Atlas (OBBA), Ontario Reptile and Amphibian Atlas databases, and Citizen Science sources (iNaturalist and eBird), identified several Protected Species and SOCC as potentially present in the general area of the Subject Lands. Many of these sources display data for a broad area (e.g., by upper-tier municipality, per 10 km atlas square) and therefore provide only a general potential for species presence on or near the Subject Lands. It should be noted that OBBA occurrence data are from 2001-2005, and the dates of NHIC records are unknown. The remainder of the records are from within the past 10 years.

In addition to the above list, there are a number of other species that are poorly represented in the background information sources and may be present within the City of London. These additional species to consider include Little Brown Myotis [END], Northern Myotis [END], Tri-coloured Bat [END], and Eastern Small-footed Myotis [END]. Protected species records within 10 km of the Subject Lands are provided in Table 1.

Table 1: Protected Species Occurrence Records Review (Potential Within 10 km of the Subject Lands)

Common Name	Scientific Name	SARO Status	Date Observed in Records	Source
American Badger	*Taxidea taxus*	END	-	NHIC, 2021
American Chestnut	*Castanea dentata*	END	-	NHIC, 2021
Butternut	*Juglans cinerea*	END	-	NHIC, 2021
Eastern Flowering Dogwood	*Cornus florida*	END	-	NHIC, 2021
Eastern Small-footed Myotis	*Myotis leibii*	END	-	Under-represented
False Hop Sedge	*Carex lupuliformis*	END	-	NHIC, 2021
Little Brown Myotis	*Myotis lucifugus*	END	-	Under-represented
Northern Myotis	*Myotis septentrionalis*	END	-	Under-represented
Prothonotary Warbler	*Protonotaria citrea*	END	2001-2005	eBird, 2021
Spiny Softshell	*Apalone spinifera*	END	July 2019	iNaturalist, 2021
Tri-colored Bat	*Perimyotis subflavus*	END	-	Under-represented
Bank Swallow	*Riparia riparia*	THR	July 19, 2021	eBird, 2021; OBBA, 2005
Bobolink	*Dolichonyx oryzivorus*	THR	June 15, 2021	eBird, 2021; OBBA, 2005; NHIC, 2021

Common Name	Scientific Name	SARO Status	Date Observed in Records	Source
Chimney Swift	*Chaetura pelagica*	THR	2001-2005	OBBA, 2005
Eastern Hog-nosed Snake	*Heterodon platirhinos*	THR	2017	Ontario Nature, 2019
Eastern Meadowlark	*Sturnella magna*	THR	2001-2005	OBBA, 2005; NHIC, 2021

Several Special Concern or rare (S1-S3) species were also identified through a background review within 10 km of the Subject Lands. These species are provided in Table 2, below. Observations of migrant bird species far outside nesting timing windows have been omitted where known.

Table 2: SOCC Occurrence Records Review (Potential Within 10km of the Subject Lands)

Common Name	Scientific Name	SARO Status	Date Observed in Records	Source
Bald Eagle	*Haliaeetus leucocephalus*	SC	May 25, 2021	eBird, 2021
Common Nighthawk	*Chordeiles minor*	SC	2001-2005	OBBA, 2005
Eastern Wood-Pewee	*Contopus virens*	SC	June 24, 2021	eBird, 2021; OBBA, 2005
Green Dragon	*Arisaema dracontium*	SC	-	NHIC, 2021
Barn Swallow	*Hirundo rustica*	SC	July 19, 2021	eBird, 2021; OBBA, 2005
Peregrine Falcon	*Falco peregrinus*	SC	March 20, 2018	eBird, 2019
Wood Thrush	*Hylocichla mustelina*	SC	2001-2005	OBBA, 2005
Northern Map Turtle	*Graptemys geographica*	SC	2018	Ontario Nature, 2019
Snapping Turtle	*Chelydra serpentina*	SC	2019	Ontario Nature, 2019; NHIC, 2021

An assessment of habitat for these Protected Species and SOCC, along with targeted surveys where suitable habitat was present, was conducted by MTE on the Subject Lands as part of this EIS. **Appendix B** provides the complete assessment of Protected Species and SOCC records in the area of the Subject Lands to determine which species may actually be present. The species most likely to be present from the record lists above will be discussed further in the context of habitat for endangered and threatened species (Section 5.1.7) and SOCC SWH (Section 5.1.4).

4.2.2 Vegetation Communities

The vegetation communities within the Subject Lands were assessed by MTE plant and wildlife technician Will Huys, certified to conduct ELC in Southern Ontario, on April 21, June 8, June 26, and September 11, 2017, using protocols outlined in the Ecological Land Classification System for Southern Ontario (Lee et al., 1998) (**Figure 6**). All communities identified are secure in Ontario (NHIC, 2020) (Table 3). ELC sheets are provided in **Appendix C** and **Appendix D** includes site photos of the vegetation communities.

Table 3: Ecological Land Classifications for the Subject Lands

Polygon	ELC Code	Description	S-rank	Total Area (ha)
Cultural Communities				
1	CUT1/CUW1	Mineral Cultural Thicket/Woodland Ecosite	n/a	1.9
Natural Communities				
2	MAM2	Mineral Meadow Marsh Ecosite	n/a	0.01
3	SWT2	Mineral Thicket Swamp Ecosite	n/a	0.08

Vegetation community areas calculated in Table 3, above, have been estimated based on 2021 air photos.

Community 1 is a 1.9 ha Mineral Cultural Thicket/Woodland Ecosite located in the southwest corner of the Subject Lands. This community was once a Bitternut Forest, but is now dominated by Buckthorn, seemingly partially due to a wave of Hickory Bark Beetles around 2009. Insect bore damage in the remaining Bitternut trees was observed. Hawthorn species are also prominent in Community 1. In addition, dead Ash and Hickory trees were observed throughout the community, especially on the west side of the woodland. The soils of this community are dominated by silt and loam with an average moisture of five. Based on aerial photos, some vegetation in this community appears to have been removed on the west adjacent property in 2020/2021. Buckthorn management along the edges of this community was also undertaken at the direction of the Proponent in March 2022 which resulted in disturbance to edge vegetation, particularly along the east woodland boundary.

Community 2 is a small (0.01 ha) Mineral Meadow Marsh (MAM2) inclusion located along a narrow ephemeral flowpath within Community 1. The canopy of this community is dominated by Manitoba Maple with Common Buckthorn, while Reed Canary Grass, False Nettle, *Carex* species, and Spotted Jewelweed are prominent in the lower layers. This community had 15-30 cm of pooled surface water in the south section in the spring, but the community is dry by mid-May to June except in times of flash flooding. Soils are silt-loam with an average moisture of six. No groundwater indicator species were identified in this community.

Community 3 is an approximately 0.08 ha Mineral Swamp Thicket Ecosite (SWT2) located in the southeast Subject Lands along the south property boundary. This community is located at the outlet of a tile drain that appears to be excavated, and the wetland contains concrete rubble. In 2017, Community 3 was dominated by shrubs including Common Buckthorn and Raspberry. The ground layer included Garlic Mustard, Daylily, Bugleweed, and Canada Goldenrod. A large Willow tree hangs over the south edge of the community. The water that collects in the wetland drains into a pipe that flows under the adjacent rural residential property and then southeast under Bostwick Road, eventually flowing into Thornicroft Drain. Vegetation clearing and groundworks within this community and around the culvert was undertaken by the Proponent's contractor in March 2022 as part of an effort to repair damage to the adjacent landowner's septic and sub-surface drainage system (David Ailles, personal communication, May 2022).

4.2.3 Significant Wildlife Habitat

MNRF Significant Wildlife Habitat (SWH) Criteria Schedules for Ecoregion 7E (January 2015) uses ELC ecosite codes and habitat criteria (e.g., size of ELC polygon, proximity to other natural features) to define candidate SWH. Additional candidate SWH types for the City of London were obtained from the London Plan (Policy 1354, 2022). An assessment of candidate SWH was completed for the Subject Lands using a combination of desktop analysis and field observations, and is provided in **Appendix E**.

Candidate Seasonal Concentration of Animals
Reptile Hibernaculum – CUT1/CUW1

Rare Vegetation Communities or Candidate Specialized Habitats for Wildlife
None

Candidate Habitats for Species of Conservation Concern Considered SWH
Terrestrial Crayfish – MAM2
*Special Concern and Rare Wildlife Species – See **Appendix B** for SOCC Records*

Candidate features were further evaluated using the results of targeted field investigations to determine if SWH was confirmed based on criteria such as species presence, abundance, and diversity. Results of the assessment of significance for SWH are presented in Section 5.0.

4.2.4 Floral Inventory

MTE plant and wildlife technician Will Huys completed a three-season floral inventory in 2017 within the Subject Lands. No Special Concern, provincially rare, or floral species protected under the *ESA* (2007) were identified during field investigations. No wetland indicator species were identified within the Subject Lands. Community 3 was not initially identified as a wetland inclusion and no separate plant list was completed for it based on its small size and limited vegetative cover. A full Plant List is provided in **Appendix F**.

Larger Straw Sedge (*Carex normalis*) was observed in both Community 1 and 2. Larger Straw Sedge is considered regionally rare in Middlesex County, although it is frequently found during floral surveys in the London area and is considered common and secure in Ontario (Oldham, 2017). Larger Straw Sedge can be found in a variety of environments including moist fields, thickets, open forests, and occasionally drier areas (Reznicek, Voss & Walters, 2011). Regionally rare species are discussed further in Section 5.1.4.

Floristic Quality Analysis

Based on the floral inventories, the inventoried vegetation communities in the Subject Lands were assessed using SOFIA (Southern Ontario Floral Inventory Analysis) (Lebedyk, 2018). SOFIA provides several values based on floral inventories to evaluate the value and natural quality of vegetation communities. The Coefficient of Conservatism (CoC) is a value (0 to 10) assigned to each species based on the species' degree of fidelity to certain ecological parameters (Oldham, Bakowsky & Sutherland, 1995). Plants found in a wide range of vegetation communities are assigned low values while those that are found in a narrow range of parameters are assigned high values. For a community, the mean Coefficient of Conservatism (CoC) is calculated between all species observed, and this provides a measure of floristic quality (Lebedyk, 2018). A community with a Mean CoC that is >3.5 is of sufficient floristic quality to be of remnant natural quality. A Mean CoC >4.5 would indicate a relatively intact natural area with high floristic quality.

Another measure is the Floristic Quality Index (FQI). FQI is intended to indicate the overall vegetative quality of a community and is calculated by multiplying the mean CoC by the square root of the number of species present (Oldham, Bakowsky & Sutherland, 1995). Based on a study of urban woodlands in the Chicago area, a community with a FQI <20 is considered to have minimal significance from a natural quality perspective, and a community with a FQI >35 has sufficient conservatism and richness to be floristically important from a provincial perspective. Floristic quality values are provided in Table 4.

Table 4: Southern Ontario Floral Inventory Analysis (SOFIA) Results

Vegetation Community	Mean CoC	FQI	% Native Species	Comments
Community 1 Mineral Cultural Thicket/Woodland	2.9	21.6	79.0%	• Poor floristic quality, no natural quality. • Buckthorn is prominent in the community.
Community 2 Mineral Cultural Meadow Marsh Inclusion	3.0	21.6	86.3%	• Poor floristic quality, no natural quality.

Communities 1 and 2 were well below the remnant natural quality threshold based on their Coefficient of Conservatism (CoC) scores of <3.5. The FQI results also indicate that these communities have limited significance from a natural quality perspective (FQI <35).

4.2.5 Faunal Site Investigations

A breeding bird survey, three years of amphibian breeding surveys, a bat maternity roost survey, snake coverboard survey, a headwater drainage feature assessment (HDFA), and general habitat

investigations were completed within the Subject Lands. Table 5, below, summarises the field investigations completed by MTE staff between 2017 and 2022 in the Subject Lands.

Table 5: MTE Field Investigations within the Subject Lands

Survey Type	Date/Time(s)	MTE Surveyor
Breeding Bird Surveys	June 8, 2017, 6:00-8:30 AM June 26, 2017, 5:45-10:15 AM	Will Huys
2017 Amphibian Breeding Surveys	April 11, 2017, 9:15-10:15 PM May 11, 2017, 10:05-11:00 PM June 12. 2017 10:00-11:00 PM	Laura McLennan
2022 Amphibian Breeding Surveys	March 17, 2022, 11:00 AM April 13, 2022, 9:10-9:35 PM May 9, 2022, 9:50-10:20 PM	Allie Leadbetter Tanya Cooper
Bat Maternity Roost Survey	May 10, 2021	Will Huys
Snake Coverboard Surveys	May 17, 2021, 2:15-3:45 PM May 27, 2021, 9:28-10:20 AM June 1, 2021, 6:30-7:15 PM June 3, 2021, 7:00-7:45 PM June 7, 2021, 7:46-8:30 PM June 15, 2021, 7:15-8:00 PM June 24, 2021, 7:00-7:30 PM June 28, 2021, 8:00-8:30 PM September 24, 2021, 6:50-7:50 PM	Allie Leadbetter

Avifauna

MTE plant and wildlife technician Will Huys conducted breeding bird surveys on June 8 and June 26, 2017, guided by the protocols outlined in the Ontario Breeding Bird Atlas (OBBA) (Cadman et al., 2007). There were no suitable meadow, pasture, or hayfield areas providing habitat for grassland birds within or adjacent to the Subject Lands, therefore a third breeding bird survey was not undertaken. A combination of point counts and area searches were used in each community within the Subject Lands. The number of individuals and the highest level of breeding evidence were recorded for all avian species observed.

No protected avian species were identified within the Subject Lands during the site investigations (**Appendix G**). All observed species are considered common and secure in Ontario. Several species are considered species of regional concern by Partners in Flight (2022): Northern Flicker, Vesper Sparrow, Rose-breasted Grosbeak, and Common Grackle. Of these regional concern species, only Northern Flicker, Rose-breasted Grosbeak, and Common Grackle were likely breeding in the woodlot. Breeding habitat for Vesper Sparrow was limited to adjacent agricultural lands.

Barn Swallows [SC] were observed foraging over adjacent farmlands to the south and west during several 2021 site visits, however there is no suitable nesting habitat for Barn Swallows within the Subject Lands. Barns located on adjacent properties may provide nesting habitat for this species.

Common Grackle, American Robin, American Goldfinch, Red-winged Blackbird, and Song Sparrow were the avian species most frequently observed during breeding bird inventories. The complete breeding bird species observations are provided in **Appendix G**.

Amphibians

Targeted amphibian breeding surveys were completed within the Subject Lands on April 11, May 11, and June 12, 2017, and March 17, April 13, and May 9, 2022, by MTE staff. All monitoring was completed using the Great Lakes Marsh Monitoring Protocols (Bird Studies Canada, 2009) with the exception of the March 17, 2022 survey which was undertaken during the daytime hours to target early breeding Chorus Frogs.

No amphibians were heard calling from within the Subject Lands during any survey in 2017 or 2022. Field visits during daylight hours in 2019 and 2021 found that standing water in Community 2 was dry by mid-May to June. Survey stations from 2022 are shown on **Figure 7** and field sheets are available in **Appendix H**.

Bats

A bat maternity roost survey was conducted by Will Huys on May 10, 2021, using to MECP protocols (2021b) and MNRF survey guidelines (2017) to identify potential habitat for Endangered bat species (**Appendix I**). Five candidate bat maternity roost trees were identified within the central part of Community 1. Community 1 therefore has an approximate density of three candidate bat habitat trees per hectare. All five trees were dead (decay class 5), which is not preferred habitat, however they may still provide roost habitat for Little Brown Myotis and Northern Myotis [END]. Suitable habitat for Tri-coloured Bat (Maple and Oak trees with leaf clusters) was not noted within the Subject Lands, but a targeted survey was not completed for this specific habitat.

Reptiles

No potential hibernacula features were identified within the Subject Lands. One small pile of rocks was observed along the south boundary of the woodland, but there is no indication this feature goes below the frost line or is used by snake species for hibernation. No other rock fissures, crevices, piles, animal burrows, or other potential hibernaculum features were observed within the Subject Lands.

Twelve coverboards were deployed along the edge of vegetation features throughout the Subject Lands on May 6, 2021. These coverboards were checked eight times between May 17 and June 28, with an additional visit on September 24, 2021. Board locations are shown on **Figure 7**, and data sheets are provided in **Appendix J**.

A total of three individual Eastern Gartersnakes were observed under the boards along the south hedgerow. One was observed under board 6 on June 1, one under board 7 on June 24, and one under board 6 on September 24, 2021. Based on size and markings of the snake observed, they appear to be separate individuals. One Eastern Gartersnake was observed in Community 2 incidentally during the headwater drainage feature assessment on April 23, 2021. A lack of clustered observations in the early spring, or observations of multiple individuals, suggests a communal hibernaculum is not present. No Protected Species were observed.

Terrestrial Crayfish

Two Terrestrial Crayfish chimneys were observed in Community 2 of the Subject Lands. One was along the south edge of the community bordering the agricultural field, and the other was at the north edge of the community bordering the agricultural field. One chimney was also observed near the west property boundary in the agricultural field within the Subject Lands.

Incidental Observations

No mammal burrows were observed within the Subject Lands and there are no sandy areas or grasslands suitable for American Badger [END].

White-tailed Deer was frequently encountered on site in the woodlot and adjacent agricultural fields. Turkey Vultures were observed flying over the Subject Lands on several site visits in 2021 and a Red-tailed Hawk was soaring over the area on June 15, 2021. Wild Turkeys were seen in the agricultural field on June 24, 2021.

Aquatic Habitat

There is no aquatic habitat within the Subject Lands that could support fish habitat. The southwest wetland has shallow standing water in the spring and after significant rainfall events, but this feature is dry throughout the summer.

A review of the Fisheries and Oceans Canada (DFO) Species at Risk mapping did not identify any aquatic species protected by the *Endangered Species Act* (2007) within 1 km of the Subject Lands (DFO, 2020).

4.3 Headwater Drainage Feature Assessment

Based on orthographic imagery interpretation and review of drainage maps (OMAFRA, 2020), there are two ephemeral flow paths within the Subject Lands. A headwater drainage feature assessment (HDFA) was completed by MTE staff within the Subject Lands on April 23, 2021, and repeated on March 17, 2022, at the request of the City of London. Both surveys followed the rapid assessment protocol from the Guidelines for the Evaluation, Classification and Management of Headwater Drainage Features (CVC & TRCA, 2014). HDFA sample points are shown on **Figure 7** and HDFA field sheets are provided in **Appendix K**. **Appendix D** includes photos of the two main flowpaths in spring 2022.

The first HDFA was conducted by MTE ecologists Melissa Cameron and Victoria Schveighardt on April 23, 2021. The east flowpath was not present during the HDFA; there was no channel, no flow, and no vegetation cover. Shallow water was observed in the drain in the southeast wetland/culvert (Community 3) during the field investigation. This drain flows under Bostwick Road to the east to Thornicroft Drain. The second drainage feature was observed to be a minor ephemeral flowpath that passed through the wetland in the southwest corner of the woodlot (Community 2) and towards the south agricultural field. The flowpath did not flow through the field and is regularly plowed and planted through in this area. During the HDFA, flow was not observed, and the feature was ephemeral with disjointed pockets of water. Vegetation cover was approximately 40% flooded vegetation and 60% bare clay/muck. According to drainage maps, this flowpath may contribute ephemeral flow to downstream wetland features. Neither of the assessed ephemeral flowpaths were observed to be prominent drainage features.

A second HDFA was completed on March 17, 2022, by MTE ecologists Victoria Schveighardt and Allie Leadbetter. The drainage features were observed to be flowing during this site visit. The east flowpath showed evidence of having been plowed through and has relatively low flow, but it did visibly flow southeast through the agricultural field to Community 3 and the associated culvert. The culvert leads underneath the adjacent residential property and Bostwick Road to eventually meet with Thornicroft Drain. Minimal flow was observed into Community 2 at the north and west edge of the woodland, with no defined channels present. Community 2 itself was observed to be intermittently wet with small patches of snow or standing water in the north branches, and approximately 20 cm of standing water was present in the south of the community. Community 2 was observed to be flowing slightly south through the agricultural field. Flow travelled approximately 55 metres into the south agricultural field. The remainder of the flowpath south through the agricultural field had wet soils, but no standing water.

The results of the headwater drainage feature assessment are presented in Table 6, below. The steps of classification from the CVC and TRCA document “Evaluation, Classification and Management of Headwater Drainage Features Guidelines” (2014) have been followed. Each

segment has been classified and a management recommendation is provided for each feature based on the highest level of functions of all its segments.

Table 6: Summary of HDF Functional Classifications and Management

Drainage Feature	Segment	STEP 1		STEP 2	STEP 3	STEP 4
		Hydrology	Modifiers	Riparian	Fish Habitat	Terrestrial Habitat
East Flow Path	HDF1-1	FC: 2 FT: 4 Limited function – standing water.	Fully plowed through in field. Crop grows over.	OSAP Code: 3 (crop) Limited functions.	No fish habitat. Contributing functions.	Limited functions – No terrestrial habitat present.
	HDF1-2	FC: 4 FT: 4 Contributing function – Ephemeral	Fully plowed through in field. Crop grows over.	OSAP Code: 3 (crop) Limited functions.	No fish habitat. Contributing functions.	Limited functions – No terrestrial habitat present.
	HDF1-3	FC: 2 FT: 4 Limited function – standing water.	Fully plowed through in field. Crop grows over.	OSAP Code: 3 (crop) Limited functions.	No fish habitat. Contributing functions.	Limited functions – No terrestrial habitat present.
	HDF1-DS1(1)	FC: 4 FT: 1 Contributing function – Ephemeral	Not plowed through, but excavation has occurred directly upstream. Vegetation has been largely removed.	OSAP Code: 5 (scrubland) Some shrubs and limited groundcover around this feature. Riparian vegetation is limited. Surrounding vegetation is lawn/none. Important functions.	No fish habitat. Contributing functions.	Limited functions – No terrestrial habitat present.
	HDF1-DS1(2)	FC: 5 FT: 1 Valued or contributing	Flow is from a culvert pipe under Bostwick Road.	OSAP Code: 4 (meadow) Valued functions.	No fish habitat. Contributing functions.	Limited functions – No terrestrial habitat present.
West Flow Path	HDF2-1	FC: 2 FT: 4 Limited function – standing water	Pooled water in low elevation. Not fully plowed through.	OSAP Code: 3 (crop) Limited functions.	No fish habitat. No function (no apparent allochthonous material transport to downstream fish habitat).	Limited functions – No terrestrial habitat present.

Drainage Feature	Segment	STEP 1		STEP 2	STEP 3	STEP 4
		Hydrology	Modifiers	Riparian	Fish Habitat	Terrestrial Habitat
	HDF2-2	FC: 2 FT: 4 Limited function – standing water	Pooled water	OSAP Code: 3 (crop) Limited functions.	No fish habitat. No function (no apparent allochthonous material transport to downstream fish habitat).	Limited functions – No terrestrial habitat present.
	HDF2-DS1	FC: 4 FT: 4 Contributing function – Ephemeral	Fully plowed through in field. Crop grows over.	OSAP Code: 3 (crop) Limited functions.	No fish habitat. No function (no apparent allochthonous material transport to downstream fish habitat).	Limited functions – No terrestrial habitat present.

Management recommendations are determined through the HDF classification process (CVC and TRCA, 2014) for different headwater drainage features. The agricultural field flowpaths for both HDF1 and HDF2 have only limited or contributing functions that are lessened by agricultural disruptions, and therefore either no management or some mitigation is recommended if the drainage sections are considered alone. HDF2's only function is to convey minimal surface water downstream in the spring. HDF1 similarly conveys water downstream, but the watercourse it leads to below the Bostwick Road culvert is a more discernible drainage system. No fish habitat is present, and protection of the wetland inclusions associated with the headwater drainage features will be addressed under London Plan policy. These management recommendations will be used to inform mitigation and compensation measures to be discussed in Section 7.1 of this EIS in the context of removing or altering the existing headwater drainage features.

5.0 NATURAL HERITAGE POLICY CONSIDERATIONS

Provincial and municipal natural heritage policies provide guidelines that determine appropriate land uses on and adjacent to natural heritage features and functions. This section reviews the provincial, municipal and Conservation Authority regulatory policies which apply to Natural Heritage features and functions of the Subject Lands and larger study area.

Policies and regulations that may pertain to the Subject Lands include:

- the 2020 Provincial Policy Statement, Section 2.1, issued under the *Planning Act, 1990*
- these have been reviewed in conjunction with the Natural Heritage Reference Manual (NHRM) (OMNR, 2010),
- the London Plan, Section 6 – Environmental Policies (May 25, 2022),
- the City of London Environmental Management Guidelines (2021),
- the UTRCA Regulations (*Conservation Authorities Act*, Section 28 – *Ontario Regulation 157/06*).
- the *Endangered Species Act, 2007*
- the *Migratory Birds Convention Act, 1994*

The policies above are applied to natural features and functions identified in Section 4.0 of this EIS in order to determine which components of the natural heritage system will require additional consideration. This Project was scoped under the 2007 Environmental Management Guidelines (City of London), however the 2021 updated EMGs will be applied where applicable in this EIS.

5.1 Provincial Policy

The Provincial Policy considerations are based on the Provincial Policy Statement (MMAH, 2020) Section 2.1 and reviewed using the Natural Heritage Reference Manual (Sections 5-11) (OMNR, 2010).

5.1.1 Provincially Significant Wetlands

No Provincially Significant Wetlands (PSW) are located within 120 metres of the Subject Lands.

5.1.2 Provincially Significant Woodlands

There are no mapped Significant Woodlands on the Subject Lands shown on Map 5 of the London Plan (2022). The evaluation of the southwest woodlot will be addressed using City of London policy in Section 5.2.2.

In the adjacent lands, a Significant Woodland is located approximately 50 metres to the northeast across Bostwick Road (London Plan Map 5, 2022).

5.1.3 Provincially Significant Valleylands

There are no Significant Valleylands identified within the Subject Lands (London Plan Map 5, 2022). A Significant Valleyland surrounding Thornicroft Drain is located approximately 140 metres to the east of the Subject Lands.

5.1.4 Significant Wildlife Habitat

Candidate significant wildlife habitat (SWH) is based on ELC communities that were identified in Section 4.3.1. Confirmed significant wildlife habitat is determined through appropriate field investigations and evaluation of species use in accordance with specific criterion outlined in the Ecoregion Criteria Schedules 7E (MNRF, 2015).

Reptile Hibernaculum
As noted in Section 4.4.3, no rock piles extending below grade, crevices, animal burrows, or other potential hibernaculum features providing access below the frost line were observed on the Subject Lands. A total of four individual Eastern Gartersnakes were observed on four separate occasions on the Subject Lands in 2021: three within the hedgerow under coverboards, and one in Community 2. The lack of clustered observations in the early spring or fall, or observations of multiple individuals or species, indicates a communal hibernaculum is not present and the criteria for significance are not met.

Not SWH – Confirmed Not Significant

Terrestrial Crayfish
Two terrestrial crayfish chimneys were observed at the north and south edge of Community 2 (MAM2).

SWH – Confirmed Significant (Community 2)

Special Concern and Rare Wildlife Species
Based on species records, several SOCC and rare species were determined to be potentially present within the area of the Subject Lands. As outlined in **Appendix B**, these species are not

likely to be found within or adjacent to the Subject Lands and no SOCC or provincially rare species were observed during field investigations.

Not SWH – Confirmed Not Significant

5.1.5 Areas of Natural and Scientific Interest

There are no ANSI's on or within 120m of the Subject Lands.

5.1.6 Fish Habitat

No fish habitat is present within the Subject Lands as there is no permanent aquatic habitat present. The east flowpath (HDF1) through Community 3 may contribute ephemeral flow to downstream fish habitat in Thornicroft Drain, which is 230 metres downstream. The second seasonal flowpath (HDF1) does not lead to a significant watercourse or fish habitat, instead only leading to wetland habitat and eventually SWM systems far downstream.

5.1.7 Habitat of Endangered or Threatened Species

No floral or faunal species protected under the *ESA* (2007) were identified within the Subject Lands during MTE field surveys in 2017 or 2021.

Five candidate bat maternity roost trees of decay class 5 (dead) were identified as potential roost habitat within the central part of Community 1 (density of approximately three candidate bat habitat trees per hectare). Decay class 5 is not preferred habitat for bats, however they may still provide roost habitat for Little Brown Myotis and Northern Myotis [END].

5.2 Municipal Policy

The municipal policy Natural Heritage considerations are based on the London Plan, May 25, 2022, Chapter 6 – Environmental Policies. Many natural heritage policies in the London Plan protect features from the PPS (MMAH, 2021) and are discussed in Section 5.1. The assessment of significance for these features is repeated here along with additional municipal Natural Heritage policy not addressed in Section 5.1. Relevant policy sections from the London Plan are included in brackets.

5.2.1 Provincially Significant Wetlands, Wetlands, and Unevaluated Wetlands (1330-1336)

As discussed in Section 5.1.1, there are no Provincially Significant Wetlands identified on Map 5 within or adjacent to the Subject Lands.

There are two unevaluated wetlands located within the Subject Lands. Community 2 is a 0.01 ha Mineral Meadow Marsh (MAM2) located within the southwest woodlot, and Community 3 is a 0.08 ha Mineral Swamp Thicket (SWT) located in the southeast corner of the Subject Lands around a drain flowing southeast under Bostwick Road. Community 3 appears to have formed around the outflow from tile drains in the agricultural field and has been modified in the past to facilitate drainage further downstream. In early 2022, vegetation was also disturbed, and soil was temporarily piled up in front of the wetland as part of works undertaken by a contractor to the Proponent to repair the septic and drainage systems on the adjacent property. A pipe was installed in the berm to allow flow to continue through towards Bostwick Road.

Due to the small size of these wetlands, an Ontario Wetland Evaluation System (OWES) assessment was not completed for either feature. The OWES manual states that the minimum size of a vegetation community for mapping purposes is 0.5 ha unless it is a specialized wetland (e.g., fen, bog, shoreline) as defined by OWES manual Section 1.2.2 (MNR, 2022). Based on a rapid assessment, both wetlands are isolated from other wetland communities or waterbodies, limited to

one wetland type, have no protected species or species of conservation concern, and are too small to provide significant social, recreational, or economic value. The diversity of the surrounding habitats is also low, as Community 2 is surrounded by a disturbed CUT1/CUW1 community and active agriculture, and Community 3 is bordered by agriculture and an occupied residence. The unevaluated wetlands are therefore determined through interpretation of OWES guidelines (2014) to be non-significant and will be treated as Wetlands (less than 0.1 ha) in accordance with London Plan policy.

5.2.2 Significant Woodlands and Woodlands (1337-1343)

As discussed in Section 5.1.2, no Significant Woodlands are identified within the Subject Lands in the London Plan (2022). The 1.9 ha southwest woodland (patch 10066) is identified as an unevaluated vegetation patch on Map 5. This patch was evaluated for significance in 2016 by Natural Resource Solutions Inc. (NRSI, 2016). The City of London provides eight criteria for evaluating woodland significance (City of London, 2022): Site Protection; Landscape Integrity; Age and Site Quality; Size and Shape; Diversity of Natural Communities and Associated Species; Habitat for Endangered and Threatened Species; Distinctive, Unusual or High-Quality Natural Communities; and, Distinctive, Unusual or High Quality Landforms. Each criterion is scored as high, medium or low. A woodland is considered Significant if one or more criteria score high, or if five criteria score medium. The values for each evaluation category for Woodland Patch 10066 (Community 1) are provided in Table 7, below.

Table 7: Woodlot Patch 10066 Assessment Summary

Evaluation Category	Woodland Characteristics (2021 EMG)	2016 NRSI Assessment (2007 EMG)	MTE Assessment (2021 EMGs)
1.1 Site Protection	• LOW – Small (0.01 ha) ephemeral flowpath/wetland inclusion that is not large enough to qualify as a separate wetland community. • LOW – Limited erosion and slope protection (slope <10%)	Low (did not identify wetland community, and wetland would not meet the 2.0 ha size criteria)	Low
1.2 Landscape Integrity	• LOW – landscape richness (<7% local vegetation cover within a 2 km radius from the patch centroid) • LOW – landscape connectivity (barriers include roads and urban development; patch to south connected by active agriculture, but >200 m away) • LOW – patch distribution (isolated patch, no patch cluster >20 ha)	Low	Low
2.1 Age and Site Quality	• MEDIUM – Young/mid-aged Cultural Thicket/Woodland, extensive insect damage and presence of invasive species • LOW – mean coefficient of conservatism <4.2	Medium (some communities in poor condition due to human activity)	Medium
2.2 Size and Shape	• LOW – Patch is 1.9 ha (<2.0 ha) • LOW – Patch has no interior habitat. • MEDIUM – Probable breeding of two species of regional concern (Northern Flicker, Rose-breasted Grosbeak)	Low	Medium
2.3 Diversity	• LOW – low community diversity (patch contains two communities) • LOW – low community and topographic diversity • LOW – no critical habitat for amphibians • LOW – no conifer communities • LOW – no fish habitat available	Low	Low

Evaluation Category	Woodland Characteristics (2021 EMG)	2016 NRSI Assessment (2007 EMG)	MTE Assessment (2021 EMGs)
4.1 Significant Habitat for Threatened or Endangered Species	• No Threatened or Endangered species were observed within the patch. • Five candidate maternity roost trees were identified; however, this does not represent significant habitat of Threatened or Endangered species. MECP generally accepts compensation for the removal of a small number of potential habitat trees.	NO	NO
5.1 Distinctive, Unusual, or High Quality Communities	• LOW – no communities with S-rank >S5 • LOW – Marginal Terrestrial Crayfish SWH is present, but this is more appropriately addressed under SWH and wetland protection policy rather than contributing to woodland significance. • LOW – One Middlesex County uncommon plant (Larger Straw Sedge) • LOW – no trees >50 cm DBH assumed due to historic tree die-off. • LOW – average basal area for all communities in the patch <12 m²/ha for trees >10 cm DBH; or missing two or more of polewood, small, medium, or large size classes	Medium (occasional trees >50 cm DBH)	Low
5.2 High Quality Landform	• MEDIUM – patch is located on the Till Plain	Medium	Medium
TOTAL (High/Medium/Low)		**0/3/5**	**0/3/5**

The 2016 assessment (NRSI, 2016) scored the woodland as medium for three categories, therefore it was determined the woodland was not a significant component of the City of London's natural heritage system. The complete 2016 woodland assessment is provided in **Appendix L**.

MTE field investigations in 2017 and 2021 were used to update the woodland patch assessment. The 2021 Environmental Management Guidelines (City of London) were used for the updated assessment in Table 7. It is MTE's opinion that Woodland Patch 10066 is evaluated as a Woodland as it did not have any 'high' scores and did not have five 'medium' scores to meet the threshold for significance.

5.2.3 Significant Valleylands and Valleylands (1344-1351)

As discussed in Section 5.1.3, there are no Significant Valleylands identified within the Subject Lands (London Plan Map 5, 2022). A Valleyland is identified on Map 5 in the south of the woodlot which extends southwest across the adjacent agricultural fields along an ephemeral flowpath. This flowpath was not flowing during any site investigations, and it has been plowed and planted over for agricultural purposes. Since this feature does not appear to be a distinct landform depression with significant ecological or hydrological functions, it is confirmed to be non-significant.

5.2.4 Significant Wildlife Habitat (1352-1355)

As discussed in Section 5.1.4, SWH for Terrestrial Crayfish is confirmed in Community 2 based on the Ecoregion 7E Criteria Schedule.

As per Policy 1354 of the London Plan (2022), under-represented habitat types in the City of London should be considered as candidate SWH and assessed following the processes outlined in the Natural Heritage Reference Manual (MNRF, 2010). Under-represented habitat types listed by the City of London include marshes, tall grass prairie and savannah, bog, fen, bluff, shallow aquatic

and open aquatic. Community 2 is a very small Meadow Marsh inclusion that does not constitute an under-represented habitat. No under-represented habitat types are present within or adjacent to the Subject Lands.

5.2.5 Areas of Natural and Scientific Interest (1356-1360)

As discussed in Section 5.1.5, there are no ANSI's within or adjacent to the Subject Lands.

5.2.6 Fish Habitat (1323-1324)

As discussed in Section 5.1.6, there is no aquatic habitat within the Subject Lands to support fish species. Indirect contributions to fish habitat may need to be considered further in the EIS.

5.2.7 Habitat of Endangered Species and Threatened Species (1325-1329)

As discussed in Section 5.1.7, no floral or faunal species protected under the *ESA* (2007) were identified within the Subject Lands during MTE field surveys in 2017 or 2021.

Five candidate bat maternity roost trees of decay class 5 (dead) were identified within the central part of Community 1. Decay class 5 is not preferred habitat for bats, however they may still provide roost habitat for Little Brown Myotis and Northern Myotis [END].

5.2.8 Water Resource Systems (1361-1366)

The Subject Lands are located within the Upper Thames River Source Protection Area. The Thames-Sydenham and Region Source Protection Committee indicate that the Subject Lands are not within a SGRA or HVA (TSRSPC, 2015). No streams or other waterbodies are present within the Subject Lands.

5.2.9 Environmentally Significant Areas (1367-1371)

There are no ESAs located within or adjacent to the Subject Lands.

5.2.10 Upland Corridors (1372-1377)

There are no upland corridors identified on Map 5 of the London Plan (2022) within or adjacent to the Subject Lands.

5.2.11 Potential Naturalization Areas (1378-1381)

There are no Potential Naturalization Areas identified on Map 5 of the London Plan (2022) within 120 metres of the Subject Lands.

5.2.12 Unevaluated Vegetation Patches (1383-1384) and Vegetation Patches Larger Than 0.5 Hectares (1385-1386)

The southwest woodlot is identified as an unevaluated vegetation patch (10066) on Map 5 of the London Plan. This woodlot was evaluated for significance by NRSI in 2016 and MTE in this EIS in accordance with Environmental Management Guidelines (City of London, 2022), as described in Section 5.2.2.

There are no vegetation patches larger than 0.5 hectares within the Subject Lands that have not already been discussed.

5.2.13 Other Drainage Features (1387)

There are two ephemeral flow paths (HDF1 and HDF2) within the Subject Lands that are only seasonally wet in the early spring and do not contribute any riparian or fish habitat since they are

usually dry and ploughed/planted through. HDF1 contributes ephemeral flow from the agricultural fields to the drain in Community 3 leading downstream to Thornicroft Drain. HDF2 conveys ephemeral flows during the spring freshet to the woodlot and associated wetland south of the Subject Lands.

5.3 Conservation Authority Regulations

The Upper Thames River Conservation Authority (UTRCA) has mapped the northeast corner of the Subject Lands as within their regulation area (UTRCA online regulatory mapping, 2018). As discussed in Section 2.5, this regulation area appears to be associated with a hydrological feature in a woodland located northeast across Bostwick Road. No development is proposed in an erosion or flood hazard area, so no Section 28 permit will be required.

5.4 Summary of Identified Features and Functions

Table 8 presents a summary of features and functions of the Subject Lands and adjacent lands that have been identified through the policy review, above, as requiring further consideration in this EIS. Features considered under the PPS are not re-stated under the London Plan.

Table 8: Environmental Considerations for the Study Area

Policy Category	Environmental Consideration	Natural Heritage Feature
Provincial Policy Statement (2020)	Significant Wildlife Habitat	Confirmed Terrestrial Crayfish SWH (Community 2)
	Habitat of Endangered Species and Threatened Species	Five candidate bat maternity roost trees observed in Community 1 (CUT1/CUW1). Potential habitat for Little Brown Myotis and Northern Myotis [END].
The London Plan (2022)	Woodlands	The southwest woodlot (Communities 1 and 2) does not meet the City of London 2021 EMG criteria for significance.
	Wetlands	• Community 3 – Southeast SWT2 (0.08) • Community 2 – Southwest MAM2 (0.10 ha) These two inclusions will be carried forward as Wetlands.
	Valleylands	A mapped Valleyland is associated with a flowpath extending south from the woodlot through the adjacent farm field.
	Other Drainage Features	Two ephemeral drainage features HDF1 and HDF2) exist within the Subject Lands. HDF1 leads to Community 3, through a culvert, and eventually to Thornicroft Drain. HDF2 flows south through wetland Community 2 towards downstream wetlands, woodlands, and eventually Dingman Creek. If proposed for alteration, these flowpaths should be mitigated and the wetlands should be conserved based on the HDF assessment. These drainage features and their downstream contributions should be considered in future site planning.

5.5 Ecological Buffers and Pre-Development Considerations

Based on the above review, there are several components of the natural heritage system within the study area that will need to be considered in this EIS.

5.5.1 Public Ownership/Acquisition

In policy section 1404-1407 of the London Plan (2022), the City recognizes not all natural heritage areas will be brought into public ownership or shall be open and accessible for public use. Blocks 14, 15, and 16 are proposed to be in public ownership.

5.5.2 Ecological Buffers

The London Plan (2022) policies 1412-1416 state that ecological buffers are meant to protect natural heritage features and areas, and their ecological functions and processes, to maintain the ecological integrity of the Natural Heritage System. Buffer requirements are determined as part of a Scoped EIS and guided by the City of London *Environmental Management Guidelines* (2021).

Two Wetlands, a Woodland, and a Valleyland are present within and adjacent to the Subject Lands. The EMGs (2021) suggest a buffer width of 30 m between development and Wetlands or Woodlands, with the opportunity for reduced buffers for wetlands less than 0.5 ha and woodlands less than 2 ha. The recommended buffer for a Valleyland in the EMGs depends on the Natural Heritage System component inside the Valleyland. Suggested buffer widths will be taken into account along with the sensitivity and quality of the features to determine appropriate buffers. Buffers will be further discussed in Section 7.0 in the context of impact avoidance and mitigation.

5.5.3 Stewardship

Under the stewardship policies 1408-1411 of the London Plan, protection is encouraged for natural heritage systems that remain in private lands. These protection efforts can include stewardship agreements, Conservation easements, education, land trusts, tax incentives, signage and other suitable techniques. Such efforts will be discussed in conjunction with the post development setting in context of mitigation measures and their contribution to the refinement of setbacks and buffers.

6.0 DESCRIPTION OF THE DEVELOPMENT

The Proponent is proposing the development of a mixed low and medium-density residential subdivision within the Subject Lands (**Figures 9 and 10**). Medium density blocks will include apartments and street townhouses. Northeast apartments will be 6-8 stories high, while the apartment in Block 12 in the southwest will be only 4 stories. Access to the subdivision is proposed directly via both Pack Road and Bostwick Road, and a street connection to the south adjacent lands is intended to connect the proposed subdivision to future residential development in the south. The proposal includes the realignment of Pack Road to connect to a future road extension to the east. The subdivision also includes a 0.414 ha Park (Block 14) in the south.

A 30-metre wide Open Space corridor along the south edge of the Subject Lands is proposed in Block 15 and 16 to retain some existing natural areas and provide opportunities for SWM controls, surface water conveyance to adjacent lands, and habitat creation. A 5 m wide pathway (3 m paved) is proposed along the south edge of the subdivision, adjacent to the 30 m ecological corridor.

Stormwater on site is proposed to be directed east underneath Bostwick Road through an oversized culvert towards a Stormwater Management (SWM) Block on the east adjacent lands (part of a separate project). The east SWM block is proposed to include a dry pond to attenuate peak flows from both the Westwinds Subdivision and the east adjacent Kilbourne development (AGM, 2023).

The west drainage feature will be redirected south through an Open Space block as agreed upon with the south neighbouring property owner. The drainage feature will flow south through a naturalized corridor, then be piped under a road, and finally continue above ground through a park block until it reaches a wetland in the south woodlot, approximately 230 m to the south (Matrix Solutions Inc., 2023). This is essentially the same route the drainage feature currently follows. LID measures will be implemented around the retained woodland patch and southeast culvert. LIDs will be further discussed in the next section and SWM details are discussed in the *Westwinds Stormwater Management Brief* (AGM, 2023).

7.0 IMPACTS AND MITIGATION

This section reviews the development proposal (**Figures 9 and 10**) and identifies potential direct and indirect impacts to the significant natural heritage features within and adjacent to the development footprint. Appropriate avoidance, protection and mitigation measures for the impacts are also presented. At the conclusion of the section, a net effects table is provided for the proposed development application, summarizing potential impacts as well as proposed mitigation, compensation, or enhancement measures (Table 10).

An Environmental Management Plan (EMP) has been prepared using these recommendations and is provided in **Appendix N**. Recommendations from the Hydrogeological Assessment (EXP, 2023) have been included in the evaluation of impacts, and recommendations from the SWM report and Tree Preservation Plan should also be considered once completed.

Based on the analysis in Section 5.0, the significant features identified are summarized in Table 8 above. Significant natural heritage features identified within the Subject Lands are:

- Woodland
- Wetlands
- Valleyland (adjacent lands)
- Significant Wildlife Habitat (Terrestrial Crayfish SWH in Community 1)
- Fish Habitat (downstream contributions to Thornicroft Drain)
- Potential Habitat of Endangered Species (Endangered bat species in Community 1)

The potential direct impacts of the proposed development on these natural heritage features will be discussed in the following Section 7.1. The potential for indirect impacts is discussed in Section 7.2.

7.1 Direct Impacts and Mitigation

7.1.1 Woodlands and Vegetation Removal

Patch 10066 (Community 1 and 2) is proposed to be partially removed for this development. An area of 0.82 ha is proposed to be removed, resulting in retention of 1.08 ha of Woodland. Compensation for removal of trees is required as per London policy.

This Woodland is currently isolated from other natural areas by agricultural fields on all sides, and it is notably impacted by invasive plants. The woodlot includes a mix of cultural thicket and woodland vegetation, and Common Buckthorn, a priority invasive species from the *City of London Invasive Plant Management Strategy*, is dominant in this feature. Other non-native species including Bittersweet Nightshade, Manitoba Maple, Garlic Mustard, Tatarian Honeysuckle, Multiflora Rose, Eastern Helleborine, Canada Thistle, and Common St. John's-wort. The removal and compensation strategy for this Woodland will focus on retaining its existing features and functions while improving its linkage function and natural quality.

Areas in and around the wetland inclusion (Community 2) will be retained in their current form, therefore protecting the water conveyance and Terrestrial Crayfish habitat functions of the Woodland. Compensation measures are proposed to include woodland planting with a focus on creating an enhanced wildlife corridor, as well as invasive species management and restoration in the retained woodland. As a naturalized buffer is not proposed around the retained woodland, the loss of a 10 m wide buffer from the north and east edges of the existing woodland has been factored into the total estimated removals and, consequently, the compensation goal. Table 9 outlines the net impacts to the woodland, and compensation is further discussed below.

Table 9: Area Calculations for Impacts to the Southwest Woodlot

Area Measured	Area (ha)
Woodland Removal within the Subject Lands	
Woodland area to be removed for the proposed development	0.82 ha
Compensation within the Subject Lands	
Proposed woodland planting in the 30 m wide open space corridor along the southern boundary of the Subject Lands (does not include retained woodland)	0.74 ha
Net Woodland Area within the Subject Lands	*- 0.08 ha*
Conceptual Buffer Consideration	
10 m buffer along the existing north and east side of the woodland – will not be provided, so is considered in terms of compensation	0.23 ha
Additional Compensation (not 1:1 woodland compensation)	
Restoration tree planting in the east adjacent lands (Kilbourne Development)	Approx. 0.5 ha

Policy 399 of the London Plan states that trees to be removed should be replaced at a ratio of one tree per ten centimetres of tree diameter removed. Cash-in-lieu is also sometimes permitted. In this EIS, compensation is proposed to be provided based on Woodland area in order to account for the lack of a provided Woodland buffer and with the intent to create a cohesive habitat area rather than planting individual trees based on diameter removed.

The City of London EMGs provide guidelines for compensation for removal of natural features:

- The removal should result in no negative impacts, no net loss, and/or preferably a net environmental benefit.
- Proposed ecological compensation must be within the same subwatershed as the removed feature and in close proximity where possible.
- Enhancement of ecological function (ex: replacing invasive species, improving linkages, replicating/creating wildlife habitat, strengthening climate resiliency) should be considered when determining compensation.

The primary recommended compensation strategy is to create a minimum 30 m wide woodland corridor that provides an improved natural linkage between the existing woodland and natural areas located along Thornicroft Drain east of Bostwick Road. This corridor will provide a direct movement corridor for wildlife through a proposed wildlife underpass of Bostwick Road. A park and pathway are provided next to this naturalized buffer as a transition between the corridor and development.

As outlined in Table 9 above, a 1.55 ha Open Space corridor consisting of retained (0.81 ha) and planted (0.74 ha) woodland vegetation is proposed in Open Space Blocks 15 and 16 bordering the south property boundary. This compensation amounts to nearly 1:1 for the 0.82 ha removed.

Compensation planting on site is proposed to include native tree plantings and groundcover with species that are appropriate for the site conditions and existing community. The corridor will also focus on ecological enhancement opportunities. Invasive species management is recommended which should improve the natural heritage quality of the currently Buckthorn-dominant woodland. Existing high-quality trees should be retained in the Open Space blocks, and these should be identified and protected through a Tree Preservation Plan (TPP). Terrestrial Crayfish and candidate bat habitat will be retained or created as discussed further in Section 7.1.5 and 7.1.6 of this EIS.

The Open Space corridor will provide linkage to nearby natural heritage features (OS) to the east. To maintain connectivity post development, the corridor is proposed to continue the linkage through culverts under Street A and under Bostwick Road. The culverts need be large enough to encourage

small wildlife movement safely under the roads, and the Bostwick Road culvert should target both terrestrial and amphibian conveyance. The culvert dimensions (length vs. opening width) should be determined at detailed design. This linkage then would connect with the existing natural area surrounding Thornicroft Drain east of Bostwick, thereby improving the natural linkage for movement of wildlife such as small mammals and amphibians. This strategy meets the intent of the EMG compensation guidelines because the main compensation area is contiguous with the existing Woodland, and it enhances ecological function (wildlife linkage, invasive species management).

A corridor is also proposed to the south to link with the south adjacent development flow requirements. The corridor consists of a 30 m wide naturalized block connected to a park block with a naturalized portion along the drain next to the park. This linkage intends to provide flow contributions and movement corridor for small wildlife moving between woodland patch 10066 and patch 10069 to the south.

The enhanced Open Space corridor (**Figure 11**) will result in a gain in linkage and natural floristic benefits through re-orientation and naturalization of a disturbed Woodland while retaining some woodland feature in its current location. Aside from woodland removal, the City has also suggested a 10 m buffer that would typically be requested if the woodland was left in-situ. As a result, they have requested this 10 m buffer area be considered in terms of compensation. This 10 m conceptual buffer (currently agricultural) for the existing woodland covers approximately 0.23 ha. Instead of direct compensation for the concept buffer within the woodland compensation area, some additional tree planting is proposed elsewhere (within Subject Lands or across Bostwick Road). Alternative compensation measures are outlined in Table 9. Additional tree plantings are proposed on the east property across Bostwick Road on a property known as the Kilbourne Development (**Figure 11**). This additional planting area (estimated 0.5 ha) may not be considered 1:1 compensation as open vegetation already exists in this area, but it is our opinion restoration of this off-site area can further enhance the woodland linkage towards Thornicroft Drain and increase the area of created woodland. Overall, the removal of a portion of the Woodland will be compensated through woodland plantings, invasive species management/restoration activities, and enhancement of a better-connected wildlife linkage corridor. A landscape plan for the naturalized corridor should be provided at detailed design.

Recommendation 1:
A Tree Preservation Report (TPR) should be completed by a Certified Arborist in conjunction with the grading plan for the trees to remain within the Subject Lands. Mitigation measures to protect retained trees should be provided.

Recommendation 2:
Install tree protection fencing after vegetation removal and prior to any construction activities within the Subject Lands. Locations for tree protection fencing will be outlined in the TPR. Tree protection fencing may be able to be combined with ESC fencing.

Recommendation 3:
All naturalized areas (i.e., enhanced OS corridor) should incorporate species native to Ecoregion 7E that are suitable to the existing soil conditions of the Subject Lands. The goal for community creation in the corridor should be a deciduous woodland contiguous with the existing Woodland. Suitable tree species may include Sugar Maple, Bitternut Hickory, Ironwood, Black Cherry, and Basswood. A landscape plan should be provided at detailed design.

Recommendation 4:
Understory and ground layer plant species should be incorporated into the restoration and naturalization plan through seeding where the ground is disturbed during construction and/or not already naturalized with native species. Seed mixes should consist of species native to the Ecoregion (7E), adapted to the site conditions, and approved by the City of London.

Recommendation 5:
Invasive species management should be completed using best management practices (City of London, 2017) within the retained Woodland, with a focus on Buckthorn removal. After invasive species removal, restoration can be completed using suitable woodland native species. Restoration details should be provided at detailed design.

Recommendation 6:
The proposed culverts under Street A and Bostwick Road should be oversized to facilitate wildlife movement. The Bostwick Road culvert should have both terrestrial and aquatic characteristics.

7.1.2 Wetlands

As discussed in Section 5.2.1, two small Wetland inclusions (Community 2 and Community 3) are present within the Subject Lands. The City of London requires the net retention of all wetland features or functions (London Plan, 2022).

Community 2 (0.01 ha) is proposed to be retained with a greater than 30 m buffer from the proposed Westwinds subdivision, with some alteration of the incoming/outgoing ephemeral flowpaths. This buffer is considered more than sufficient based on the wetland's small size (<0.5 ha) and limited significance. Currently, the functions of Community 2 are ephemeral conveyance of surface water and limited Terrestrial Crayfish habitat. Hydrological functions and SWH are anticipated to be retained post-construction. Outgoing seasonal overland flow (HDF2) from this wetland is still expected to be conveyed south to downstream features but outgoing flow will need to be aligned to coordinate with a separate development application to the south. Flows from the wetland are anticipated to be directed through a vegetated swale in an adjacent naturalized Open Space block, then continue south across adjacent lands to retain the current drainage pathway and support downstream wetland features (**Figure 11**). The flowpath south will be partially piped and partially directed through an open swale in a park block. Surface water conveyance downstream may be improved through creation of a designated flow path through a vegetated swale rather than water flowing through an active agricultural field where flows are interrupted by spring ploughing and planted row crops. The HDF2 flowpath to the south is further discussed in Section 7.1.3 in the context of the valleyland.

Pre-development runoff from the Subject Lands must also be maintained to Community 2 through infiltration and low impact development (LID) strategies. The Hydrogeological Assessment (EXP, 2023) includes a water balance for Community 2 and concluded that post-construction infiltration in the wetland's catchment would be 37% of pre-development conditions with no mitigations. EXP recommends a 10% reduction in runoff through LID or other measures to achieve the target runoff of 80% pre-development conditions. The pre-construction quality and quantity of surface water inputs to Community 2 must be maintained.

Impacts and mitigations for Terrestrial Crayfish SWH will be discussed in Section 7.1.4, but no net impacts are anticipated. Overall, the main functions of Community 2 are expected to be retained or compensated for, with a potential net benefit for downstream overland flow and native vegetation cover.

Where a wetland is less than 0.1 ha, replacement may be considered at less than a one-to-one land area basis if there is no net loss of function (City of London, 2022). Community 3 (0.08 ha) is proposed to be removed along with the ingoing seasonal flowpath (HDF1), but wetland functions should be retained. It should also be noted that the vegetation in this community has already been largely removed as part of septic bed repair activities in 2022.

The only function of Community 3 is hydrological as it collects water from the agricultural field via a seasonal flowpath (HDF1), particularly in the spring, and conveys it through a culvert under Bostwick Road and towards Thornicroft Drain. This wetland feature does not support amphibian habitat and has minimal ecological value because it is very small, contains waste such as broken

concrete and litter, and is isolated from any natural vegetation. The existing seasonal water (spring runoff and heavier rain events) function can be replicated through LID measures to mimic pre-development flows from the development area to downstream Thornicroft Drain. While it is preferable to convey these flows through the existing culvert, if this culvert is to be decommissioned due to plans for the east SWM pond on the Kilbourne lands (AGM, 2023), then overland flow must be provided to Thornicroft Drain through another means to support downstream fish habitat and maintain Thornicroft water levels. Water balance calculations should be completed to evaluate anticipated flows post-construction and help inform SWM design. Provided downstream surface water conveyance is maintained post-construction, no net loss of wetland function is anticipated from removal of Community 3 for the proposed development.

Recommendation 7:
Maintain and improve the wetland function of Community 2 through retention of wetland area and maintenance of downstream surface water drainage through redirection of seasonal flow to a designated naturalized swale.

Recommendation 8:
Refer to the Hydrogeological Assessment (EXP, 2023) for recommended LID and other mitigation measures, as well as water balance calculations. Refer to the SWM Brief (AGM, 2023) as well for controls to meet hydrogeological objectives. LID or other measures are needed to reduce runoff so hydrological inputs will be sufficient to maintain Community 2 (MAM2) and its associated drainage system post-construction. Maintenance of pre-development surface water inputs should be considered when finalizing SWM design.

Recommendation 9:
Water quality will need to be accounted for in the design of any mitigation measures (i.e., LID measures) to account for potential impacts from contaminant sources such as winter maintenance on roads and parking lots (EXP, 2023).

Recommendation 10:
Maintain water quality and pre-development levels of surface water conveyance to Thornicroft Drain through the existing culvert or proposed SWM system to the east. Water balance calculations should be completed to evaluate anticipated flows post-construction and help inform SWM design.

Recommendation 11:
Remove Community 3 and replace with SWM/LID measures outside the spring freshet period to limit interruption to downstream systems.

Recommendation 12:
Erosion and sediment control measures must be implemented prior to and during construction to prevent impacts to the retained wetland area. Erosion and sediment control fencing is discussed in Section 7.2.

7.1.3 Valleylands

The southwest flowpath (HDF2 in this report) is designated a Valleyland in the London Plan (2022). This feature is largely off-property, but through cooperation with the south adjacent landowner the Valleyland is proposed to be realigned slightly through a vegetated swale and partially piped to the south, with water being conveyed from Community 2 (MAM2) to the south, approximately along its existing route to woodland patch 10069. This realignment is roughly shown on **Figure 11**.

The Valleyland is currently a seasonally wet flowpath through an active agricultural field with no defined channel and only intermittent flow during the spring freshet. Through the proposed swale creation, the Valleyland and downstream systems are anticipated to continue to receive surface water inputs during the spring freshet as before. Conveyance of surface water is expected to be improved from current conditions, as the path for surface drainage will no longer be inhibited by a frequently ploughed and planted agricultural field. Instead, water should be able to flow through a

designated naturalized swale, except where it will be piped under a road. This system will create a better hydrological linkage and potentially support movement of species such as frogs between vegetation patches.

Hydrologic modelling for the south adjacent development indicates that the water balance and overall average runoff to woodland patch 10069 (~230 m to the south) from the Westwinds property, particularly the HDF2 valleyland, can be maintained close to existing conditions post-development (Matrix Solutions Inc., 2023). The hydroperiod of the patch 10069 wetland is also expected to be maintained. This modelling takes into account the anticipated development of this Project (Westwinds Subdivision), including 'clean' runoff from Block 15 (OS corridor) and the roof of the south apartment building.

A water balance completed by EXP (2023) indicates that LID or other measures are needed to maintain the hydrological condition of Community 2 (MAM2) and consequently its southward flowpath. This water balance should be used to guide SWM design. If appropriate hydrological mitigations are implemented, no net impacts to the Valleyland are anticipated. The flow realignment will require an update to Map 5 of the London Plan.

Recommendation 13:
Implement mitigation measures outlined in the Hydrogeological Assessment (EXP, 2023) and SWM Brief (AGM, 2023) to retain the hydrological condition of Community 2 (MAM2) and HDF2 post-construction. The water balance should be used to guide SWM design.

Recommendation 14:
Naturalize the vegetated swale in the south adjacent drainage feature block with species native to Ecoregion 7E after construction is complete.

Recommendation 15:
Alter the Valleyland (HDF2) outside the spring freshet period to limit interruption to downstream systems.

7.1.4 Significant Wildlife Habitat

Terrestrial Crayfish chimneys were observed along the periphery of Community 2 (MAM2) near the agricultural field. Community 2 will be retained as potential habitat, and additional habitat may be available along the constructed vegetated swales. No net impacts to Terrestrial Crayfish habitat are anticipated.

7.1.5 Fish Habitat

No fish habitat is present within the Subject Lands, but HDF1 (through the Community 3 culvert) has a contributing function to downstream fish habitat in Thornicroft Drain. As discussed in Section 7.1.2, this overland flow (mainly in the spring or rainstorm events) must continue to be conveyed downstream to Thornicroft Drain. If the culvert is to be decommissioned for the east SWM development on the Kilbourne lands (AGM, 2023), then overland flow must be provided to Thornicroft Drain through other means to support downstream fish habitat. Water balance calculations should be completed to evaluate anticipated flows post-construction and help inform SWM design.

7.1.6 Habitat of Endangered and Threatened Species

Five candidate bat maternity roost trees were observed in Community 1 (CUT1/CUW1) that are conservatively considered candidate habitat for Little Brown Myotis [END] and Northern Myotis [END]. Four of five candidate bat maternity roost trees are proposed for removal.

Recommendation 16:
Removal of trees >10 cm DBH should occur between October 1 and March 31, outside of the active bat season, to avoid potential impacts to roosting bats. This includes dead standing trees.

Recommendation 17:
Install two rocket-style bat boxes in a suitable location (e.g., along the OS corridor edge or in the east habitat compensation area) as greater than 2:1 habitat compensation. Rocket-style bat boxes replace tree habitat at a rate of one box per five habitat trees removed. The location of the bat boxes should be incorporated into the landscape plan at detailed design. A conceptual location is shown on **Figure 11**. Installation of the bat boxes should be advised by a qualified professional.

7.1.7 Headwater Drainage Features

Section 4.3 of this EIS determined management recommendations for the headwater drainage features within the Subject Lands using the HDF classification process (CVC & UTRCA, 2014). HDF1 and HDF2 are recommended to be mitigated through retention of ephemeral flow conveyance based on the HDF assessment in Section 4.5.

The retention and mitigation of Wetlands was addressed in Section 7.1.1, including the protection of the upstream and downstream drainage features associated with them. The protection of HDF2 (flowing from Community 2) was addressed in the context of a Valleyland in Section 7.1.3. No additional recommendations are needed for removal/alteration of seasonal flowpaths within the Subject Lands.

7.1.8 Migratory Birds and Wildlife

Nesting migratory birds are protected under the *Migratory Birds Convention Act* (*MBCA*), 1994. No work is permitted to proceed that would result in the destruction of active nests (nests with eggs or young birds), or the wounding or killing of birds, of species protected under the *Migratory Birds Convention Act*, 1994 and/or Regulations under that Act. Some MBCA-protected species, such as Killdeer, may make use of un-maintained areas as they frequently make nests on the ground in construction sites and other disturbed areas.

Wildlife may also experience disturbance during construction when crossing roads or moving through active construction areas. Timing restrictions on vegetation removal are recommended to avoid disturbance to wildlife that may be using natural areas on the site, including breeding birds and reptiles.

Recommendation 18:
Avoid vegetation clearing and site disturbance during migratory bird breeding season (April 1 to August 31) to ensure that no active nests are removed or disturbed, in accordance with the *Migratory Birds Convention Act* and/or Regulations under that Act. If works are proposed within the breeding season, the area should be checked for nesting birds by a qualified person prior to any vegetation removal or ground disturbance. If nesting birds are present, works in the area should not proceed until after August 31 or until the nest has been confirmed inactive (e.g., young have fledged).

Recommendation 19:
Make workers aware of potential incidental encounters with wildlife and the necessary protections. If an animal (protected or not) enters the work site, work at that location will stop and the animal should be permitted to leave without being harassed. If there are repeat observations of wildlife in the work area, barrier fencing may be used to direct wildlife away from active construction and toward natural areas.

Recommendation 20:
No Bank Swallow [THR] were observed within or adjacent to the Subject Lands, however creation of suitable habitat (e.g., soil stockpiles) during construction should be avoided. Best management practices for deterring nesting during construction activities should be implemented (OMNRF, 2017). These measures should include stockpile slope management (i.e., grading stockpiles, eliminating vertical extraction faces, reducing slopes to less than 70 degrees) until at least July 15.

7.2 Indirect Impacts and Mitigation

Natural heritage features may also experience indirect effects during construction, including sedimentation and erosion, or post-construction, such as inadvertent encroachment. Indirect impacts on natural features will be mitigated through the implementation of standard environmental protection measures, discussed below.

7.2.1 Sediment and Erosion Control Measures

A critical time for the protection of natural heritage features is during the construction phase. For all works, substantial sediment and erosion control measures will be required to ensure that indirect impacts to the natural heritage features identified in this report are avoided or mitigated.

Recommendation 21:
A detailed interim stormwater management plan is needed to guide the construction phase and protect the wetland features. Stormwater must be discharged away from the retained Wetland and Woodland. This should be provided along with LID measures at detailed design.

Recommendation 22:
Robust sediment and erosion control fencing should be installed along the north and east side of the retained Wetland (Community 2) and Woodland, and around the east culvert (Community 3) (**Figure 11**). The exact location of ESC fencing should be determined on the grading plan. ESC fence installation should occur after vegetation removal but prior to construction activities on site. The fence should act as a barrier to keep construction equipment and spoil away from the vegetation to remain and prevent erosion and sedimentation of the Wetland and Woodland features and downstream systems.

Recommendation 23:
Sediment and erosion control fencing should be installed according to the *City of London Design Specifications and Requirements Manual* specifications (2019) and *The Erosion and Sediment Control Guide for Urban Construction* (TRCA, 2019).

Recommendation 24:
Sediment and erosion control fencing should be inspected prior to construction to ensure it was installed correctly and regularly during construction to ensure that the fencing is being maintained and functioning properly. Checks after storm events are also recommended. Any issues that are identified should be resolved as quickly as possible, ideally the same day.

Recommendation 25:
Stockpile locations should be determined at detailed design. Soil stockpiles should be established in locations where natural drainage is away from the Wetland (Community 2) and culvert if possible. No soil should be stockpiled in close proximity to these features. If this is not possible and there is a possibility of any stockpile slumping and moving toward the edge of these hydrological features, the stockpiles should be protected with robust sediment and erosion control. Access to the stockpile should be confined to the up-gradient side.

Recommendation 26:
Dust abatement measures (e.g., watering) are recommended if the site grading will occur during extended dry weather periods.

Recommendation 27:
Sediment and erosion control fencing should not be removed until adequate re-vegetation and site stabilization has occurred. Additional re-vegetation plantings and/or more time for vegetation to establish may be required; however, two growing seasons are typically sufficient to stabilize most sites.

Recommendation 28:
All disturbed areas should be re-seeded as soon as possible to maximize erosion protection and to minimize volunteer populations of invasive species which may spread to the adjacent feature.

Recommendation 29:
Roof runoff to bare ground can generate considerable sediment movement beyond the construction limits. Until the grounds have been vegetated and stable for housing and development adjacent to vegetation, roof leaders should be directed to the streets or nearby stabilized vegetated areas.

7.2.2 Construction Site Management

Recommendation 30:
Regular cleanup of the Subject Lands must be completed during construction and post-construction to ensure the adjacent natural heritage features are not degraded.

Recommendation 31:
Equipment should be cleaned prior to arrival on site including tires, undercarriage, and any part of the equipment that may transport invasive seeds to the site. Clean equipment protocols are provided by London's *Invasive Plant Management Strategy* (2017) and should be followed where appropriate.

7.2.3 Protection of Water Resources

The Hydrogeological Assessment (EXP, 2023) outlines potential impacts to the hydrological features on site, including impacts to surface water or water quality. The recommendations from the Hydrogeological Assessment are included below for consistency, but the full report should be referenced as well.

Recommendation 32:
Sedimentation controls during site grading work must help control and reduce the turbidity of runoff that could flow to surface water features (i.e., the retained wetland and headwater drainage features to be altered) (EXP, 2023).

Recommendation 33:
A Best Management Practice (BMP) and spill contingency plan (including a spill action response plan) should be in place for fuel handling, storage, and onsite equipment maintenance activities to minimize the risk of contaminant releases as a result of the proposed construction activities (EXP, 2023).

Recommendation 34:
Re-establish vegetative cover in disturbed areas following the completion of construction activities (EXP, 2023).

Recommendation 35:
Contractors working at the site should ensure that construction equipment is in good working order. Equipment operators should have spill-prevention kits, where appropriate (EXP, 2023).

Recommendation 36:
Limit the use of commercial fertilizers and other chemical applications in the landscaped areas bordering the Open Space corridor and retained woodland (EXP, 2023).

Recommendation 37:
Consideration may be given to using grass varieties in the landscaped areas which are heartier and require less extensive watering or fertilizers (EXP, 2023).

Recommendation 38:
Limit the use of salts or other additives for ice and snow control on the roadways and parking areas (EXP, 2023).

7.2.4 Lighting and Noise

Residential noise is managed through existing By-laws which restrict excessive noise, and wildlife using the woodlot or agricultural field are already subject to some light and noise disturbance by neighbouring residents and traffic. Lighting impacts could result from the poor placement or shading of exterior fixtures which could cast glare into the adjacent natural area.

Recommendation 39:
Noise disturbance during construction should be limited to allowable hours per City of London By-law.

Recommendation 40:
Exterior lighting within the development area should be fully shielded and pointed downward to minimize skyglow, glare, and light trespass into the woodland post-construction.

7.2.5 Long Term Conservation and Landowner(s) Education

Recommendation 41:
Provide new residents with the brochure “Living with Natural Areas” (UTRCA, 2005) to encourage stewardship and responsible living practices near natural heritage features. This brochure addresses encroachment, invasive species, yard waste and garbage disposal, lawn/garden chemicals, trail creation, vegetation trampling, and pets among other important impacts to natural areas.

Recommendation 42:
Provide waste disposal bins along the proposed 5 m pathway to discourage littering next to the Open Space corridor.

7.3 Monitoring Plan

The mitigation and compensation measures recommended in this EIS aim to minimize and compensate for direct and indirect impacts to significant natural heritage features and functions. The monitoring plan is recommended to document the implementation of the mitigation and compensation measures during construction and post-construction.

The monitoring plan will be 2-phase and will consist of a construction monitoring plan and a long-term post-construction plan. The construction monitoring plan will monitor for construction-related impacts, document successes or deficiencies of the implemented mitigation measures, and provide guidance on remedial actions for circumstances when mitigation is not successful [e.g., Erosion and Sedimentation Control (ESC) measures]. This plan should continue from clearing and grubbing through to apartment building construction until grounds adjacent to natural features are vegetated and stabilized. This plan will be developed during the detailed design stage. Reports should be made available to the UTRCA and City design services staff.

Long-term post-construction monitoring shall evaluate the success of the proposed active naturalization efforts and planting compensation, as well as areas of invasive species management. Monitoring should be undertaken at Year 1 of Open Space corridor planting (e.g., plant warranty) to document survivorship or replacements, and at Year 3 to document plant establishment and growth. Remedial actions are triggered if effects exceed pre-determined thresholds (e.g.,

supplemental plantings if survival rates are low, additional invasive species management). Recommendations for monitoring are:

- Encroachment into the OS corridor should be monitored for two years (Years 1 and 2) starting once the development is at 80% build-out. Monitoring should include looking for litter, informal trail creation, mowing, and other impacts. Annual reports must be provided to the City of London. Additional strategies should be implemented if required.
- Additional strategies should be tailored to the encroachment issue, but may include the addition of signage, adding or repairing fences, installing monitored garbage cans, additional homeowner awareness, or other strategies.
- Vegetation monitoring in the Open Space corridor should be completed for two years (Years 1 and 3) after planting to document compliance with the plans and establishment of planted material. Monitoring in Year 1 (e.g., plant warranty) should document success of seed germination and confirm the correct seed mix and/or species were used. Monitoring in Year 3 should document plant establishment and growth.
- Implement adaptive management strategies when required such as supplemental plantings, and/or control of non-native invasive species. Adaptive management may be triggered by poor survival of planted material (70% survival is target) or insufficient native vegetation cover (80% natural groundcover is target).
- Adaptive management strategies within the OS corridor will depend on the problem encountered but may include removal of invasive species (refer to the Best Management Practices from the Ontario Invasive Plant Council for the appropriate method), reseeding or replanting with target species, or increasing the frequency of monitoring.
- As suggested by EXP, consider post-development water quality testing in the retained wetland area to monitor for changes.

7.4 UTRCA Regulation

No Section 28 permit should be required for the proposed work as no development is proposed in a regulated erosion or flood hazard area.

7.5 Net Effects

Table 10, below, summarizes potential impacts to natural heritage features and functions as well as proposed mitigation, compensation, or enhancement measures. Please note that these measures are repeated from the recommendations and monitoring plan above.

Table 10: Net Effects

Source of Impact	Affected Feature	Predictions of Impact	Mitigation Strategy	Net Effect	Recommendations for Management/Monitoring
Artificial Lighting	Woodland, Wetland	Low impacts expected - residential lights	Residential lighting is unlikely to significantly impact common wildlife species; exterior lighting within the development area should be fully shielded and pointed downward to minimize skyglow, glare, and light trespass into the woodland post-construction.	No net effect	None.
Litter and Garbage	Woodland, Wetland Valleyland	Low impacts expected - garbage/litter from residential area	Homeowner education ("Living with Natural Areas" brochure); waste disposal bins along any proposed pathways.	No net effect	Ongoing education. Encroachment monitoring – once the development is at 80% build-out, annual reporting to the City of London should be completed for two years.
Increased access to sensitive area	Woodland, Wetland	Medium impacts expected - vegetation could get trampled	Educational materials ("Living with Natural Areas" brochure) to discourage wandering; proposed pathway to formalize where walking is allowed outside areas that are more sensitive.	No net effect	Encroachment monitoring – once the development is at 80% build-out, annual reporting to the City of London should be completed for two years.
Creation of new trails	Woodland, Wetland	Medium impacts expected - ad-hoc trails may trample ground cover, transport invasive species	Educational materials ("Living with Natural Areas" brochure) to discourage wandering; proposed pathway to formalize where walking is allowed outside areas that are more sensitive.	No net effect	Ongoing education. Encroachment monitoring – once the development is at 80% build-out, annual reporting to the City of London should be completed for two years.
Tree damage	Woodland	Low impacts expected - limb removal, root damage	Tree Preservation Plan should be completed to identify trees to be retained, provide mitigation measures, and specify compensation requirements.	No net effect	Monitor tree protection fencing during construction and repair as needed. Monitor for tree damage post-construction.
Increased noise	Woodland, Wetland	Low impacts expected - common faunal species present - construction noise impact is temporary	Low level noise from homes will not impact common species; noise disturbance during construction should be limited to allowable hours per City of London By-law; noise from heavy machinery should be avoided where possible during the migratory bird breeding period (April 11 to August 15 in forest habitats in region C2) to avoid disturbance of birds nesting; increased noise from construction will be temporary	No net effect	Residential by-laws restrict excessive noise.

Source of Impact	Affected Feature	Predictions of Impact	Mitigation Strategy	Net Effect	Recommendations for Management/Monitoring
Disturbance to wildlife during construction	Woodland, Wetland	Low impacts expected - disruption to activities of nearby wildlife will be temporary	Restrict timing of habitat and vegetation removal to outside breeding and sensitive periods for birds; make workers aware of potential incidental encounters and necessary protections; if an animal enters the work site, work at that location will stop and the animal should be permitted to leave without being harassed; if there are repeat observations of wildlife in the work area, barrier fencing may be used to direct wildlife away from active construction and toward natural areas	No net effect	Disturbance from construction activities is temporary and minimal for species within the surrounding lands. Monitoring and reporting protocols for incidental wildlife encounters should be followed.
Decreased infiltration and increased run-off	Woodland, Valleyland, Drainage Features, Wetland	Low impacts expected - impervious surfaces decrease infiltration	Vegetated areas for infiltration will be retained in the Park and Open Space blocks; sediment and erosion control fencing should remain until construction is complete and disturbed areas are seeded; all issues with sediment and erosion control measures should be resolved the same day; LID and other measures proposed by EXP to decrease runoff (EXP, 2023)	No net effect	Monitor sediment and erosion control fencing.
Increased erosion	Woodland, Wetland, Valleyland	Low impacts expected	Sediment and erosion control fencing will protect retained natural heritage features; fencing should remain until construction is complete and disturbed areas are seeded; all issues with sediment and erosion control measures should be resolved the same day	No net effect	Monitor sediment and erosion control fencing.
Increased nutrient, pesticide, chemicals, and sediment	Woodland, Wetland, Drainage Features, Valleyland	Low impacts expected - Subject Lands already subject to agricultural inputs	Sediment and erosion control plan during construction; limit the use of commercial fertilizers and other chemical applications; consider the use of grass varieties which are heartier and require less extensive watering or fertilizers; limit the use of salts or other additives for ice and snow control on driveways	No net effect	Monitor sediment and erosion control fencing.
Visual intrusion	Woodland, Wetland	Low impacts expected - residential housing is not visually intrusive	Subject Lands are currently largely agricultural surrounded by roadways; no decrease in visual appeal is anticipated	No net effect	None.
Domestic animals	Woodland, Wetland	Low impacts expected - off-leash dogs can trample plants - outdoor cats kill wildlife	Homeowner education (“Living with Natural Areas” brochure).	No net effect	Ongoing education.
Introduced invasive plants	Woodland, Wetland	Low impacts expected - inappropriate disposal of lawn/gardening waste	Invasive species removal and restoration in the retained Woodland; native woodland creation in OS Block 15 and 16, homeowner education about	Positive net effect	Monitor the success of invasive species management and

Source of Impact	Affected Feature	Predictions of Impact	Mitigation Strategy	Net Effect	Recommendations for Management/Monitoring
			disposing of lawn/garden waste ("Living with Natural Areas" brochure).		establishment of native species.
Air pollution	Woodland, Wetland	No impacts expected	The subdivision will not generate substantial air pollution in the region compared to surrounding land uses.	No net effect	None.
Fire Hazards	Woodland	Low impacts expected - potential for recreational gatherings	Homeowner education ("Living with Natural Areas" brochure) to discourage physical encroachment	No net effect	Ongoing education.
Use of heavy machinery – tree damage, soil compaction	Woodland	Low impacts expected - machinery too close to retained vegetation can break off branches, wound trunks, or compact soil over vital tree roots	Tree Preservation Plan is recommended to be completed and provide mitigation measures (e.g., tree protection fencing); all issues with protection fencing should be resolved the same day	No net effect	Regular monitoring during construction to ensure tree protection fencing and sediment/erosion control fencing is functioning. Post-construction monitoring to ensure tree protection measures were successful and no additional plantings are needed.
Use of heavy machinery – oil, gasoline, grease spill	Woodland, Wetland, Drainage Features, Valleyland	Medium impacts expected - machinery can leak or refueling can generate spills	BMPs and a spill contingency plan (including a spill action response plan) should be in place for fuel handling, storage and onsite equipment maintenance activities to minimize the risk of contaminant releases as a result of the proposed construction activities; contractors working at the site should ensure that construction equipment is in good working order; equipment operators should have spill-prevention kits, where appropriate	No net effect	Containment of spills should be included in plan.
Changes in soil grade	Woodland	Medium impacts expected - raising grades suffocate roots - lowering grade may remove tree roots	Tree Preservation Plan is recommended to be completed and provide mitigation measures (e.g., tree protection fencing).	No net effect	Regular monitoring by an ecological consultant during construction to ensure trees are protected. Post-construction monitoring to ensure tree protection measures were successful and no additional plantings are needed.

8.0 SUMMARY AND CONCLUSIONS

The Proponent (Amiraco Properties Inc.) is proposing a low and medium-density residential subdivision ("Westwinds Subdivision") within the Subject Lands at 3563 Bostwick Road in the City of London.

This EIS has identified and set out recommendations to mitigate for direct impacts to the Wetlands, Woodland, and Valleyland within and adjacent to the Subject Lands. Direct impacts that cannot be avoided will be compensated for through replication of drainage and wetland functions, woodland compensation planting in an enhanced linkage corridor, retention and creation of wildlife habitat, and invasive species management. Additional mitigation measures have been recommended in the Hydrogeological Assessment (EXP, 2023) to prevent any loss of hydrological function within Community 2 (MAM2) as a result of the wetland and headwater drainage alterations. An additional investigation is recommended to understand and mitigate potential impacts to the east drainage feature as well. Recommendations are also provided to protect the natural heritage features from indirect impacts, such as erosion and sediment control measures. No net impacts to the significant natural heritage system are anticipated.

Provided the recommendations in this EIS are followed and no significant hydrological impacts to wetlands or drainage features are expected based on EXP calculations, it is our opinion that the proposed development can proceed.

MTE seeks comments from the City of London and the UTRCA with respect to the contents of the EIS. Formal comments can be submitted in writing to MTE of behalf of the client. Should you wish to clarify any questions or require additional information as part of the review of this EIS, do not hesitate to contact us.

All of which is respectfully submitted,

MTE CONSULTANTS INC.

Allie Leadbetter, B.Sc.
Biologist
519-204-6510 ext. 2243
aleadbetter@mte85.com

Dave Hayman, M.Sc.
Senior Biologist
519-204-6510 ext. 2241
dhayman@mte85.com

AXL:sdm
\\mte85.local\mte\Proj_Mgmt\49130\100\05-Reports\Environmental Impact Study\Text\49130-100_Westwinds_EIS_RevisedAug-Sept2023_2023-09-20.docx

9.0 REFERENCES

AGM. 2023. Westwinds Subdivision Stormwater Management Brief. 58pp.

Aquafor Beech Limited. 2020. Dingman Creek Subwatershed Stormwater Servicing Study. 23pp.

Birds Canada. 2005. Ontario Breeding Bird Atlas (2001-2005). NatureCounts. Retrieved from https://www.birdscanada.org/birdmon/default/searchquery.jsp?

Bird Studies Canada (BSC). 2009. Marsh Monitoring Program Participant's Handbook for Surveying Amphibians. Bird Studies Canada in cooperation with Environment Canada and U.S. Environmental Protection Agency. February 2009.

Cadman, M.D., Sutherland, D.A., Beck, G.G., Lepage, D. and Couturier, A.R. (Eds.). 2007. Atlas of the Breeding Birds of Ontario, 2001-2005. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature. Toronto, Ontario.

City of London. 2022. The London Plan. Consolidated May 25, 2022.

City of London. 2021a. City of London Environmental Management Guidelines. December 2021. 148pp.

City of London. 2021b. Consolidated Tree Protection By-Law (C.P.-1555-252). Consolidated September 2021. Retrieved from https://london.ca/by-laws/consolidated-tree-protection-law

City of London. 2019. Design Specification and Requirements Manual. Updated August 2019. 385pp.

City of London. 2017. London's Invasive Plant Management Strategy. 47pp. Retrieved from https://london.ca/sites/default/files/2020-11/Invasive_Plant_Management_Strategy.pdf

City of London. N.d. City of London Subject Lands Status Report for Unevaluated Patches "Draft" Terms of Reference.

Conservation Authorities Act, R.S.O. 1990, c. C.27

Credit Valley Conservation (CVC) and the Toronto Region Conservation Authority (TRCA). 2014. Evaluation, Classification and Management of Headwater Drainage Features Guidelines. January 2014. 26pp.

eBird. 2021. Ontario eBird Hotspot Data Map. Retrieved from https://ebird.org/hotspots?env.minX=-95.155986&env.minY=41.708293&env.maxX=-74.345974&env.maxY=56.869721&yr=all&m=

Endangered Species Act, 2007, S.O. 2007, c. 6

EXP Services Inc. (EXP). 2023. Hydrogeological Assessment. 139 pp.

Fish and Wildlife Conservation Act, 1997, S.O. 1997, c. 41

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

Fisheries and Ocean Canada (DFO). 2019. Aquatic Species at Risk Map. Retrieved from https://www.dfompo.gc.ca/species-especes/sara-lep/map-carte/index-eng.html

Government of Ontario. N.d. Wildlife Values Area [Dataset]. Retrieved from https://open.canada.ca/data/en/dataset/88591622-4001-456a-adfb-cfa34dbc9004

Gerson, H. 1984. Habitat Management Guidelines for Bats of Ontario. Ontario Ministry of Natural Resources. 42pp.

Hagerty, T.P. and Kingston, M.S. 1992. The Soils of Middlesex County- Volumes 1 and 2. Report No. 56 of the Ontario Centre for Soil Resource Evaluation. Ontario Ministry of Agriculture and Food and Agriculture Canada.

Humphrey, C. and Fotherby, H. 2019. Recovery Strategy for the Little Brown Myotis (Myotis lucifugus), Northern Myotis (*Myotis septentrionalis*) and Tri-colored Bat (*Perimyotis subflavus*) in Ontario. Ontario Recovery Strategy Series. Prepared by the Ministry of the Environment, Conservation and Parks, Peterborough, Ontario. Vii + 35 pp. + Appendix. Adoption of the Recovery Strategy for the Little Brown Myotis (*Myotis lucifugus*), the Northern Myotis (*Myotis septentrionalis*), and the Tricolored Bat (*Perimyotis subflavus*) in Canada (Environment and Climate Change Canada 2018).

iNaturalist. 2021. Observations Map. Retrieved from https://www.inaturalist.org/observations

Lebedyk, D. 2018. Southern Ontario Floral Inventory Analysis (SOFIA). Version 2.51. Essex Region Conservation Authority. Essex, ON.

Lee, H.T., W.D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig, and S. McMurray. 1998. Ecological Land Classification for Southern Ontario: First Approximation and its Application. Ontario Ministry of Natural Resources, Southcentral Science Section, Science Development and Transfer Branch. Field Guide FG.

Matrix Solutions Inc. 2023. Implementation Plan for Woodland Patch 10069, W3 Farms Subdivision. 16 pp.

Migratory Birds Convention Act, 1994, S.C. 1994, c. 22

Ministry of the Environment, Conservation and Parks (MECP). 2021. Treed Habitats – Maternity Roost Surveys.

Ministry of the Environment, Conservation and Parks (MECP). 2020. Map: Well Records. Retrieved from https://www.ontario.ca/environment-and-energy/map-well-records

Ministry of Energy, Northern Developments, and Mining (MENDM). 2017. OGSEarth - Southern Ontario Surficial Geology. Retrieved from https://www.geologyontario.mndm.gov.on.ca/ogsearth.html#surficial-geology

Ministry of Natural Resources and Forestry (MNRF). 2021. Land Information Ontario (LIO) mapping. Ontario GeoHub. Retrieved from https://geohub.lio.gov.on.ca/

Ministry of Natural Resources and Forestry (MNRF). 2017. Survey Protocol for Species at Risk Bats in Treed Habitats – Little Brown Myotis, Northern Myotis & Tri-colored Bat. April 2017. 12pp.

Ministry of Natural Resources and Forestry (MNRF). 2014. Ontario Wetland Evaluation System (OWES) Southern Manual. Queen's Printer for Ontario. Third Edition, Version 3.3.

Natural Heritage Information Centre (NHIC). n.d. Make a Map: Natural Heritage Areas. Retrieved from https://www.lioapplications.lrc.gov.on.ca/Natural_Heritage/index.html?viewer=Natural_Heritage.Natural_Heritage&locale=en-CA

Natural Resource Solutions Inc. (NRSI). 2016. Woodland Patch Assessment Score Sheet. 3pp.

NatureServe. 2021. NatureServe Explorer. Retrieved from https://explorer.natureserve.org/Search

Oldham, M.J. 2017. List of Vascular Plants of Ontario's Carolinian Zone (Ecoregion 7E). Carolinian Canada and Ontario Ministry of Natural Resources and Forestry. Peterborough, ON. 132pp.

Oldham, M.J., and Brinker, S.R. 2009. Rare Vascular Plants of Ontario, Fourth Edition. Natural Heritage Information Centre, Ontario Ministry of Natural Resources. Peterborough, Ontario. 188pp.

Oldham, M.J., Bakowsky, W.D., and Sutherland, D.A. 1995. Floristic Quality Assessment System for Southern Ontario. Prepared for Ontario Ministry of Natural Resources, Peterborough, Ontario. December 1995. 69pp.

Ontario American Badger Recovery Team. 2010. Recovery Strategy for the American Badger (*Taxidea taxus*) in Ontario. Ontario Recovery Strategy Series. Prepared for Ontario Ministry of Natural Resources, Peterborough, Ontario. vi + 27 pp.

Ontario Invasive Plant Council. 2020. Best Management Practices. Retrieved from https://www.ontarioinvasiveplants.ca/resources/best-management-practices/

Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA). 2020. AgMaps. Retrieved from https://www.lioapplications.lrc.gov.on.ca/AgMaps/Index.html?viewer=AgMaps.AgMaps&locale=en-CA

Ontario Ministry of Municipal Affairs and Housing (MMAH). 2020. Provincial Policy Statement.

Ontario Ministry of Municipal Affairs, Toronto, Ontario. 50pp.

Ontario Ministry of Natural Resources (OMNR). 2010. Natural Heritage Reference Manual for Natural Heritage Policies the Provincial Policy Statement, 2005. April 2010. Toronto, Ontario.

Ontario Ministry of Natural Resources (OMNR). 2000. Significant Wildlife Habitat Technical Guide. October 2000. 151pp.

Ontario Ministry of Natural Resources and Forestry (OMNRF). 2017. Best Management Practices for the Protection, Creation and Maintenance of Bank Swallow Habitat in Ontario. 38pp.

Ontario Ministry of Natural Resources and Forestry. (OMNRF). 2015. Significant Wildlife Habitat Criteria Schedule B Ecoregion 7E. 40pp. January 2015.

Ontario Nature. 2019. Ontario Reptile and Amphibian Atlas. Retrieved from https://www.ontarioinsects.org/herp/

Partners in Flight (PIF). 2016. Species of Continental Concern Watch List. March 2016. Retrieved from https://partnersinflight.org/resources/pif-watch-list-table-2016/

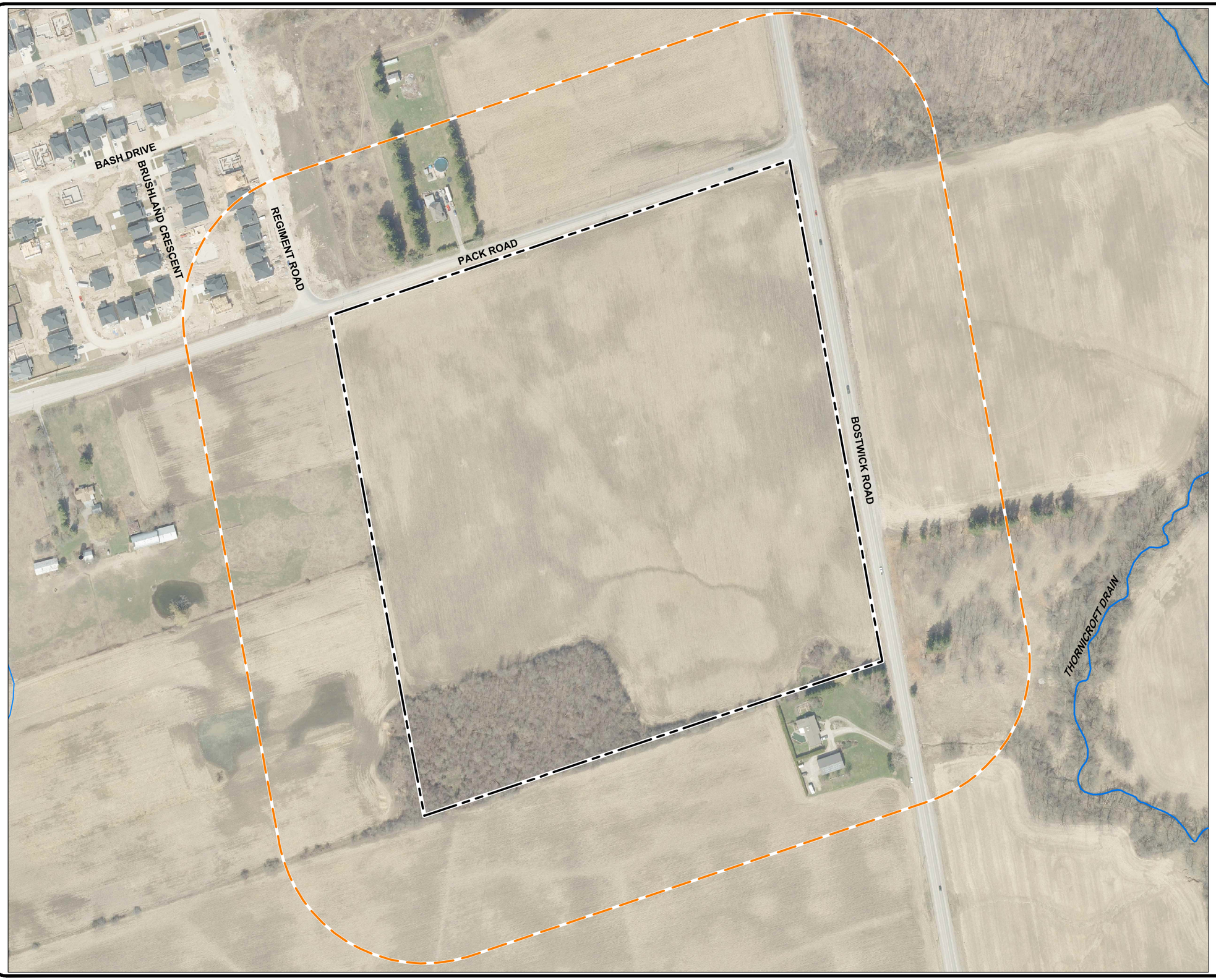
Species at Risk in Ontario (SARO) List, Ontario Regulation 230/08. 2007 (Consolidated 2018). Retrieved from https://www.ontario.ca/laws/regulation/080230

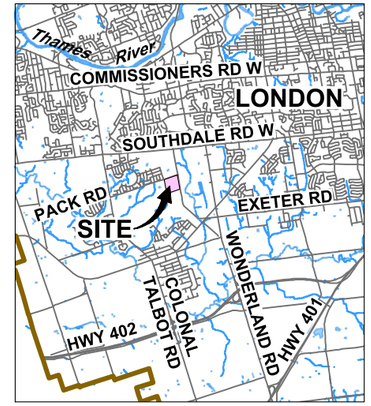
Thames-Sydenham & Region Source Protection Committee (TSRSPC). 2015. Upper Thames River Source Protection Area Assessment Report. September 6, 2015.

Toronto and Region Conservation Authority (TRCA). 2019. Erosion and Sediment Control Guide for Urban Construction. 236pp.

Upper Thames River Conservation Authority (UTRCA). 2014. Middlesex Natural Heritage Systems Study.

Figures





KEY PLAN (nts)

PROJECT NORTH

N

LEGEND

- SUBJECT LANDS
- STUDY AREA (120m from Subject Lands)

REFERENCES

CITY OF 2021 LONDON PARCEL AND AERIAL IMAGERY, OPEN DATA SET; AND UPPER THAMES RIVER CONSERVATION AUTHORITY (UTRCA), WATERCOURSE DATA.

NOTES

THIS FIGURE IS SCHEMATIC ONLY AND TO BE READ IN CONJUNCTION WITH ACCOMPANYING TEXT.

ALL LOCATIONS ARE APPROXIMATE.

SCALE IN METRES
0 50 100m
1:3,000

MTE
Engineers, Scientists, Surveyors

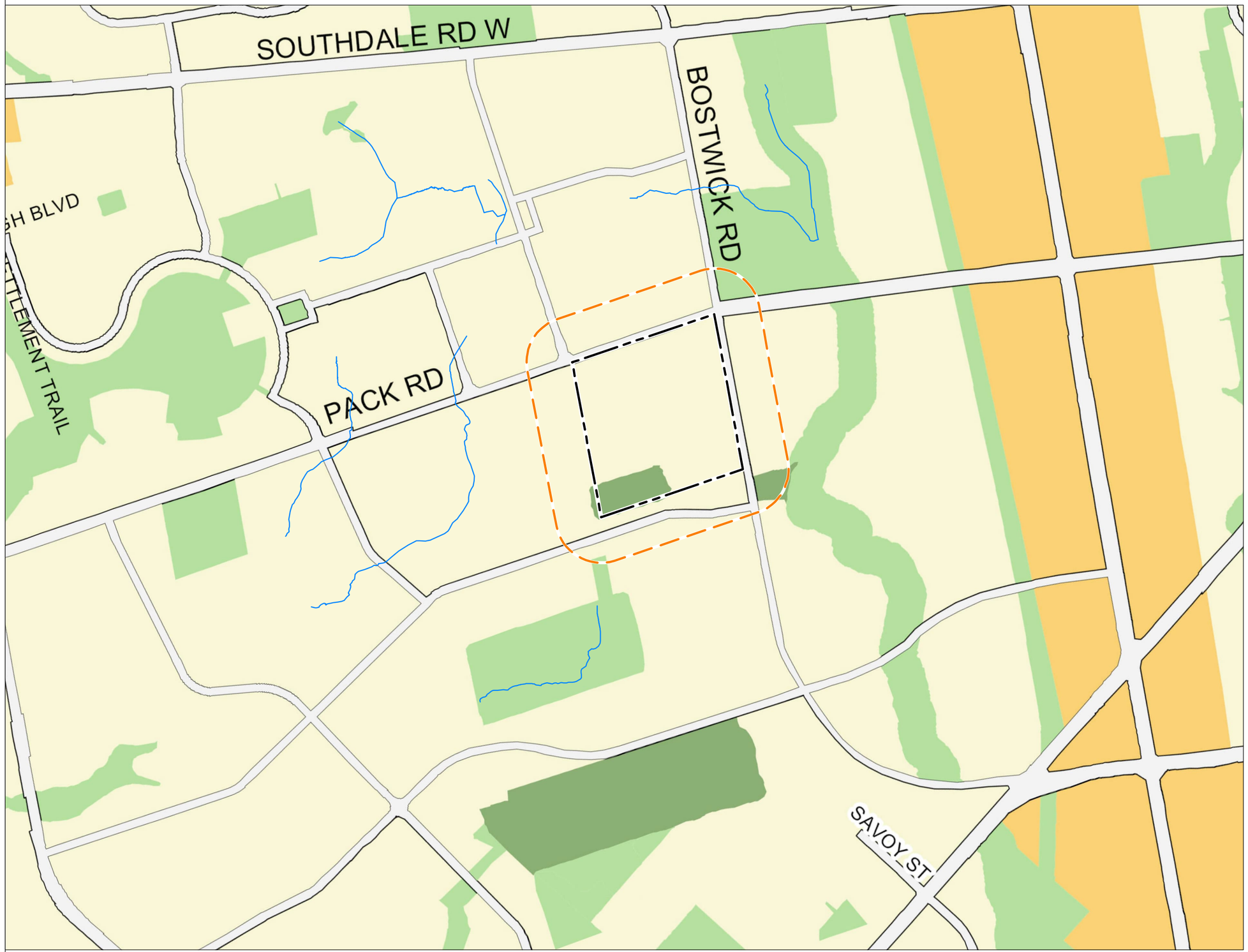
PROJECT
ENVIRONMENTAL IMPACT STUDY
3563 BOSTWICK ROAD, LOT 75 EAST OF TALBOT ROAD, WESTMINSTER
LONDON, ONTARIO

TITLE
PROJECT LOCATION

Drawn	DCH	Scale	AS SHOWN
Checked		Project No.	49130-100
Date	June 27/23	Rev No.	0

FIGURE 1

Client: Amiracc Properties Inc.
Plot Date: 27 June 2023 Time:19:09:41
0 25mm Original Format in Tabloid (279mm x 432mm; 11" x 17")
CAD: P:\49130\100\2_PROD\49130-100-R03 ENVIRONMENTAL IMPACT STUDY\49130-100-R03001.DWG



PROJECT NORTH

N

LEGEND

- SUBJECT LANDS
- STUDY AREA (120m from Subject Lands)
- GREEN SPACE
- ENVIRONMENTAL REVIEW
- SHOPPING AREA
- NEIGHTBOURHOODS

REFERENCES

CITY OF 2021 LONDON PARCEL, OPEN DATA SET; AND
CITY OF LONDON MAP 1 - PLACE TYPES, MAY 25 - 2022 .

NOTES

THIS FIGURE IS SCHEMATIC ONLY AND TO BE READ IN CONJUNCTION WITH ACCOMPANYING TEXT.

ALL LOCATIONS ARE APPROXIMATE.

SCALE IN METRES
0 200 400m
1:10,000

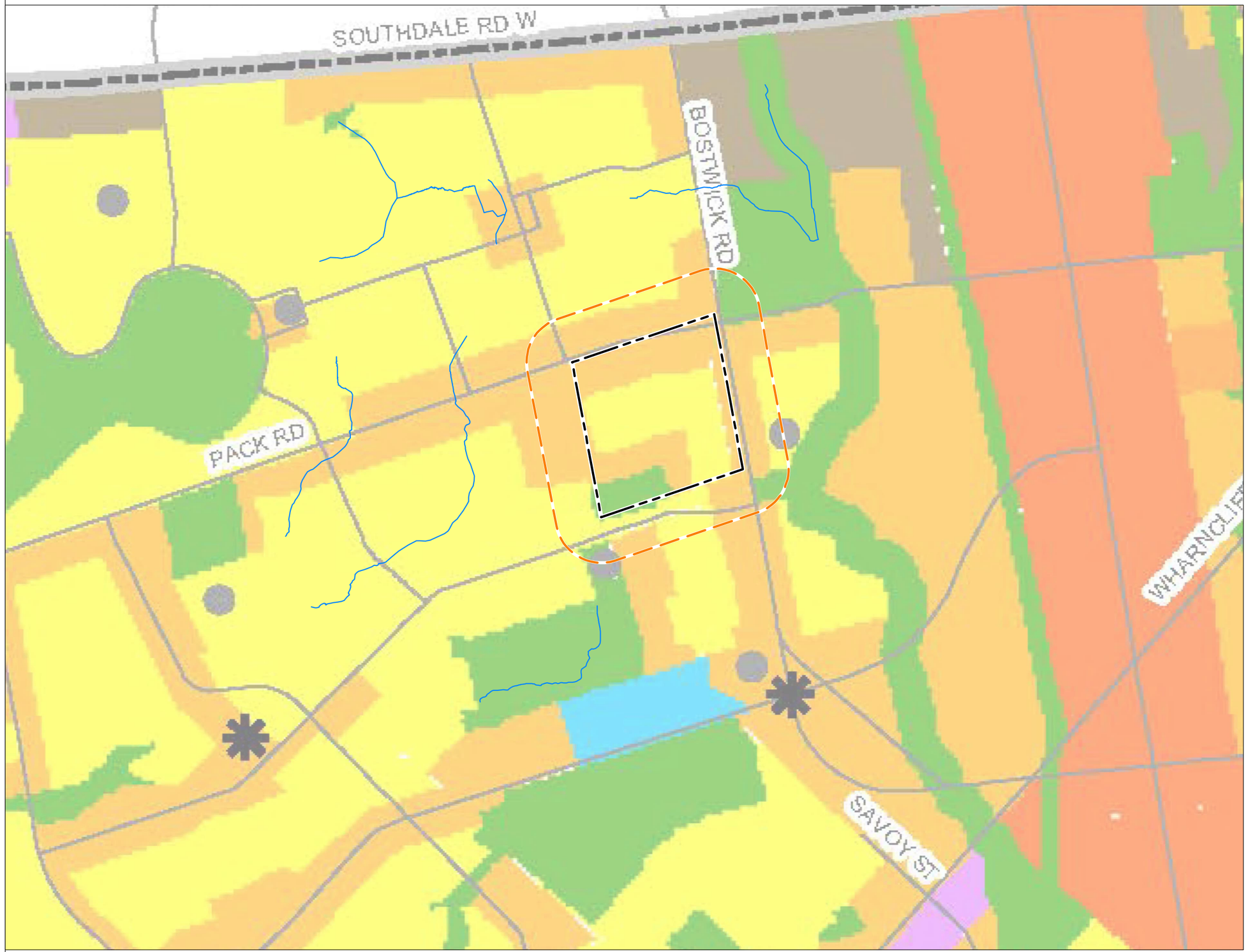
MTE
Engineers, Scientists, Surveyors

PROJECT
ENVIRONMENTAL IMPACT STUDY
3563 BOSTWICK ROAD, LOT 75 EAST OF TALBOT ROAD, WESTMINSTER
LONDON, ONTARIO

TITLE
PLACE TYPES

Drawn DCH	Scale AS SHOWN	**FIGURE 2**
Checked	Project No. 49130-100	
Date June 1/23	Rev No. 0	

Client: Amiracco Properties Inc.
Plot Date: 1 June 2023 Time:13:52:48
CAD: P:\P\49130\100\2_PROD\49130-100-R03 ENVIRONMENTAL IMPACT STUDY\49130-100-R03001.DWG
0 25mm Original Format in Tabloid (279mm x 432mm; 11" x 17")



PROJECT NORTH

N

LEGEND

- SUBJECT LANDS
- STUDY AREA (120m from Subject Lands)
- COMMERICAL
- LOW DENSITY RESIDENTIAL
- MEDIUM DENSITY RESIDENTIAL
- HIGH DENSITY RESIDENTIAL
- OPEN SPACE AND ENVIRONMENTAL REVIEW
- INSTITUTIONAL
- WONDERLAND ROAD COMMUNITY ENTERPRISE CORRIDOR
- NEIGHBOURHOOD CENTRAL ACTIVITY NODE
- PARKS (EXISTING AND PROPOSED)

REFERENCES

CITY OF 2021 LONDON PARCEL, OPEN DATA SET; AND
CITY OF LONDON SCHEDULE 4, SOUTHWEST AREA LAND USE PLAN, DECEMBER 2019.

NOTES

THIS FIGURE IS SCHEMATIC ONLY AND TO BE READ IN CONJUNCTION WITH ACCOMPANYING TEXT.

ALL LOCATIONS ARE APPROXIMATE.

SCALE IN METRES
0 200 400m
1:10,000

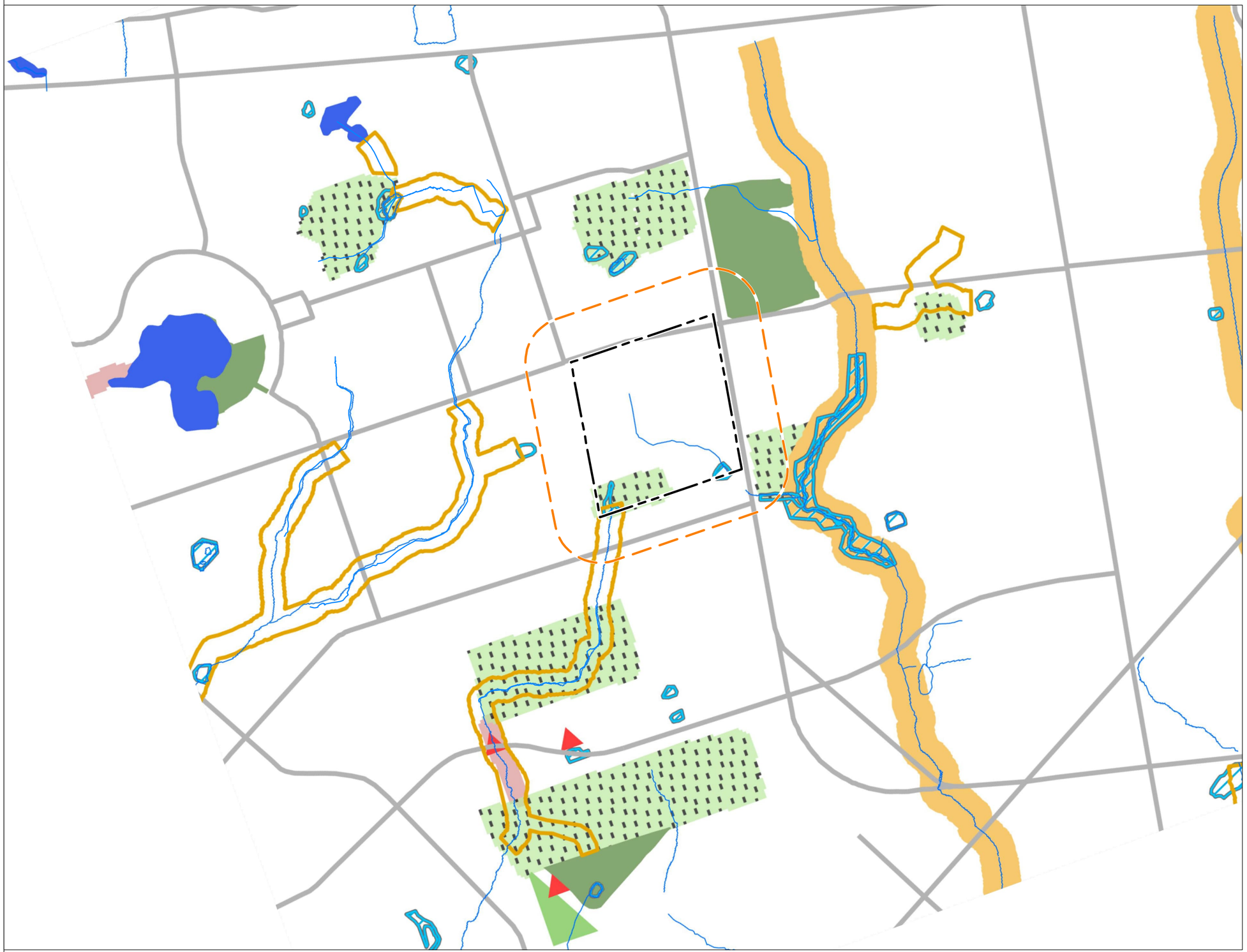
MTE
Engineers, Scientists, Surveyors

PROJECT
ENVIRONMENTAL IMPACT STUDY
3563 BOSTWICK ROAD, LOT 75 EAST OF TALBOT ROAD, WESTMINSTER
LONDON, ONTARIO

TITLE
SWAP LAND USE

Drawn: DCH	Scale: AS SHOWN
Checked:	Project No.: 49130-100
Date: June 1/23	Rev No.: 0

FIGURE 3



PROJECT NORTH

N

LEGEND

- SUBJECT LANDS
- STUDY AREA (120m from Subject Lands)
- POTENTIAL NATURALIZATION AREA
- PROVINCIALLY SIGNIFICANT WETLAND
- SIGNIFICANT VALLEYLAND
- UNEVALUATED VEGETATION PATCH
- UNEVALUATED WETLAND
- VALLEYLAND
- WOODLAND

REFERENCES

CITY OF 2021 LONDON PARCEL, OPEN DATA SET; AND
CITY OF LONDON MAP 5 - NATURAL HERITAGE, JUNE 23 - 2016 .

NOTES

THIS FIGURE IS SCHEMATIC ONLY AND TO BE READ IN CONJUNCTION WITH ACCOMPANYING TEXT.

ALL LOCATIONS ARE APPROXIMATE.

SCALE IN METRES
0 200 400m
1:10,000

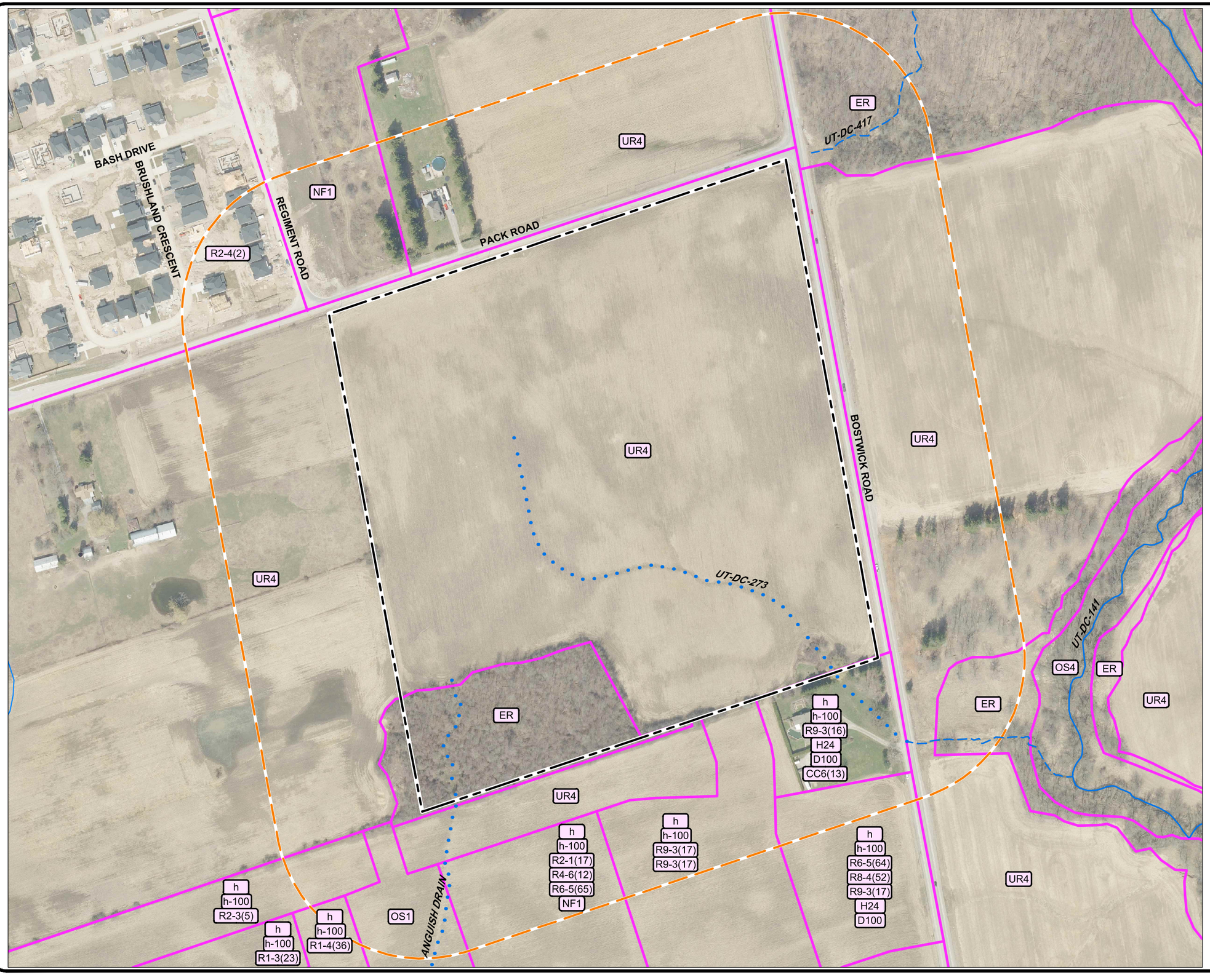
MTE
Engineers, Scientists, Surveyors

PROJECT
ENVIRONMENTAL IMPACT STUDY
3563 BOSTWICK ROAD, LOT 75 EAST OF TALBOT ROAD, WESTMINSTER
LONDON, ONTARIO

TITLE
NATURAL HERITAGE

Drawn DCH	Scale AS SHOWN
Checked	Project No. 49130-100
Date June 1/23	Rev No. 0

FIGURE 4



PROJECT NORTH

N

LEGEND

- SUBJECT LANDS
- STUDY AREA (120m from Subject Lands)
- PERMANENT WATERCOURSE (UTRCA)
- INTERMITTENT WATERCOURSE (UTRCA)
- EPHEMERAL WATERCOURSE (UTRCA)

- ER ENVIRONMENTAL REVIEW ZONE
- NF NEIGHBOURHOOD FACILITY ZONE
- OS OPEN SPACE ZONE
- R RESIDENTIAL ZONE
- UR URBAN RESERVE ZONE
- h HOLDING ZONE PROVISION
- H MAXIMUM DENSITY PERMITTED
- D MAXIMUM HEIGHT PERMITTED

REFERENCES

CITY OF 2021 LONDON PARCEL, OPEN DATA SET;
CITY OF LONDON ZONING DATA, OPEN DATA SET; AND
UPPER THAMES RIVER CONSERVATION AUTHORITY (UTRCA), WATERCOURSE DATA.

NOTES

THIS FIGURE IS SCHEMATIC ONLY AND TO BE READ IN CONJUNCTION WITH ACCOMPANYING TEXT.

ALL LOCATIONS ARE APPROXIMATE.

SCALE IN METRES
0 50 100m
1:3,000

MTE
Engineers, Scientists, Surveyors

PROJECT
ENVIRONMENTAL IMPACT STUDY
3563 BOSTWICK ROAD, LOT 75 EAST OF TALBOT ROAD, WESTMINSTER
LONDON, ONTARIO

TITLE
ZONING

Drawn DCH	Scale AS SHOWN
Checked	Project No. 49130-100
Date June 1/23	Rev No. 0

FIGURE 5

Client: Amiracc Properties Inc.
Time:13:54:24
Plot Date: 1 June 2023
25mm Original Format in Tabloid (279mm x 432mm; 11" x 17")
0
CAD: P:\49130\100\2_PROD\49130-100-R03 ENVIRONMENTAL IMPACT STUDY\49130-100-R03001.DWG

ELC NUMBER	ELC CODE	Description
1	CUT1/CUW1	Mineral Cultural Thicket/Woodland Ecosite - Buckthorn dominant with Bitternut and Hawthorn (1.90ha)
2	MAM2	Mineral Cultural Meadow Marsh Ecosite (0.01ha)
3		Wetland Inclusion (0.076ha)
AG		Active Agricultural Lands

PROJECT NORTH

N

LEGEND

- SUBJECT LANDS
- 1 VEGETATION COMMUNITY
- INTERMITTENT WATERCOURSE (UTRCA)
- EPHEMERAL FLOWPATH

REFERENCES

CITY OF 2021 LONDON PARCEL AND AERIAL IMAGERY, OPEN DATA SET; AND
UPPER THAMES RIVER CONSERVATION AUTHORITY (UTRCA), WATERCOURSE DATA.

NOTES

THIS FIGURE IS SCHEMATIC ONLY AND TO BE READ IN CONJUNCTION WITH ACCOMPANYING TEXT.

ALL LOCATIONS ARE APPROXIMATE.

SCALE IN METRES
0 30 60m
1:1,500

MTE
Engineers, Scientists, Surveyors

PROJECT
ENVIRONMENTAL IMPACT STUDY
3563 BOSTWICK ROAD, LOT 75 EAST OF TALBOT ROAD, WESTMINSTER
LONDON, ONTARIO

TITLE
VEGETATION COMMUNITIES

Drawn: DCH	Scale: AS SHOWN
Checked:	Project No.: 49130-100
Date: June 1/23	Rev No.: 0

FIGURE 6

Client: Amiracco Properties Inc.
Plot Date: 1 June 2023 Time:13:55:57
CAD: P:\49130\100\2_PROD\49130-100-R03 ENVIRONMENTAL IMPACT STUDY\49130-100-R03006.DWG
25mm Original Format in Tabloid (279mm x 432mm; 11" x 17")
0

ELC NUMBER	ELC CODE	Description
1	CUT1/CUW1	Mineral Cultural Thicket/Woodland Ecosite - Buckthorn dominant with Bitternut and Hawthorn (1.90ha)
2	MAM2	Mineral Cultural Meadow Marsh Ecosite (0.01ha)
3		Wetland Inclusion (0.076ha)
AG		Active Agricultural Lands

PROJECT NORTH N

LEGEND

- SUBJECT LANDS
- VEGETATION COMMUNITY
- EPHEMERAL FLOWPATH
- 2022 AMPHIBIAN CALL COUNT SURVEY (100m RADIUS STATIONS)
- HDFA SAMPLE
- SNAKE BOARD

REFERENCES

CITY OF 2021 LONDON PARCEL AND AERIAL IMAGERY, OPEN DATA SET.

NOTES

THIS FIGURE IS SCHEMATIC ONLY AND TO BE READ IN CONJUNCTION WITH ACCOMPANYING TEXT.

ALL LOCATIONS ARE APPROXIMATE.

SCALE IN METRES
0 30 60m
1:1,500

MTE
Engineers, Scientists, Surveyors

PROJECT
ENVIRONMENTAL IMPACT STUDY
3563 BOSTWICK ROAD, LOT 75 EAST OF TALBOT ROAD, WESTMINSTER
LONDON, ONTARIO

TITLE
FIELD INVESTIGATIONS

Drawn	DCH	Scale	AS SHOWN
Checked		Project No.	49130-100
Date	June 1/23	Rev No.	0

FIGURE 7

ELC NUMBER	ELC CODE	Description
1	CUT1/CUW1	Mineral Cultural Thicket/Woodland Ecosite - Buckthorn dominant with Bitternut and Hawthorn (1.90ha)
2	MAM2	Mineral Cultural Meadow Marsh Ecosite (0.01ha)
3		Wetland Inclusion (0.076ha)
AG		Active Agricultural Lands

PROJECT NORTH

N

LEGEND

- SUBJECT LANDS
- VEGETATION COMMUNITY
- INTERMITTENT WATERCOURSE (UTRCA)
- EPHEMERAL FLOWPATH
- CANDIDATE MATERNITY ROOST TREE
- TERRESTRIAL CRAYFISH SWH
- WOODLAND

REFERENCES

CITY OF 2021 LONDON PARCEL AND AERIAL IMAGERY, OPEN DATA SET; AND
UPPER THAMES RIVER CONSERVATION AUTHORITY (UTRCA), WATERCOURSE DATA.

NOTES

THIS FIGURE IS SCHEMATIC ONLY AND TO BE READ IN CONJUNCTION WITH ACCOMPANYING TEXT.

ALL LOCATIONS ARE APPROXIMATE.

SCALE IN METRES
0 30 60m
1:1,500

MTE
Engineers, Scientists, Surveyors

PROJECT
ENVIRONMENTAL IMPACT STUDY
3563 BOSTWICK ROAD, LOT 75 EAST OF TALBOT ROAD, WESTMINSTER
LONDON, ONTARIO

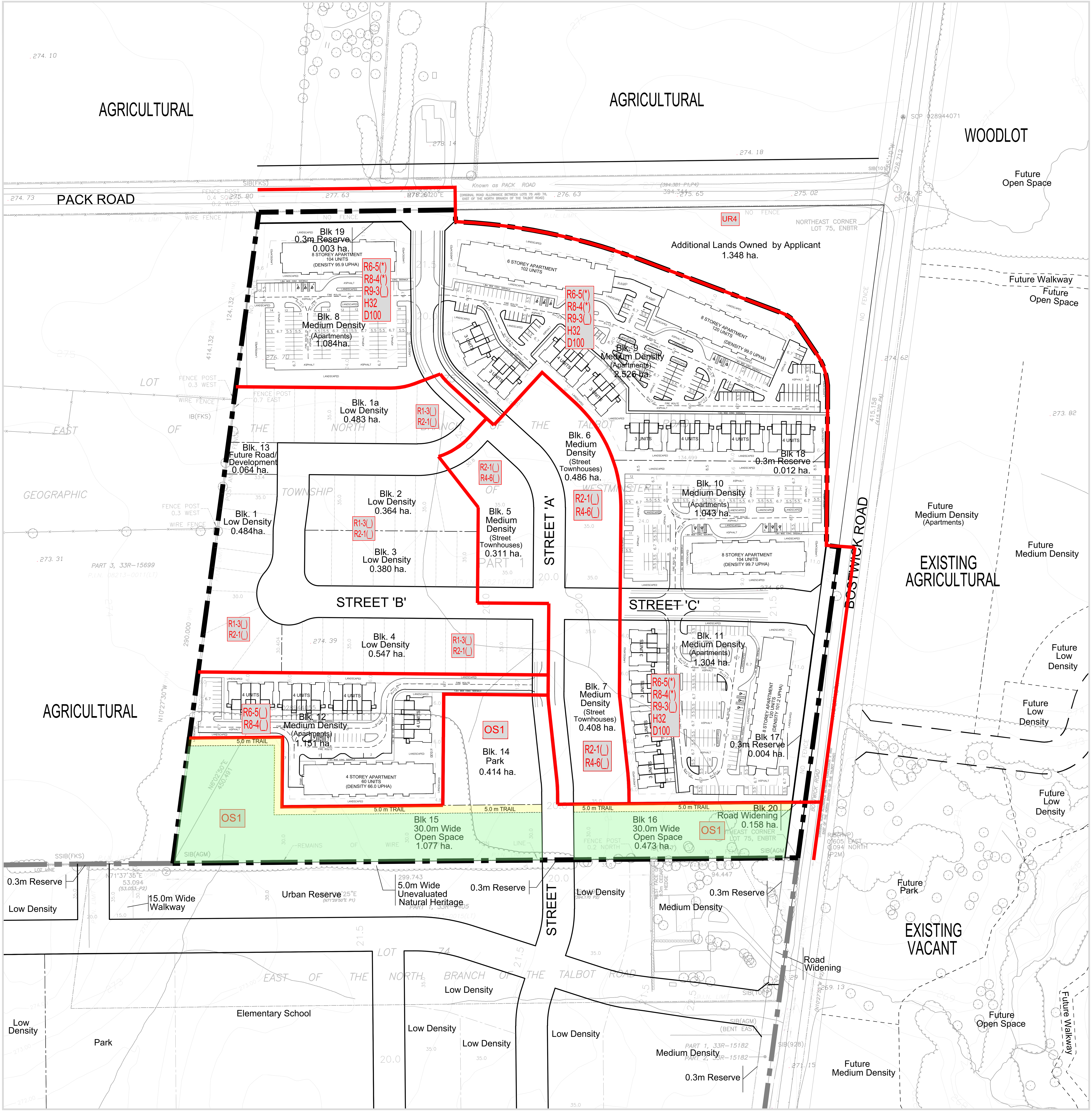
TITLE
SIGNIFICANT NATURAL HERITAGE FEATURES AND KEY FINDINGS

Drawn DCH	Scale AS SHOWN
Checked	Project No. 49130-100
Date June 1/23	Rev No. 0

FIGURE 8

Client: Amiracco Properties Inc.
Plot Date: 1 June 2023 Time:13:38:59
CAD: P:\P\49130\100\2_PROD\49130-100-R03 ENVIRONMENTAL IMPACT STUDY\49130-100-R03008.DWG
0 25mm Original Format in Tabloid (279mm x 432mm; 11" x 17")

Figure 9: Development Plan (MHBC, 2023)



PART OF LOT 75,
CONCESSION EAST OF THE
NORTH BRANCH OF TALBOT ROAD
(GEOGRAPHIC TOWNSHIP OF WESTMINSTER)

CITY OF LONDON
COUNTY OF MIDDLESEX

Owner's Certificate

I HEREBY AUTHORIZE MACNAUGHTON HERMSEN BRITTON CLARKSON PLANNING LIMITED TO SUBMIT THIS PLAN FOR APPROVAL.

DATE:____________

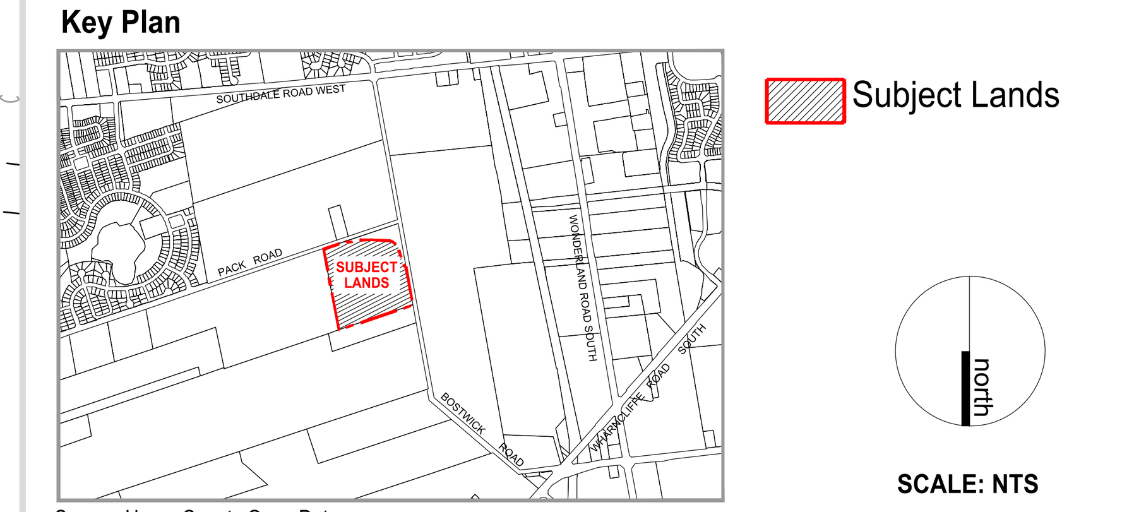
Surveyor's Certificate

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

DATE:____________

PETER G.MORETON
ONTARIO LAND SURVEYOR
CALLON DIETZ INCORPORATED
ONTARIO LAND SURVEYORS

Key Plan



Source: Huron County Open Data

SUBJECT TO THE CONDITIONS, IF ANY, SET FORTH IN OUR IN OUR LETTER DATED __________, 2023
THIS DRAFT PLAN IS APPROVED UNDER SECTION 51 OF THE *PLANNING ACT* THIS ____ DAY OF __________, 2023

Additional Information Required Under Section 51(17) of the Planning Act
R.S.O. 1990, c.P.13 as Amended

A. As Shown · B. As Shown · C. As Shown
D. Residential/Commercial · E. As Shown · F. As Shown
G. As Shown · H. Municipal Water Supply · I. Loam, Clay, Silt
J. As Shown · J. All Services As Required · L. As Shown

Area Schedule **30T__________**

Description	Lots/Blocks	Units	Area (ha)
Low Density Residential	1-4	46	2.258
Med. Density Residential (STH)	5-7	37	1.205
Med. Density Residential (Cluster)	9, 11-12	56	N.A.*
Med. Density Residential (Apt)	8-12	610	7.109
Future Road / Residential	13		0.064
Park	14		0.414
Open Space	15-16		1.550
0.3m Reserves	17-19		0.019
Road Widening	20		0.158
Roads			2.059
Total	**20**	**749**	**14.835**

Notes
1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SHOWN.
2. SURROUNDING PARCEL FABRIC IS APPROXIMATE.
3. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE- ONTARIO.
4. * MED. DENSITY RESIDENTIAL (CLUSTER) AREA IS INCLUDED UNDER MED. DENSITY RESIDENTIAL (APT.)

Revision No.	Date	Issued / Revision	By
1.	August 24, 2023	Issued;	CCF

MHBC PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE
200-540 BINGEMANS CENTRE DR. KITCHENER, ON, N2B 3X9 | P: 519.576.3650 F: 519.576.0121 | WWW.MHBCPLAN.COM

Approval Stamp

Date August 24, 2023
File No. 14212 'D'
Drawn By L.M. and C.C.F.
Checked By S.A.

Project WESTWIND

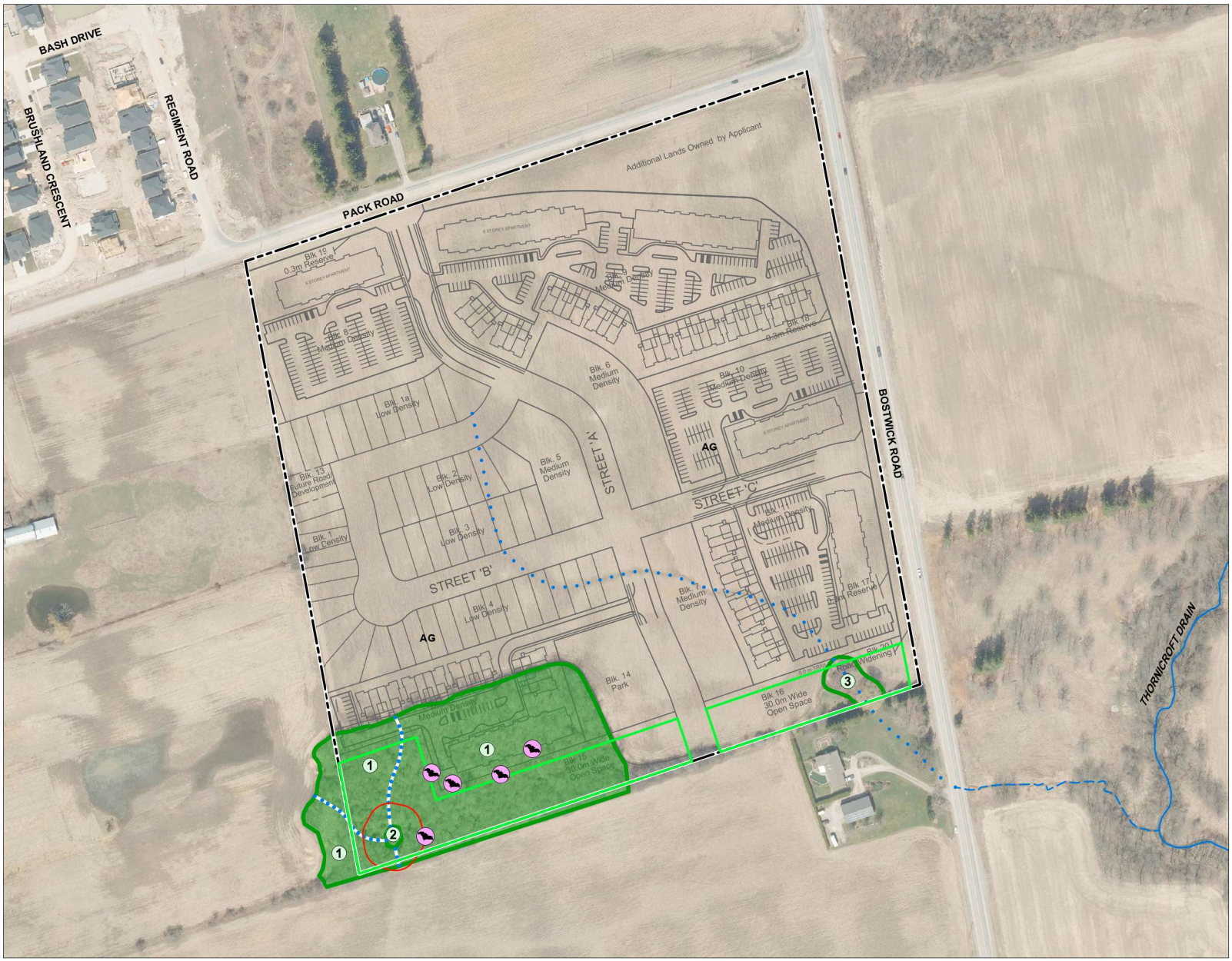
Applicant
AMIRACO PROPERTIES INC.
106-470 DUNDAS STREET
LONDON, ON
N6B 1W3

north

File Name **PRELIMINARY DRAFT PLAN OF SUBDIVISION - ZONING & CONCEPTS**
Dwg No. **1 of 1**

Plan Scale 1: 1,250 (Arch D) — 0 10 20 40 60 80 100

Q:\14212'D'_3563 Bostwick Road\Graphics\DP\DP_24X30 AT 1TO1250_24Aug2023.dwg



ELC NUMBER	ELC CODE	Description
1	CUT1/CUW1	Mineral Cultural Thicket/Woodland Ecosite - Buckthorn dominant with Bitternut and Hawthorn (1.90ha)
2	MAM2	Mineral Cultural Meadow Marsh Ecosite (0.01ha)
3		Wetland Inclusion (0.076ha)
AG		Active Agricultural Lands

PROJECT NORTH

N

LEGEND

- SUBJECT LANDS
- VEGETATION COMMUNITY
- PERMANENT WATERCOURSE (UTRCA)
- INTERMITTENT WATERCOURSE (UTRCA)
- EPHEMERAL WATERCOURSE (UTRCA)
- WOODLAND
- CANDIDATE MATERNITY ROOST TREE
- 15m BUFFER FROM COMMUNITY 2
- OPEN SPACE BLOCK

REFERENCES

CITY OF 2021 LONDON PARCEL AND AERIAL IMAGERY, OPEN DATA SET;
MHBC, PRELIMINARY DRAFT PLAN OF SUBDIVISION, FILE No. 14212 'D', AUGUST 24 - 2023; AND
UPPER THAMES RIVER CONSERVATION AUTHORITY (UTRCA), WATERCOURSE DATA.

NOTES

THIS FIGURE IS SCHEMATIC ONLY AND TO BE READ IN CONJUNCTION WITH ACCOMPANYING TEXT.

ALL LOCATIONS ARE APPROXIMATE.

SCALE IN METRES
0 50 100m
1:2,500

MTE
Engineers, Scientists, Surveyors

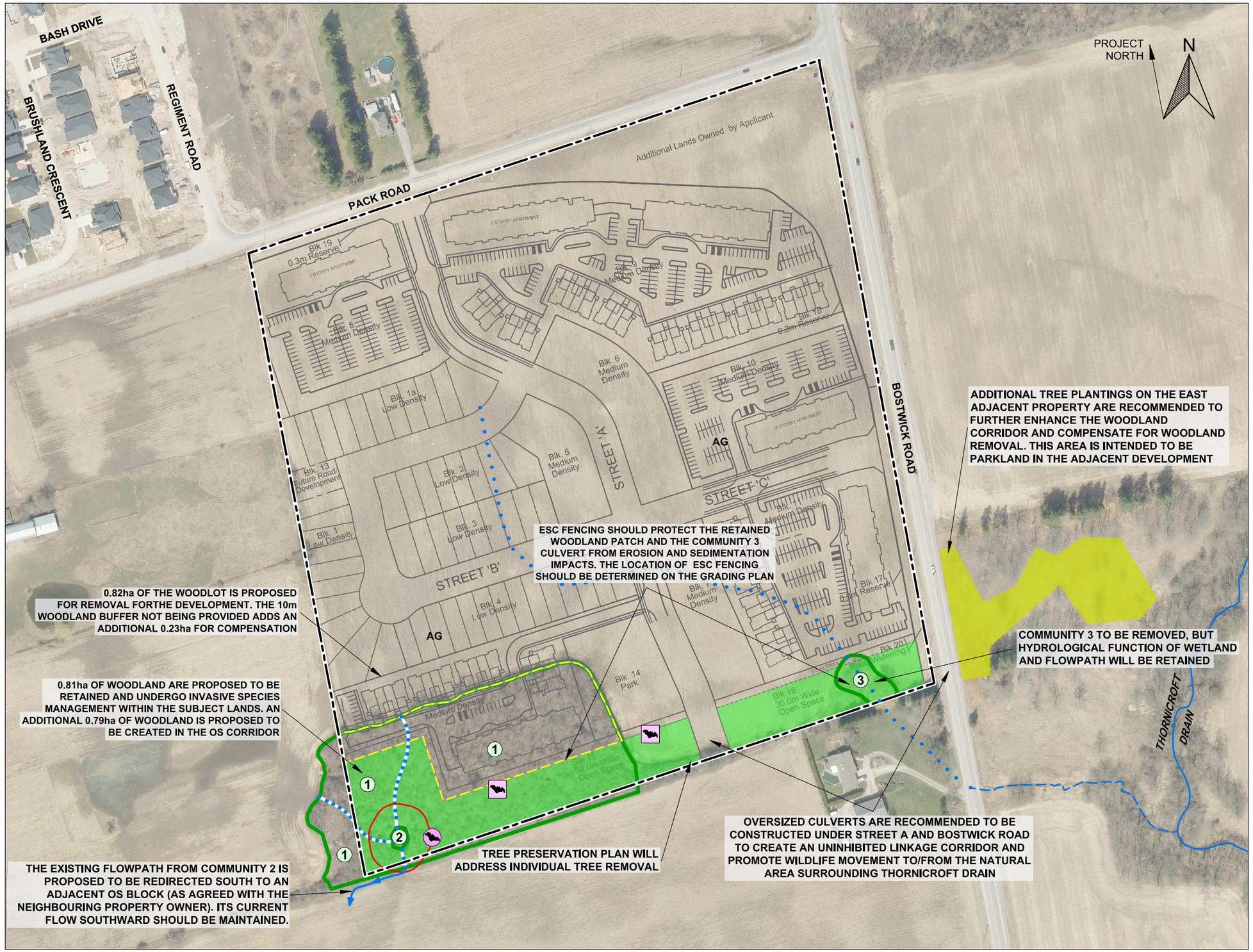
PROJECT
ENVIRONMENTAL IMPACT STUDY
3563 BOSTWICK ROAD, LOT 75 EAST OF TALBOT ROAD, WESTMINSTER
LONDON, ONTARIO

TITLE
DEVELOPMENT OVERLAY

Drawn	DCH	Scale	AS SHOWN
Checked		Project No.	49130-100
Date	Sept 5/23	Rev No.	0

FIGURE 10

Client: Amiraco Properties Inc.
Plot Date: 5 September 2023 Time:12:11:32
CAD: P:\49130\100\2_PROD\49130-100-R03 ENVIRONMENTAL IMPACT STUDY\49130-100-R03010.DWG
Original Format in Tabloid (279mm x 432mm; 11" x 17")
25mm
0



ELC NUMBER	ELC CODE	Description
1	CUT1/CUW1	Mineral Cultural Thicket/Woodland Ecosite - Buckthorn dominant with Bitternut and Hawthorn (1.90ha)
2	MAM2	Mineral Cultural Meadow Marsh Ecosite (0.01ha)
3		Wetland Inclusion (0.076ha)
AG		Active Agricultural Lands

LEGEND

- SUBJECT LANDS
- 1 VEGETATION COMMUNITY
- PERMANENT WATERCOURSE (UTRCA)
- INTERMITTENT WATERCOURSE (UTRCA)
- EPHEMERAL WATERCOURSE (UTRCA)
- CANDIDATE MATERNITY ROOST TREE TO BE RETAINED
- CONCEPTUAL BAT BOX
- WOODLAND TO BE REMOVED (0.82ha)
- LANDS DESIGNATED OPEN SPACE
- COMMUNITY 2 FLOW REALIGMENT
- 15m BUFFER FROM COMMUNITY 2
- POTENTIAL AREA OF ADDITIONAL TREE PLANTING
- ENHANCED OPEN SPACE CORRIDOR

REFERENCES

CITY OF 2021 LONDON PARCEL AND AERIAL IMAGERY, OPEN DATA SET;
MHBC, PRELIMINARY DRAFT PLAN OF SUBDIVISION, FILE No. 14212 'D', AUGUST 24 - 2023; AND
UPPER THAMES RIVER CONSERVATION AUTHORITY (UTRCA), WATERCOURSE DATA.

NOTES

THIS FIGURE IS SCHEMATIC ONLY AND TO BE READ IN CONJUNCTION WITH ACCOMPANYING TEXT.

ALL LOCATIONS ARE APPROXIMATE.

SCALE IN METRES
0 50 100m
1:2,500

MTE
Engineers, Scientists, Surveyors

PROJECT
ENVIRONMENTAL IMPACT STUDY
3563 BOSTWICK ROAD, LOT 75 EAST OF TALBOT ROAD, WESTMINSTER
LONDON, ONTARIO

TITLE
MITIGATION MEASURES

Drawn	Scale
DCH	AS SHOWN
Checked	Project No. 49130-100
Date Sept 5/23	Rev No. 0

FIGURE 11

Client: Amiraco Properties Inc.
Plot Date: 5 September 2023 Time:12:59
CAD: P:\49130\100\2_PROD\49130-100-R03 ENVIRONMENTAL IMPACT STUDY\49130-100-R03011.DWG
25mm Original Format in Tabloid (279mm x 432mm; 11" x 17")
0

Appendix A

IPR Meeting Summary and Scoping Checklist

PROPOSAL REVIEW MEETING SUMMARY &
RECORD OF CONSULTATION

Date: September 15, 2021

Subject: Proposal Review Meeting
3563 Bostwick Road
Meeting Date: August 11, 2021 (Online Zoom meeting)

Meeting Participants:

R. Carnegie (Coordinator)	Planning and Development
B. Page	Planning and Development – Subdivision
M. Feldberg	Planning and Development – Subdivision
S. Meksula	Planning and Development – Planning
M. Clark	Planning and Development – Planning
P. Kavcic	Planning and Development – Engineering
M. Almusawi	Planning and Development – Engineering
B. Hammond	Planning and Development – Engineering
J. MacKay	Planning and Development – Ecologist
C. Smith	Parks & Recreation Services
G. LaForge	Development Finance
J. Chamorro	E.E.S. – Transportation
S. Chambers	E.E.S. – Stormwater Management
A. Sones	E.E.S. – Stormwater Management
M. Schaum	E.E.S. – Wastewater & Drainage Engineering
K. Graham	E.E.S. – Wastewater & Drainage Engineering
J. Robinson	E.E.S. – Water Engineering
P. Varughese	Urban Design
M. Greguol	Heritage Planning
S. Pratt	Upper Thames River Conservation Authority
C. Creighton	Upper Thames River Conservation Authority

Proposed Draft Plan of Subdivision

Applicant: Amiraco Properties Inc.
Authorized Agents: MHBC Planning Limited c/o Scott Allen & AGM
File Reference: File #TS2021-011
Type of Application: Proposed Draft Plan of Subdivision
Location: 3563 Bostwick Road
File Manager: Bruce Page
Planner: Sean Meksula & Michael Clark

DEPARTMENT & AGENCY COMMENTS

The following is a summary of the comments as reported by the respective service areas/agencies in response to the proposal. It is noted that these comments do not necessarily reflect the final planning recommendation on the proposal.

DEVELOPMENT PLANNING:

Bruce Page *Manager, Planning and Development*
Sean Meksula *Senior Planner*
Michael Clark *Senior Planner*

- The subject lands are within the Bostwick Residential Neighbourhood of the Southwest Area Secondary Plan (SWAP) and are designated Medium Density Residential; Low Density Residential; and Open Space and Environmental Review.
    - The Low Density Residential designation requires residential development to have a minimum density of 25 u/ha, and a permits maximum of 40 u/ha. Building heights shall not exceed 4 storeys.
    - The Medium Density Residential designation requires residential development to have a minimum density of 35 u/ha, and a permits maximum of 75 u/ha. Building heights shall not exceed 6 storeys.
    - Residential densities may be permitted up to a maximum of 100 u/ha consistent with the policies of 3.3.3 of the Official Plan.
    - The medium density lands with frontage on Pack Road and Bostwick Road are subject to the Residential Development Intensity Adjacent to Arterial Roads policies in section 20.5.4.1 iv) of SWAP:

        - The Medium Density Residential designation along Pack Rd. and Bostwick Rd. requires residential development to have a minimum density of 30 u/ha, and a permits maximum of 100 u/ha. Building heights shall not exceed 9 storeys.
        - Residential densities in medium density designations along arterial roads may exceed 100 u/ha up to a maximum of 120 u/ha.
- The subject lands are designated Multi-Family, Medium Density Residential; Low Density Residential; and Environmental Review in the 1989 Official Plan.
- The subject lands are designated as Neighbourhood and Environmental Review in the London Plan on Map 1. The Environmental Review Place Type is in force and effect, however, the Neighbourhood Place Type on Map 1 is still subject to an appeal before the Ontario Land Tribunal.
- The Environmental Review designation on Map 1 of the London Plan requires a detailed environmental study to assess the significance of the lands be undertaken as part of any planning and development application process.
- An Official Plan Amendment will be required to redesignate the southwest corner of the property from Environmental Review to the Neighbourhood Place Type in the London Plan, and to the Medium Density Residential Designation in the Southwest Area Secondary Plan.
- A Draft Plan of Subdivision will be required to create the proposed development blocks and public road network.
- The proposed plan incorporates a modified grid pattern of public streets to ensure direct connections to the neighbourhood to the south as well as Pack Road (Civic Boulevard) to the north. Access to Bostwick Road is provided via Pack Road to the north, and via a future road connection through the subdivision to the south. Access should be provided to the lands to the west.
- A Zoning By-Law Amendment will be required to permit the proposed uses.
- A Noise Impact Study is required to consider neighbourhood design and noise impacts consistent with policy 1768 of the London Plan for residential development adjacent to Civic Boulevards (Pack Road and Bostwick Road).
- A Bonussing Justification, including description of the development features which result in a public benefit, shall be required as part of the planning justification in accordance with 19.4.4 of the Official Plan if the development of the Medium Density blocks along Pack Road and Bostwick Road exceeds 100 u/ha.

Southwest Area Plan (SWAP)

20.5.9 Bostwick Residential Neighbourhood

i) Function and Purpose

The Bostwick Neighbourhood will provide for residential development with the highest intensity of all of the Residential Neighbourhood Areas in the Southwest Planning Area, to support activities in the Wonderland Boulevard Neighbourhood. The focus for new development is to be on a mix of low to mid-rise housing forms, ranging from single detached dwellings to low rise apartment buildings within individual subdivisions and throughout the neighbourhood. It is intended that the collector and local road network will provide access across the Open Space corridor and the Hydro corridor to create safe and convenient linkages to the Wonderland Corridor for a variety of transportation modes.

Higher intensity mid-rise, transit-oriented development is encouraged along portions of the arterial road network to support the provision of transit services as detailed in Section 20.5.4.1 iv) of the General Residential policies.

Where/if the subject lands are within the boundaries of a previously approved Area Plan, the policies of Section 20.5.1.5 of the Plan shall also apply.

20.5.9.1 Low and Medium Density Residential

i) Intent

The intent of the Low and Medium Density Residential designations is to encourage a mix of housing types, forms and intensities throughout the Bostwick Neighbourhood and within individual developments, at an intensity that is higher than is found in more recent suburban neighbourhoods, and also higher than the other Neighbourhood Areas within the Southwest Secondary Planning Area. This is to be achieved by requiring a minimum density of development and encouraging the integration of the permitted range of housing types within individual developments..

iii) Built Form and Intensity

a) Within the Low Density Residential designation, residential development shall have a minimum density of 25 units per hectare and a maximum density of 40 units per hectare. Building heights shall not exceed four storeys..

b) Within the Medium Density Residential designation, new residential development shall have a minimum density of 35 units per hectare and a maximum density of 75 units per hectare. Building heights shall not exceed six storeys and shall be sensitive to the scale of development in the surrounding neighbourhood.

c) A residential density exceeding 75 units per hectare (up to a maximum of 100 units per hectare) may be considered in accordance with Section 3.3.3 ii) of the Official Plan.

20.5.4 General Land Use Policies

20.5.4.1 Residential

iii) All Residential Designations in all Neighbourhoods

a) Access to Arterial Roads

The primary transit network is expected to be provided on the arterial roads. For all Draft Plan of Subdivision, Consent and Site Plan applications that include land within 400 metres of an arterial road, the requirements for a complete application shall include the submission of a plan that demonstrates the provision of viable, safe and effective pedestrian linkages to the arterial road, to provide pedestrian access to potential future transit services. Public streets are preferred, however, pathway connections may be considered on a case-specific basis.

iv) Residential Development Intensity Adjacent to Arterial Roads

a) Function and Purpose

It is intended that arterial roads can serve as significant routes for public transit services. Specific policies apply along portions of the arterial network that are intended to focus intense, medium density housing forms along transit-oriented corridors, consistent with the Province of Ontario Transit Supportive Guidelines. This would also support alternative modes of transportation, such as walking and bicycling. This policy applies in the Medium Density Residential, and the Transitional Industrial designations in the following specific areas:

ii) Bostwick Road between Southdale Road West and Wharncliffe Road South;

v) Pack Road/ Bradley Avenue between Colonel Talbot Road and Wonderland Road South.

e) Built Form and Intensity

- Development shall occur at a minimum density of 30 units per hectare and a maximum density of 100 units per hectare. Building heights shall be a minimum of two storeys and a maximum of nine storeys.
- A residential density exceeding 100 units per hectare (up to 120 units per hectare) may be permitted through a site specific zoning by-law amendment, site plan application, and associated urban design review. A request for an increase in density shall also be subject to the following criteria:
  - conformity with the policies of Section 11.1 of the Official Plan and this Secondary Plan shall be demonstrated through the preparation of a concept plan of the site that exceeds the prevailing densities for the planning area;
  - parking facilities shall be designed to minimize the visual impact from adjacent properties and the public realm and provide for enhanced amenity and recreation areas for the residents of the development;
  - buildings shall be located close to the street and designed to be street oriented such that the functional front and main entrances to the building face the street;
  - subdivisions and site plans shall provide for safe and accessible pedestrian connections for the public between the arterial road and the interior of the adjacent neighbourhoods, which are integrated into the design and function of the site; and,
  - subdivisions and site plans shall provide for an enhanced pedestrian environment adjacent to the arterial road.

20.5.16 Implementation

20.5.16.4 Official Plan Amendments

ii) Where lands are designated “Environmental Review” on Schedule “A” – Land Use, Schedule “A” shall prevail over the Open Space designation on Schedule 4 of the Southwest Area Land Use Designations of the Secondary Plan. Once an Environmental Impact Study (EIS) has been completed, amendments to Schedule “A” – Land Use, Schedule “B-1”- Natural Heritage Features and the Secondary Plan Schedule will be required, as applicable.

The London Plan

Our Strategy:

Key Direction's

55_ Direction #1 Plan strategically for a prosperous city

- Revitalize our urban neighbourhoods and business areas.
- Plan for cost-efficient growth patterns that use our financial resources wisely.
- Invest in, and promote, affordable housing to revitalize neighbourhoods and ensure housing for all Londoners

58_ Direction #4 Become one of the greenest cities in Canada

- Protect and enhance the health of our Natural Heritage System
- Manage growth in ways that support green and active forms of mobility.
- Strengthen our urban forest by monitoring its condition, planting more, protecting more, and better maintaining trees and woodlands.
- Continually expand, improve, and connect our parks resources.
- Implement green infrastructure and low impact development strategies.
- Promote linkages between the environment and health, such as the role of active mobility in improving health, supporting healthy lifestyles and reducing greenhouse gases.

59_ Direction #5 Build a mixed-use compact city

- Plan to achieve a compact, contiguous pattern of growth – looking "inward and upward"
- Ensure a mix of housing types within our neighbourhoods so that they are complete and support aging in place
- Utilize a grid, or modified grid, system of streets in neighbourhoods to maximize connectivity and ease of mobility.

60_ Direction #6 Place a new emphasis on creating attractive mobility choices

- Create active mobility choices such as walking, cycling, and transit to support safe, affordable, and healthy communities.
- Ensure that our mobility infrastructure is accessible and accommodates people of all abilities.

61_ Direction #7 Build strong, healthy and attractive neighbourhoods for everyone

- Design complete neighbourhoods by meeting the needs of people of all ages, incomes and abilities, allowing for aging in place and accessibility to amenities, facilities and services
- Implement "placemaking" by promoting neighbourhood design that creates safe, diverse, walkable, healthy, and connected communities, creating a sense of place and character.
- Integrate well-designed public spaces and recreational facilities into all of our neighbourhoods.
- Integrate affordable forms of housing in all neighbourhoods and explore creative opportunities for rehabilitating our public housing resources.

62_ Direction #8 Make wise planning decisions

- Ensure that all planning decisions and municipal projects conform with The London Plan and are consistent with the Provincial Policy Statement.
- Think "big picture" and long-term when making planning decisions – consider the implications of a short-term and/ or site-specific planning decision within the context of this broader view.

City Building Policies

Design

191_ City design also helps us to create pedestrian and transit-oriented environments that support our plans for integrating mobility and land use. It helps us to offer a high quality of life in London and it also allows us to develop neighbourhoods, places and spaces that function more effectively and safely for everyone.

What Are We Trying to Achieve?

- A well-designed built form throughout the city.
- Development that is designed to be a good fit and compatible within its context.
- Development that supports a positive pedestrian environment.
- A built form that is supportive of all types of active mobility and universal accessibility.
- High-quality public spaces that are safe, accessible, attractive and vibrant.
- A mix of housing types to support ageing in place and affordability.
- Healthy, diverse and vibrant neighbourhoods that promote a sense of place and character.

Street Network

- *211_ The City's street network will be designed to ensure high-quality pedestrian environments, maximized convenience for mobility, access to focal points and to support the planned vision for the place type.
- *212_ The configuration of streets planned for new neighbourhoods will be of a grid, or modified grid, pattern. Cul-de-sacs, deadends, and other street patterns which inhibit such street networks will be minimized. New neighbourhood street networks will be designed to have multiple direct connections to existing and future neighbourhoods.
- *213_ Street patterns will be easy and safe to navigate by walking and cycling and will be supportive of transit services.

** Policies subject to LPAT Appeal PL170100*

Homelessness Prevention and Housing

495_ Providing accessible and affordable housing options for all Londoners is an important element of building a prosperous city. Quality housing is a necessary component of a city that people want to live and invest in. Housing choice is influenced by location, type, size, tenure, and accessibility. Affordability and housing options are provided by establishing variety in these factors.

What Are We Trying to Achieve?

- Provide an integrated mixture of affordable and adequate housing options for the greatest number of people in need.
- Facilitate an adequate and appropriate supply of housing to meet the economic, social, health, and well-being requirements of Londoners.
- Promote a choice of housing types so that a broad range of housing requirements is satisfied in a wide range of locations.

How Are We Going to Achieve This?

Creating Housing Opportunities

507_ New neighbourhoods will be planned to provide a mix of housing types and integrated mixed-use developments, accessible housing and integrated services, and housing forms and densities.

509_ New neighbourhoods will be planned to include a variety of different housing types such that it is possible for people to remain in a neighbourhood as their housing needs change over time.

<u>Neighbourhood Place Type</u>

Vision

- A strong neighbourhood character, sense of place and identity.
- Attractive streetscapes, buildings, and public spaces.
- A diversity of housing choices allowing for affordability and giving people the opportunity toremain in their neighbourhoods as they age if they choose to do so.
- Well-connected neighbourhoods, from place to place within the neighbourhood and to otherlocations in the city such as the downtown.
- Lots of safe, comfortable, convenient, and attractive alternatives for mobility.
- Parks, pathways, and recreational opportunities that strengthen community identity and serveas connectors and gathering places.

How will we realize our vision?

- Neighbourhoods will be planned for diversity and mix and should avoid the broad segregation of different housing types, intensities, and forms.
- Street networks within neighbourhoods will be designed to be pedestrian, cycling and transit-oriented, giving first priority to these forms of mobility
- Neighbourhoods will be designed to protect the Natural Heritage System, adding to neighbourhood health, identity and sense of place.
- Affordable housing will be planned for, and integrated into, all neighbourhoods.

Environmental Review Place Type

Vision

779_ In some cases, lands may contain natural heritage features and areas that have not been adequately assessed to determine whether they are significant and worthy of protection as part of the city's Natural Heritage System. The Environmental Review Place Type will ensure that development which may negatively impact the value of these features does not occur until such time as the required environmental studies are completed.

How will we realize our vision?

781_ A detailed environmental study to assess the significance of the lands identified as Environmental Review will be undertaken as part of any planning and development application process. The environmental study will be completed by the applicant and/or property owner, or where appropriate may be undertaken by the City of London.

782_ Environmental Review Place Type lands, or portions thereof, that are determined to satisfy the criteria for significance in conformity with the Environmental Policies part of this Plan will be included in the Green Space Place Type on Map 1. Other Environmental Review Place Type lands, or portions thereof, which do not satisfy the criteria for significance in conformity with the Environmental Policies will be included within another appropriate place type, in conformity with the policies of this Plan.

- **City of London Zoning By-Law Z.-1**

Urban Reserve Zone Variation 4 (UR4)

49.1 General Purpose of The UR Zone

This Zone provides for and regulates existing uses on lands which are primarily undeveloped for urban uses. Generally, these uses have limited structures. The Urban Reserve Zone is intended to protect large tracts of land from premature subdivision and development to provide for future comprehensive development on those lands.

The UR4 Zone variation is applied to areas which have not completed the Community Plan process which are intended for residential development over the long term.

Complete Application:

- Official Plan Amendment (to redesignate Environmental Review lands for residential uses)
- Zoning Amendment
- Draft Plan of Subdivision
- Final Proposal Report
- Noise Impact Study (Pack Road & Bostwick road)
- Environmental Impact Study
- Bonussing Justification (if required)

PLANNING AND DEVELOPMENT - URBAN DESIGN:

Prasanth Varughese *Urban Design Technician*

These lands are located within the Council approved Bostwick Residential Neighbourhoods of the South West Area Secondary Plan (SWAP) and Neighbourhoods and Green space Place Type in The London Plan[TLP] area. In accordance with the policies in SWAP, the following built form and site layout policies apply:

General comments:

- The Block to the south-east is designated as Open Space and is a current woodlot to be protected.
- Provide for a modified grid network of streets with increased East-West connectivity, that disperses vehicle and pedestrian traffic, and allows for safe and direct routes to transit, arterial roads, and adjacent neighbourhoods [SWASP 20.5.2 i; 20.5.3.9 c & j, TLP 212].

    - Avoid bulb outs and crescents in favour of through streets in order to promote way-finding and direct vehicle and pedestrian connections.
        - Reconfigure ‘Street B’ so that it extends westwards to facilitate connection to the future development and public street extension towards the west.
        - Shift or extend ‘Street B’ north and/or south so that it provided more direct and easier to navigate access to the North-west medium density block, as well as views and access to the woodland block to the South-west.
    - Provide access through or along the eastern medium density blocks east-west as well as north-south.
        - Consider public streets along or between medium density blocks(Blocks ’12, 13, 14, 15,16 ‘) for improved connectivity and wayfinding as opposed to the shorter entryways off ‘Street A’ to the larger blocks.
        - Ensure entryways to medium density blocks are aligned with public streets to the west, and consolidate entrances as much as possible for wayfinding.
    - Provide sidewalks on both sides of the streets to allow for safe and accessible pedestrian access throughout the neighbourhood.
- Wide pedestrian mid-block connections should be wide and include a minimum 50% built edge and active uses are oriented towards them, such as windows and wrap around building features such as porches, as opposed to privacy fencing and blank side facades [SWASP 20.5.3.9 i]
- Investigate opportunities for development to front on to the future Regiment Road extension (if applicable) along the western boundary of the subdivision.
- Explore opportunities for public streets and street-oriented mid-rise forms as opposed to cluster condo blocks to ensure connectivity among different blocks and to avoid backing onto public streets and open spaces.
- Locate park/pathway block with greater exposure to the street, and not in the rear of single family lots, to create a community focal point and allow for greater views and accessibility to the space.
    - Locate the park block at the corner of the two public streets as opposed to surrounded by side and rear yards in it’s current location. Consider having the park space and trail network connect to the existing woodlot for greater views and exposure to the natural area.
    - Ensure to maintain the wooded lots as part of the network of trails and open space.
- Strategically locate street terminuses, single loaded roads, and open spaces to provide open views, access to parks and other open space areas within the development.
- Include adequately sized walkway blocks that provide access to any parks and/or open space blocks.
- Consider more variety in the size and configuration of the lots to allow for an assortment of housing forms.
- Appropriately size any corner lots to provide enhanced facades on street-flanking elevations and emphasizing the intersection.
- Direct higher intensity-mid-rise transit oriented uses adjacent to and oriented towards arterial roads with lower intensity uses located internal to the neighbourhood to provide transition. [SWASP 20.5.9 i]
    - Ensure more dense forms along Pack Road and Bostwick Road.

Zoning comments:

- Provide the zoning anticipated for each block and ensure that the proposed zoning for each block implements the policies of the Southwest Area Secondary Plan (SWASP). This may include, but is not limited to: setbacks, orientation, garage maximum widths, minimum and maximum densities, etc.
    - Garages shall not project beyond the front face of dwelling or the façade of any porch, and not occupy more than 50% of the lot frontage [SWASP 20.5.3.9 iii, e]. Ensure the lots are large enough to accommodate this policy.
    - Ensure that the proposed building/built form is oriented to street frontages and establishes a pedestrian-oriented built edge with street oriented units.[SWASP 20.5.3.9 i a].
- Include either a holding provision or special provision in the zoning for all medium and high-density blocks to ensure orientation to the street, park, or open-space frontages.

Required for a complete application:

- Provide a conceptual site plan for each of the proposed medium density blocks. Further comments may follow upon receipt of the concepts;
    - Ensure any proposed building are oriented to their respective street frontage with any surface parking located behind the building [SWASP 20.5.3.9 i a].
    - Ensure that the proposed building(s) have regard for its corner location. The massing/ articulation or other architectural features should emphasize the intersection(s) and oriented to the higher order street[SWASP 20.5.3.9 iii c].
        - Buildings located at the intersection of Pack Road with Street A and Bostwick Road; Street A with Street B should be located and massed toward the respective intersection.

- Submit an urban design brief with a component that established the vision and character of the proposed subdivision, as required in Policy 198 of The London Plan.
- If any blocks are proposing zoning for buildings taller than 4-storeys, they are required to attend the Urban Design Peer Review Panel (UDPRP):
    - UDPRP meetings take place on the third Wednesday of every month. Once an Urban Design Brief is submitted as part of a complete application the application will be scheduled for an upcoming meeting and the assigned planner as well as the applicant's agent will be notified. If you have any questions relating to the UDPRP or the Urban Design Briefs, please contact Wyatt Rotteau at 519.661.2500 x7545 or by email at wrotteau@london.ca

PLANNING AND DEVELOPMENT - HERITAGE PLANNING:

Michael Greguol *Heritage Planner*

Major Issues identified

- 3563 Bostwick Road is adjacent to a heritage listed property on the City's Register of Cultural Heritage Resources at 6092 Pack Road (1900, Vernacular, Farmhouse).
- Archaeological potential at the above property – 3563 Bostwick Road – is identified on the City's Archaeological Management Plan. The proposed draft plan of subdivision will result in soil disturbance due to construction.

Heritage planning – condition of approval

- Heritage Impact Assessment (HIA)
- Archaeological Assessment Stage 1-2 – entire property

If an archaeological assessment has already been completed and received a compliance letter from the Ministry, the compliance letter along with the assessment report may be submitted for review to ensure they meet municipal requirements.

Notes:

Heritage Impact Assessment

- This assessment should respond to information requirements in the Ministry's InfoSheet #5 to assess potential impacts to the adjacent heritage listed property.
- The Heritage Impact Assessment should be prepared by heritage planner, heritage consultant and or a member of the Canadian Association of Heritage Professionals (CAHP).

Archaeological Assessment

- The proponent shall retain a consultant archaeologist, licensed by the Ministry of Heritage, Sport, Tourism, and Culture Industries under the provisions of the Ontario Heritage Act (R.S.O. 1990 as amended) to carry out a minimum of a Stage 1-2 archaeological assessment and follow through on recommendations to mitigate, through preservation or resource removal and documentation, adverse impacts to any significant archaeological resources found (Stages 3-4).
- The archaeological assessment must be completed in accordance with the most current Standards and Guidelines for Consulting Archaeologists, Ministry of Tourism, Culture and Sport.
- All archaeological assessment reports will to be submitted to the City of London once the Ministry of Heritage, Sport, Tourism and Culture Industries has accepted them into the Public Registry; both a hard copy and PDF format of archaeological reports should be submitted to Planning and Development.
- No soil disturbance arising from demolition, construction, or any other activity shall take place on the property prior to Development Services receiving the Ministry of Heritage, Sport, Tourism, and Culture Industries compliance letter indicating that all archaeological licensing and technical review requirements have been satisfied.
- It is an offence under Section 48 and 69 of the Ontario Heritage Act for any party other than a consultant archaeologist to make alterations to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from an archaeological site.
- Should previously undocumented (i.e. unknown or deeply buried) archaeological resources be discovered, they may be a new archaeological site and therefore be subject to Section 48(1) of the Ontario Heritage Act. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48(1) of the Ontario Heritage Act. Archaeological sites recommended for further archaeological fieldwork or protection remain subject to Section 48(1) of the Ontario Heritage Act and may not be altered, or have artifacts removed from them, except by a person holding an archaeological license.
- If human remains/or a grave site is discovered, the proponent or person discovering the human remains and/or grave site must cease alteration of the site immediately. The Funerals, Burials and Cremation Services Act requires that any person discovering human remains must immediately notify the police or coroner and the Registrar of Burial Sites, War Graves, Abandoned Cemeteries and Cemetery Closures, Ontario Ministry of Government and Consumer Services.

PLANNING AND DEVELOPMENT - NATURAL HERITAGE:

James MacKay *Ecologist*

- An EIS is required for this site along with a SLSR as part of the EIS, as per London Plan policy 1430. This is to be scoped with the City and other relevant stakeholders.
- A Hydrogeological study and water balance will be required to address the wetlands found on the subject site, the woodland feature and offsite features downstream that are suppled by this site. These will have to be scoped with the City and the UTRCA.
- The current proposed draft plan shows the Unevaluated Vegetation Patch being completely removed, discussions on this feature had started on a previous file (to the south). This will have to be evaluated as per London Plan policies and associated Council approved EMG, and further discussions are required through the process.
- The current proposed draft plan shows multiple wetlands being removed, these will have to be evaluated according to London Plan policies.
- Staff will require further discussion regarding possible in-situ protection or potential relocation/ compensation of the wetlands once they have been evaluated.

PARKS AND RECREATION:

Craig Smith *Senior Planner*

- Parkland dedication for this development is expected to be calculated at 1ha per 300 residential units. Using the submitted IPR plans and requested use, the required dedication is calculated to be 2.67 Ha (based on a total of 2.5 ha low density and 9.6ha of medium density) of tableland parkland any remaining required parkland will be taken as Cash in lieu.
- The proposed 0.3ha park block is not sufficiently sized to accommodate the proposed urban park use. PP&D does not require an active neighbourhood park in this plan of subdivision.
- The proposed pathway corridor is to be a minimum of 15m wide. PP&D would support a wider pathway corridor (30 meters +/-) through the plan of subdivision.
- Enhanced entrances should be considered with greater frontage (30m) at Street A for the park/pathway corridor.
- Subject to the City Ecologist and completion of an EIS for the existing woodland feature, PP&D could support the retention of the existing woodland and incorporation into the proposed park/pathway corridor in this plan of subdivision and the proposed park/pathway corridor connection in the plan to the west.
- The developer may be required to construct this pathway (as a capital claim) and as part of the subdivision development process.
- A pedestrian crossing of Street A shall be planned and designed, with input from City Transportation Division and PP&D. A pedestrian crossing of Bostwick Road (linking pathways east and west) shall also be planned and designed in conjunction with any required upsizing of Bostwick Road.
- The City will require fencing as per SPO 4.8 on all lots backing onto the park/pathway corridor.
- Staff would appreciate meeting with the applicant prior to the submission of the Final Proposal Review to discuss comments provided.

WASTEWATER & DRAINAGE ENGINEERING:

Marcus Schaum *Senior Technologist*

- The subject lands are within the Southwest Area Sanitary Servicing Master Plan (2014) study area. Originally based on GMIS and SWAP, the intended outlet was a future extension of a trunk sewer along Bostwick Road identified beyond 2030. At that time it was suggested by stakeholders that it might be possible that the subject lands including the east portion of W3 Farms could possibly be serviced by way of future oversized sewers through lands to the east of Bostwick Road to ultimately end up in the Wonderland Road pumping station. As part of recent IPR's and phases of W3 Farms an alternate suggestion accounted for these Westwinds lands and the easterly portion of W3 Farms as being tributary to the Oxford Wastewater Treatment Plant via and the Colonel Talbot Pumping station.
- It is presently noted that there are no sanitary sewers or outlets fronting or in close proximity to these lands and it is further recognized any alternate sewer routings that would connect to the Colonel Talbot PS will require co-ordination with adjacent owners (York) and timing for sewers and services will need to be clearly addressed as part of a future IPR for these lands.
- This IPR did identify possible arrangement with lands to the south and extending sewers west that will direct flows through future phases of W3 to Colonel Talbot PS. It is noted that a portion of W3 Phase 1 is currently routed south through Heathwoods that has limited available capacity. SED will point out that although a recent IPR and draft plan for W3 Phase 1 did include a proposal that could possibly extend sewers in future to serve the easterly portion of W3 and Westwinds it was noted in their IPR that the east portion of W3 and Westwinds will not advance until sewers and diversion to Colonel Talbot PS are constructed and extended through future phases of W3 Farms. The actually timing and co-ordination that is required that would extend sewers to Westwinds was never provided.

- The revised IPR is to also reflect and include all external land including maximum population and areas consistent and co-ordinated with the earlier Phase 1 W3 Farms draft plan that addressed what is anticipated and would be directed and redirected by gravity to Colonel Talbot PS under ultimate conditions.
- SED is open to further discussions with the Applicant as required.

WATER ENGINEERING:

Josh Robinson *Technologist II*

- Currently there is a 600mm low-level watermain along Pack Road available for the subject site.
- Due to the elevations of the subject site (275-280m) the proposed subdivision will be required to be connected to a high-level watermain. Currently there are no high-level watermains fronting the proposed subdivision. As part of the Southdale Road West Improvements - Phase 1, a 300mm high-level watermain stub will be installed south of the intersection of Southdale Road West and Bostwick Road.
- The high-level watermain extension along Bostwick Road is planned for 2025 under the GMIS. If the Owner wishes to proceed with the subdivision in advance to the high-level watermain extension, the Owner shall have the watermain extended along Bostwick Road to the proposed roadway connection to Bostwick Road within the future phase of W3 Subdivision (as shown on figure 11 of the report), all at no cost to the City.
- Water looping will be required for the subdivision. The Owners will be required to provide a looped check valve connection between the internal high-level watermain and the 600mm low-level watermain at the intersection of Pack Road and Street A.
- The high-level watermain for both internal and external to the subdivision shall be designed and sized accordingly for future developments in the area.
- Water Engineering will be requesting a holding provision on the site for adequate water servicing.

STORMWATER MANAGEMENT:

Adrienne Sones *Environmental Services Engineer*

General Comments/Information – Stormwater Management (SWM)

- The site is located within the Dingman Creek Subwatershed. Stormwater management works for the site are anticipated to follow the requirements of the Dingman Creek Stage 1 EA. The final Dingman Creek EA is available on the City's Get Involved website at https://getinvolved.london.ca/dingmancreek.
- As per the Dingman EA, runoff volume control hierarchy of 25 mm is to be applied utilizing mechanisms of infiltration, evapotranspiration and/or re-use to achieve water balance and erosion control requirements for the subdivision.
- This site and the east portion of W3 subdivision abutting Bostwick Road is tributary to North Lambeth P3 SWM facility scheduled in GMIS for construction in 2026. The SWM servicing for lands west of Bostwick Road and tributary to North Lambeth P3 shall be coordinated with downstream parties. Conveyance system requirements to P3 (including the Bostwick Road crossing and the ultimate outlet) should be identified as part of this subdivision servicing strategy. The subdivision design should identify the downstream Dry Pond storage and capacity requirements for the subject lands.
- The location and design targets of the North Lambeth P3 SWM dry facility and its outlet to Thornicroft Drain will be subject to the findings of the Thornicroft Drain Natural Channel improvement plan scheduled for 2021.
- A coordinated approach with adjacent property owners will be required by the City and UTRCA to ensure natural heritage features (e.g. Patch 10069) remain adequately fed during interim and post development conditions all to the satisfaction of the City and UTRCA. Water balance mitigations requirements identified in an EIS, Hydrogeological or related study are to be identified and addressed in the SWM strategy.
- A functional Stormwater Servicing Report in support of the SWM design shall be provided as part of the complete application for Draft Plan approval. Through detailed design, an updated functional Stormwater Servicing Report is to be submitted to reflect updates and refinements made through the detailed design process. The functional Stormwater Servicing Report shall include, but not be limited to:
    - Functional design of the conveyance system for these lands to P3 including the crossing of Bostwick Road and SWM Facility P3 storage requirements following the City's updated Stormwater Management Design Specifications and Requirements Manual and Design and Construction of Storm Water Management Facilities policies and processes identified in Appendix 'B-1' and 'B-2' Stormwater Management Facility "Just in Time" Design and Construction Process adopted by Council on July 30, 2013, as part of the Development Charges Policy Review: Major Policies Covering Report. Any supporting modeling files should be made available in digital format to the City.
    - How the proposed development will meet City of London water quality and quantity SWM design criteria as per the City's updated Stormwater Management Design

Specifications and Requirements Manual and the Dingman Creek Stage 1 EA for all lands tributary to both PPS and Municipal Stormwater systems. The SWM report shall include SWM design targets requirements for each block in accordance with the Dingman Creek Stage 1 EA and the City's updated Stormwater Management Design Specifications and Requirements Manual. It is expected that Low Impact Development measures will meet the 25mm runoff volume control target. Linear LIDs constructed within the municipal ROW may be eligible for the LID Subsidy.

- Identify how interim and ultimate, major (100 & 250 year) flows (including external flows to this Draft Plan) can be contained within the municipal right-of-way throughout the subdivision and be safely conveyed to the ultimate outlet. Impacts of traffic calming, if any, shall be evaluated as part of the major flow evaluation. The City's updated Stormwater Management Design Specifications and Requirements Manual should be followed in the development and evaluation of the major conveyance system.
- Consideration and integration of other related supporting studies including:
  - Requirements of a SLSR, EIS, Environmental Management Plan (EMP) or hydrogeological study as scoped with UTRCA and City staff. The findings of these supporting studies should be incorporated into the SWM Report as required to demonstrate how mitigation and compensation targets are achieved via the SWM system during buildout and post-construction. Conveyance of stormwater to natural features shall consider the hydrological impacts such as, but not limited to peak flows; total runoff volumes and annual water balance conditions and requirements supported by any applicable studies. A monitoring program may be required during and post construction to verify water balance targets or other targets determined through the background studies.
  - Geotechnical report.
- Include a representative lot level runoff coefficient value including all anticipated impervious surfaces such as buildings and hardscaping to verify the proposed development meets approved "C" runoff coefficients.
- SWM control targets and requirements for any Medium Density block where PPS stormwater controls will be subject to a future site plan application. If freehold lots are proposed within a Medium Density block, a municipal stormwater strategy shall accommodate the future freehold lots and be included in the functional Stormwater Servicing Report.
- Once the final Draft Plan is established further evaluation will be required, likely at the detailed design stage, which may include but may not necessarily be limited to the following:
  - Details and discussion regarding LID considerations proposed for the development.
  - Discussions related to the water taking requirements to facilitate construction (i.e., PTTW or EASR be required to facilitate construction), including sediment and erosion control measure and dewatering discharge locations.
  - Evaluation of construction related impacts, and their potential effects on the shallow groundwater system.
  - Discussion regarding mitigation measures associated with construction activities specific to the development (e.g., specific construction activities related to dewatering).
  - Development of appropriate short-term and long-term monitoring plans (if applicable) to address:
    - Assumption requirements for SWM control features (as per Chapter 19).
    - Demonstration that surface and groundwater requirements and/or targets are met during construction and build out phases, as noted in an associated or supplemental report such as EIS or hydrogeological study and as per the City's Environmental Management Guidelines (EMGs).
    - Confirmation that impacts to adjacent natural heritage feature(s) following completion of new development works is within a range of acceptable impacts.
  - Development of appropriate contingency plans (if applicable), in the event of groundwater interference related to construction.

TRANSPORTATION PLANNING & DESIGN:

Juan Chamorro *Transportation Technologist*

- The applicant is to have regard for and implement through this plan of subdivision Complete Streets (which includes such things as barrier curb, sidewalk on both sides, asphalt width, and ROW width). Council recently approved the Complete Streets Design Manual, the complete streets design manual contains information and design guidance for the

construction of a complete street, this guide should be followed for all street design within the subdivision;
- The owner shall install curb in the subdivision to be 600.040 barrier curb as per the City of London DSRM;
- The owner shall provide a road layout and concept plan as part of Design Studies showing all centre line radii, bends, and tapers to the satisfaction of the City Engineer;
- The owner shall provide consistent pavement width on street bends as per City standards.
- Street 'A' connection to Pack Road shall be design as per DSRM for a gateway entrance.
- On-street parking shall be provided adjacent to the Park on Street 'A';
- The owner shall establish and maintain a Traffic Management Plan (TMP) in conformance with City guidelines and to the satisfaction of the City Engineer for any construction activity that will occur on existing arterial roadways needed to provide services for this plan of subdivision. The owner's contractor(s) shall undertake the work within the prescribed operational constraints of the TMP. The TMP will be submitted and become a requirement of the subdivision servicing drawings process for this plan of subdivision;
- The owner shall provide sidewalk connectivity to all City Streets, on both sides of all streets, as per City standards;
- PXO shall be provided on Street "A" where the pathway is proposed;
- The bump outs as shown on street bend is not acceptable, consistent pavement width shall be provided to City standards;
- Right of way dedication of 18.0m from centre line required on Pack Road;
- Right of way dedication of 18.0m from centre line required on Bostwick Road;
- Ensure 6.0mx6.0m daylight triangles at all intersections;
- Provide a 1ft reserve along Pack Road;
- Neighborhood Streets (Locals) shall be designed and built to Municipal standard, as per the DSRM and City of London Complete Streets Design Manual, with 20.0m wide Right-of-ways (ROW) and asphalt widths of 7.5m;
- Neighborhood Connectors (Collectors) shall be designed and built to Municipal standard, as per the DSRM and City of London Complete Streets Design Manual, with 23.0m wide Right-of-ways (ROW) and asphalt widths of 6.0m;
- Traffic Calming shall be provided on Street "A" to the satisfaction of the City Engineering and may include speed cushions with a physical barrier in between the through lanes and the cycle lanes, to the satisfaction of the City Engineer.
- Traffic Calming measures shall also include raised intersections at locations to be confirmed by Transportation as per City standards. Other traffic calming measures including speed cushion locations to be confirmed by Transportation.
- As part of a complete application provide a road layout and concept plan showing all bends tapers and centre line radii comply with City standards, ensure all through streets align opposite each other and streets intersect perpendicular to each other if minimum City standards are not met changes to the draft plan will be required.
- As part of a complete application a Transportation Impact Assessment (TIA) will be required, the TIA will evaluate the impact the development will have on the transportation infrastructure in the area and provide recommendations for any mitigation measures. The TIA should clearly state which is the proposed classification of each street (i.e. neighbourhood connector and neighbourhood street), and include improvements to Pack Road to the satisfaction of the City Engineer and shall be constructed by the applicant at no cost to the City. Auxiliary lane requirements, etc for Street "A" and Pack Road to be determined based on the TIA. The TIA will need to be scoped with City staff prior to undertaking and be undertaken in general conformance with the City's TIA guidelines;
- A maximum of 80 units can be occupied with only one access to the subdivision. Phasing of works shall be considered in conjunction with adjacent developments;
- The applicant shall have regard for the Southwest Secondary Plan;
- Temporary street lighting may be required at the intersection of Pack Road and Street "A".

DEVELOPMENT FINANCE:

Greg LaForge *Specialist, Development Finance*

These comments are based on the 2021 DC Background Study and By-law. Development Finance has reviewed the IPR documents provided and based on this information provide the following:

General
- This proposal is dependent of the timing of DC Growth projects as well as the build out of adjacent developments and their associated servicing.

Water
- As part of the City led Bostwick 2 Lane Upgrade DC project from Pack to Southdale (DC14RS0210), a 300 mm Strategic Link watermain will be constructed and is currently scheduled for 2025.
- If watermains are identified through the design process that are 300 mm in diameter or greater and service external areas, these would be eligible for oversizing subsidy. Local, temporary or private watermains and connections are to be constructed at the Owner's cost.

Wastewater

- These lands are planned to outlet to the future SS14B oversized sanitary sewers which are dependent on the timing and build out of adjacent lands to the east of Bostwick Road. This IPR proposes an alternative servicing strategy which outlets to the existing Colonel Talbot Wastewater Pump Station. This alternative servicing strategy would be dependent on City approval as well as the timing and build out of the adjacent lands to the southwest which includes the construction of the final portions of the SS15A (DC14WW0005) and the SS15B Trunk Sanitary Sewers (DC14WW0010) currently scheduled for 2025.
- There are no anticipated claims for subsidy on oversized sanitary sewers (300mm diameter or greater) which service external areas. Local, temporary or private sanitary sewer works and connections are to be constructed at the Owner's cost.

Stormwater Management

- These lands are planned to outlet to the North Lambeth P3 (Dingman Tributary D4 - DC14MS0019) SWMF which is currently scheduled for 2026 following the City's Just-In-Time Design and Construction Process.
- As noted in the IPR, if LIDs are accepted through the subdivision design process that improve water quality or water balance in conjunction with local stormwater servicing on City-owned lands or within a dedicated Municipal easement, these would be eligible for subsidy. LIDs constructed within a site plan are not eligible for subsidy.
- There are no anticipated claims for subsidy on oversized storm sewers (1200mm diameter or greater) which service external areas. Local, temporary or private sewers and connections will be installed at the Owner's cost.

Transportation

- Adjacent City led DC growth projects are currently scheduled as follows:
    - 2025 - Bostwick 2 lane upgrade from Pack to Southdale (DC14RS0210)
    - 2026 – Bostwick 2 to 4 lanes with realignment from Pack to Wharncliffe (DC19RS0016)
    - 2028 - Bradley Extension new 4 through lanes from Wonderland to Bostwick (DC14RS0047)
    - 2032 – Pack 2 lane upgrade from Colonel Talbot to Bostwick (DC14RS0211)
- Temporary external roadworks required in advance of these major projects would be an Owner cost.
- There are no anticipated claims for transportation related infrastructure. All internal roadworks up to and including Neighbourhood Connectors, temporary external road works and connections are to be constructed at the Owner's cost.

Parks

- If Owner led DC eligible parkland infrastructure

DEVELOPMENT ENGINEERING:

Peter Kavcic	*Manager, Development Engineering*
Blair Hammond	*Senior Engineering Technologist*
Mustafa Almusawi	*Senior Engineering Technologist*

The following Development Services (Engineering) comments are to be included in the meeting minutes for the Proposal Review Meeting held on August 11, 2021 with respect to the Initial Proposal Report for the proposed Draft Plan of Subdivision the subject lands located on 3563 Bostwick Road.

STANDARD COMMENTS:

- All the usual standard conditions of draft plan will be imposed;
- Cost sharing for any eligible services or facilities will be based on the most financially economical solution for the claim, unless agreed to otherwise by the City; and
- External land needs are to be addressed as necessary (e.g. utility corridors, public roads, construction roads, emergency access etc.).

DRAFT PLAN OF SUBDIVISION DRAWING COMMENTS:

The draft plan of subdivision drawing is to comply with all City standards with regard to the above comments and the following:

- Draft plan of subdivision is to include various existing features;
    - Topographical information (e.g. contours, elevations, vegetation areas, water courses, wells, utility corridors, and flood plain limits)
    - Legal info of this plan and adjoined lands (e.g. easements, lot and plan numbers, addresses, and adjacent streets)
    - Proposed road curvature and radii to comply with City standards
    - Pavement Widths
    - Tapers / transitions
    - Road widening's
    - Dimension all right of way's including window streets
    - Daylighting triangles where applicable

- 0.3m reserves and road dedications as necessary
- Lot Frontages
- Block Areas
- Drawing to scale
- North arrow, etc.

REQUIREMENTS FOR A COMPLETE DRAFT PLAN OF SUBDIVISION SUBMISSION:

For a complete Draft Plan of Subdivision Application, the Owner is to provide the following:

1. The Final Proposal Report addressing all Development Services comments with respect to the IPR.
2. Revised proposed Draft Plan of Subdivision drawing as per Development Services comments.
3. Geotechnical Report
4. Hydrogeological Reports
5. EA Opinion Letter

These notes highlight the Planning and Development (Engineering) comments at the Internal Proposal Review Meeting based on the circulated plan accompanying the Initial Proposal Report, and are to be used to aid in preparing the minutes. The comments themselves are preliminary in nature and do not preclude the possibility that further issues may be identified as the review proceeds. Planning and Development formal comments on the draft plan of subdivision application will be provided when the application is circulated for review under the standard File Manager review process.

EXTERNAL COMMENTING AGENCIES

Ministry of Natural Resources and Forestry (MNRF)
Karina Černiavskaja *District Planner – Aylmer District*

- There are no Ministry evaluated wetlands or ANSIs located within proximity to the project location.
- The Ministry understands that an EIS will be completed as part of this proposed development, in order to confirm potential for natural heritage concerns. Once available, the Ministry requests to be circulated the EIS for this project.

ENBRIDGE GAS INC.
Tyler Closs
(No comments Rec'd)

LONDON TRANSIT COMMISSION (L.T.C.)
Transportation Planning Technician
(No comments Rec'd)

THAMES VALLEY DISTRICT SCHOOL BOARD
Eric Miles *Planner*
(No comments Rec'd)

LONDON DISTRICT CATHOLIC SCHOOL BOARD
Rebecca McLean *Planning Specialist*
(No comments Rec'd)

LONDON-MIDDLESEX HEALTH UNIT
Bernadette McCall *Public Health Nurse*
(No comments Rec'd)

UPPER THAMES RIVER CONSERVATION AUTHORITY (U.T.R.C.A.)
Christine Creighton *Land Use Planner*
Stefanie Pratt *Land Use Planner*

Comments received via email and attached below

REQUIREMENTS TO PROCEED WITH CURRENT APPLICATION

New City of London Complete Application Requirements for Planning Act Applications

All new applications submitted on or after January 22, 2018 will be required to meet the new requirements for the relevant application type. These applications must be submitted using the updated application forms dated January 2018 which will appear on the City's website in early January.

The new requirements are in addition to any technical submission requirements you are currently required to meet, and are as follows:

Draft Plan of Subdivision

A simplified draft plan of subdivision is required for the production of the on-site sign.
The graphic must be sized to the dimensions of 46"(W) x 46(H), provided in PDF and JPEG format at a DPI of 300.

The subdivision must be centred and scaled within the 46" bounding box to allow for maximum readability. The area outside of the draft plan of subdivision must be populated with Ontario Base Map data to provide context for the surrounding land. This additional contextual information should be displayed at a lighter transparency and contain information such as, but not limited to: streets, parcel fabric, building outlines, and watercourses. The images should be full bleed with no borders. The image must not be distorted or skewed in any way and is subject to cropping.

The simplified image of the proposed subdivision must include the following elements:

- Outline the extent of the subdivision boundary
- Road, lot, and block fabric and descriptions
- Proposed street name labels
- Proposed block numbers & area calculations
- Colour application to all lots and blocks per The London Plan colours (see Map I for relevant place types and colour standards)
- Light grey colour application to all street and walkway blocks
- Basic map elements: (north arrow, scale, etc.)

Official Plan and/or Zoning By-Law Amendment (applicable only where Renderings are required as part of a complete application)

Proposed Development best represented using a landscape image format Graphic renderings are required which represent the conceptual design of the proposal for the production of the on-site sign.

A minimum of 2 renderings must be provided, oriented in landscape format and sized to the dimensions of 48"(W) x 26"(H), provided in PDF and JPEG format at a DPI of 300.

These renderings should be an accurate visual representation of the proposal and highlight features of the conceptual design. The images should be full bleed with no borders. The image must not be distorted or skewed in any way and is subject to cropping.

OR
Proposed Development best represented using a portrait image format
Graphic renderings are required which represent the conceptual design of the proposal for the production of the on-site sign.

A minimum of 2 renderings must be provided, oriented in portrait format and sized to the dimensions of 14"(W) x 26"(H), provided in PDF and JPEG format at a DPI of 300.
AND

A minimum of 3 renderings must be provided, oriented in landscape format and sized to the dimensions of 34"(W) x I 3"(H), provided in PDF and JPEG format at a DPI of 300.
The landscape images are typically, but not always, of the pedestrian level of a tall building.

These renderings should be an accurate visual representation of the proposal and highlight features of the conceptual design. The images should be full bleed with no borders. The image must not be distorted or skewed in any way and is subject to cropping.

The following documentation is required for a Complete Application Submission:

- **Draft Plan of Subdivision Application:**
  - 2 copies of the City of London Subdivision Application Form.
  - 24 rolled copies of the Draft Plan, completed as required under Section 51(17) of the Planning Act (the Draft Plan must include the Approval Authority signature block)
  - A digital file of the Draft Plan tied to the City's geographic horizontal control network (NAD 1983 UTM Zone 17N) must be submitted as well (refer to the City's Plans Submission Standards available on-line).
  - 1 legal sized copy of the Draft Plan.
  - Associated application fees
  - Updated as per comments from various groups detailed above i.e. Transportation, Parks, Development Engineering, etc.

  Draft plan of Subdivision is to include various features listed on the Draft Plan of Subdivision Application Form

- **Official Plan and Zoning By-law Amendment Application:**
  - 2 copies of completed City of London Official Plan and Zoning By-law Amendment application form and supporting documentation
  - Hard copy and digital file of proposed zoning map
  - Associated application fees

- **Final Proposal Report (FPR):**
  - Updated to reflect the comments that have been identified in this Record of Consultation, in accordance with the requirements prescribed in the File Manager Reference Manual;
  - FPR is to include updated information on water, sanitary, stormwater, transportation and development finance components, parks and open space, natural heritage, urban design, heritage planning, and development planning and addressing all comments identified in the Record of Consultation (*Note: applicant/consultant should undertake off-line discussions with contacts prior to completing the FPR, to ensure all servicing requirements are suitably addressed*);
  - Final Proposal Report which fully addresses the polices of the Provincial Policy Statement, the Planning Act, the 1989 Official Plan, and The London Plan.

- **Reports/Studies and Plans Required:**
  - As part of a complete application provide a road layout and concept plan showing all bends tapers and centre line radii comply with City standards, ensure all through streets align opposite each other and streets intersect perpendicular to each other if minimum City standards are not met changes to the draft plan will be required.
  - Noise Impact Study (Pack Road & Bostwick road)
  - Bonussing Justification (if required)
  - Provide a conceptual site plan for each of the proposed medium density blocks. Further comments may follow upon receipt of the concepts
  - Submit an urban design brief with a component that established the vision and character of the proposed subdivision, as required in Policy 198 of The London Plan
  - If any blocks are proposing zoning for buildings taller than 4-storeys, they are required to attend the Urban Design Peer Review Panel (UDPRP)
  - Transportation Impact Assessment (TIA) will be required
  - Heritage Impact Assessment (HIA)
  - Archaeological Assessment Stage 1-2 - entire property
  - A functional Stormwater (SWM) Servicing Report (scoped with City of London and UTRCA staff)
  - Geotechnical – Slope Stability Report (scoped with City of London and UTRCA staff)
  - Environmental Impact Study along with a SLSR as part of the EIS (scoped with City of London and UTRCA staff)
  - Hydrogeological Assessment and Water Balance Analysis (scoped with City of London and UTRCA staff)
  - EA Opinion Letter

Prepared By:
Rob Carnegie *Proposal Review Meeting Coordinator*, *Development Planning*
(519) 661-CITY (2489) ext. 2787 RCarnegie@london.ca

Reviewed By:
Sean Meksula *Senior Planner, Development Planning*
(519) 661- CITY (2489) ext. 5349 SMeksula@london.ca
Michael Clark *Planner I, Development Planning*
(519) 661- CITY (2489) ext. 4586 MClark@london.ca

Approved By:
Bruce Page *Manager, Planning and Development*
(519) 661- CITY (2489) ext. 5355 BPage@London.ca

APPENDIX B - Environmental Study Scoping Checklist

Application/Project Name: Bostwick Road Natural Heritage

Proponent: Amiraco Properties Inc. **Date:** January 28, 2022

Proposed Project Works: Residential development

Study Type: Subject Lands Status Report (SLSR)

Lead Consultant: David Ailles (Amiraco Properties Inc.)

Key Contact: David Ailles (on behalf of Mike Meddaoui - Amiraco Properties)

Subconsultants: EXP (Hydrogeology), MTE Consultants (Ecology), MHBC (Planning) AGM

Technical Review Team:

☑ Ecologist Planner: Margot Ursic and Shane Butnari ☐ Province – Species at Risk: _____

☑ Planner for the File: Michael Clark ☐ Province - Other: _____

☑ Conservation Authority: Tara Tchir and Christine Creighton Contact: _____

☑ EEPAC: Sandy Levin ☐ Other: _____

☐ Project Manager, Environmental Assessment: _____

☐ First Nation(s): _____

Subject Lands and Study Area:

Location/Address and Size (ha) of Subject Lands:
3563 Bostwick Road, London, ON - Approxiately 16.4 ha

Study Area Size (approximate ha): 40.3 ha ■ Map (attached): Figure 1

Position of Site in Subwatershed: Dingman Creek Subwatershed

Tributary Fact Sheet: _____

Is the proposed location within the vicinity of the Thames River (<120 m)? ☐ Yes ☑ No

If Yes, initiate engagement with local First Nation communities. Consultation activity to be provided at Application Review stage.

Policy:

☑ Study must demonstrate how it conforms to the Provincial Policy Statement

☑ Study must demonstrate how it conforms to *The London Plan*
Upper Thames Manual as well.

Map 1 Place Types:

☐ Green Space ☑ Environmental Review

Other Place Types: Neighbourhoods

Map 4 Active Mobility Network:

☐ Pathway placement and future trail accesses shall be considered as part of this study.

Map 5 Natural Heritage System:

(Subject Lands and Study Area delineated on current aerial photographs)

☐ Provincially Significant Wetland Name: _____

☐ Wetlands ☑ Unevaluated Wetlands*

☐ Area of Natural & Scientific Interest Name: _____

☐ Environmentally Significant Area Name: _____

☐ Potential ESAs ☐ Upland Corridors

☑ Significant Woodlands ☐ Woodlands

☑ Significant Valleylands ☑ Valleylands

☑ Unevaluated Vegetation Patches ☐ Potential Naturalization Areas

Patch No. 10066

** ELC (air photo interpretation and / or previous studies) may identify potential wetlands or other potential features not captured on Map 5.*

Map 6 Hazards and Natural Resources:

☐ Maximum Hazard Line ☑ Conservation Authority Regulation Limit (and text based regulatory limit) – Project falls under *Conservation Authority Act* Section 28

Picking up Dingman Screening Area, associated with wetland and woodland to the northeast.
Also want info on flowpaths.

Required Field Investigations:

Aquatic:

☐ Aquatic Habitat Assessment: _____

☐ Fish Community (Collection): _____

☐ Spawning Surveys: _____

☐ Benthic Invertebrate Survey: _____

☐ Mussels: _____

☑ Other: Headwater Drainage Feature Assessment (April 23, 2021);

Second HDFA to be completed in spring 2022

Wetlands:

☑ Wetland Delineation: Determine boundaries of Unevaluated Wetlands

☑ Wetland Evaluation (OWES): Full OWES not completed as wetlands are <0.5 ha.

Wetlands will still be screened in accordance with London and UTRCA policy, but OWES is not required

☐ Other: _____

Terrestrial (Wetland, Upland and Lowland):

- ☑ Vegetation Communities (ELC): April 21, June 8, June 26, and September 11, 2017
- ☑ Botanical Inventories ☐ Winter ☑ Spring ☑ Summer ☑ Fall
- ☑ Breeding Bird Surveys (type & frequency): June 8 & June 26, 2017 - Point/Area search
- ☐ Raptor Surveys: _____ ☐ Shoreline Birds: _____
- ☐ Crepuscular Surveys: _____ ☐ Grassland Surveys: _____
- ☑ Amphibian Surveys (type & frequency): April 11, May 11, & June 12, 2017 - Call Count
- ☑ Reptile Surveys: Additional amphibian breeding survey to be completed spring 2022 (if no frogs or suitable habitat is observed in April 2022, additional surveys are not necessary)
  - ☐ Turtle (type & frequency): _____
  - ☑ Snake (type & frequency): 9 coverboard visits May-September 2021 (12 boards)
  - ☑ Other (type & frequency): Incidental observations for snakes, habitat assessment
- ☑ Bat Habitat, Cavity & Acoustic Surveys: Maternity roost survey May 10, 2021
- ☑ Mammal Surveys: Incidental
  - ☐ Winter Wildlife Surveys: _____
- ☑ Butterflies (Lepidoptera): Incidental
- ☐ Dragonflies / Damselflies (Odonata): _____
- ☐ Species at Risk Specific Surveys: _____
- ☐ Species of Conservation Concern Surveys: _____
- ☑ Significant Wildlife Habitat Surveys: Terrestrial Crayfish; Habitat assessments above
- ☐ Other field investigations: _____

Supporting Concurrent Studies/Investigations:

- ☑ Hydrogeological/Groundwater: EXP Hydrogeological Investigations
- ☑ Surface Water/Hydrology: Headwater Drainage Feature Assessment April 23 2021; EXP
- ☑ Water Balance: EXP Hydrogeological Investigations
- ☐ Fluvial Geomorphological: _____
- ☐ Geotechnical: _____
- ☑ Tree Inventory: _____
- ☐ Other: _____

Evaluation of Significance:

Federal:

- ☐ Fish Habitat ☐ Other Federal: _____
- ☑ Species at Risk (*SARA*) (migratory birds and fish)

Provincial:

- ☐ Provincially Significant Wetlands
- ☐ Significant Valleylands
- ☐ Areas of Natural & Scientific Interest
- ☐ Water Resource Systems
- ☑ Species at Risk (*ESA*): _____
- ☑ Significant Woodlands — Woodlot will be evaluated using municipal criteria.
- ☑ Significant Wildlife Habitat Ecoregion 7E
- ☐ Fish Habitat

Municipal/London:

- ☐ Environmentally Significant Areas (ESAs), Potential ESAs
- ☑ Significant Woodlands, Woodlands — Woodland will be evaluated using City of London criteria.
- ☑ Significant Valleylands, Valleylands
- ☑ Wetlands, Unevaluated Wetlands
- ☑ Significant Wildlife Habitat
- ☑ Unevaluated Vegetation Patches
- ☐ Other Vegetation Patches >0.5 ha
- ☐ Potential Naturalization Area
- ☑ Other: Water Resource Systems

Impact Assessment:

- ☑ Impact Assessment Required
- ☐ Net Effects Table Required — To be included as part of the EIS.

Environmental Management Recommendations:

- ☐ Environmental Management Plan: _____ — To be included as part of the EIS.
- ☐ Specifications & Conditions of Approval: _____
- ☐ Other: _____

Environmental Monitoring:

- ☐ Baseline Monitoring: _____
- ☐ Construction Monitoring: _____
- ☐ Post-Construction Monitoring: _____

Additional Requirements and Notes:

-There will be a path connecting to the south property. It will tie to the park block to the south.
-We will be pulling more information on the flowpaths from adjacent properties (east drain, flowpath to woodland to the south).
-Additional field surveys have been requested by the City (EEPAC agrees)
    -Additional HDFA is to be completed in spring 2022
    -Updated amphibian call surveys in 2022 (incidentals during the day and a typical night survey). If no amphibians are found in April and the feature is not suitable in terms of standing water, then the next two surveys may not be necessary.
    -No extra coverboard surveys will be completed.
-Other 2017 surveys may need to be updated if the EIS is not completed within the next year or so.
-The woodland will need to be evaluated using the City of London Woodland Evaluation
    -James and Margot expressed that they think the woodland will be Significant
    -preference to use the new EMGs
    -acknowledged that James has been open to removal and relocation of the woodland feature
-The net effects table, EMP, and monitoring component will be considered as part of the EIS, not the SLSR.

Appendix B

Species at Risk Record Assessment

Protected (Threatened or Endangered) Species

Common Name	Scientific Name	SARO	Source	Habitat Requirements[2]	Potential in the Subject Lands	Rationale
Plants						
American Chestnut	*Castanea dentata*	END	NHIC, 2021	Typically, habitat is upland deciduous forests on moist to well drained, sandy acidic soils. Occasionally occurs on heavy soils. This species is typically found alongside Red Oak, Black Cherry, Sugar Maple, American Beech, and other deciduous species. Range: Restricted primarily to southwestern Ontario between Lakes Erie and Huron.	Absent	The Subject Lands include a Mineral Cultural Thicket/Woodland (CUT1/CUW1) in the southwest that includes several deciduous species, but the soils throughout the woodlot are very moist, not sandy or dry. No American Chestnut trees were observed during plant inventories.
Butternut	*Juglans cinerea*	END	NHIC, 2021	Usually found alone or in small groups in deciduous forests with moist, well-drained soils. Often occurs along streams. Butternut require sunny conditions and therefore are often found in canopy openings or near forest edges. Range: Found throughout the southwest, north to the Bruce Peninsula, and south of the Canadian Shield.	Absent	A Mineral Cultural Thicket/Woodland in the southwest Subject Lands includes several deciduous species but is dominated by Buckthorn along with Bitternut and Hawthorn species. Butternut were not identified within the Subject Lands during plant inventories.
Eastern Flowering Dogwood	*Cornus florida*	END	NHIC, 2021	Understory tree or on edges of mid-age to mature deciduous or mixed forests, floodplains, slopes, bluffs, ravines, and sometimes along roadsides or fencerows. Often found clustered in the drier areas of its habitat. Range: Only found in the Carolinian Zone of southern Ontario – specifically in Oakville, along the Niagara Escarpment through Halton to Hamilton, Niagara Region, and plentiful in Norfolk County.	Absent	There are no floodplains, slopes, bluffs, or ravines within the Subject Lands for this species, although it does occasionally grow along roadsides and fencerows. No Eastern Flowering Dogwood [END] were observed within the Subject Lands during plant inventories.
False Hop Sedge	*Carex lupuliformis*	END	NHIC, 2021	This species most often grows in riverine swamps and marshes and around temporary forest ponds and prefers open areas and forest gaps with lots of sunlight. Range: Occurs only in five locations in Ontario (London, Amherstburg, Elgin County, and Mount Brydges).	Absent	The Subject Lands include a small seasonally-wet Mineral Meadow Marsh in an open part of the Cultural Thicket/Woodland, but no individuals were observed during plant inventories.

Common Name	Scientific Name	SARO	Source	Habitat Requirements[2]	Potential in the Subject Lands	Rationale
Birds						
Bank Swallow	*Riparia riparia*	THR	eBird, 2021; OBBA, 2005	Nest in burrows in natural and artificial settings where there are vertical faces in silt and sand deposits. Many found along rivers and lakes, but also in active sand and gravel pits. Largest populations found along Lake Erie and Lake Ontario shorelines, and along the Saugeen River.	Absent	There are no vertical banks of silt or sand deposits within or adjacent to the Subject Lands to provide nesting opportunities for this species, and no individuals of this species were observed during breeding bird surveys.
Bobolink	*Dolichonyx oryzivorus*	THR	eBird, 2021; OBBA, 2005; NHIC, 2021	Found in large, open expansive grasslands with dense ground cover; hayfields, meadows or fallow fields, marshes. Grasslands size requirements have been reported to range from 5 ha to 50 ha depending on the study (MNR, n.d.).	Absent	No tall grass meadows are present within or adjacent to the Subject Lands to provide nesting opportunities for grassland birds. No Bobolink were observed during breeding bird surveys.
Chimney Swift	*Chaetura pelagica*	THR	OBBA, 2005	Commonly found in urban and rural areas near buildings. Nest in hollow trees and crevices of rock cliffs, but more often in chimneys and other vertical openings in buildings.	Absent	There are no suitable chimney structures or buildings within or adjacent to the Subject Lands to provide this species with roosting opportunities. No individuals were observed during breeding bird surveys.
Eastern Meadowlark	*Sturnella magna*	THR	OBBA, 2005; NHIC, 2021	Breeds mostly in moderately tall grasslands (native prairies and savannahs), also non-native pastures, hayfields, herbaceous fencerows, roadsides, orchards, airports, shrubby overgrown fields, or other open areas. Range: Primarily found south of the Canadian Shield, but also inhabits Lake Nipissing, Timiskaming, and Lake of Woods areas.	Absent	No tall grass meadows are present within or adjacent to the Subject Lands to provide nesting opportunities for grassland birds. No individuals were observed during breeding bird surveys.
Prothonotary Warbler	*Protonotaria citrea*	END	eBird, 2021	Breeds only in deciduous swamp forests or riparian floodplain forests dominated by silver maple, ash, and yellow birch. Nest in naturally formed tree cavities or cavities excavated by other species. Also use properly placed artificial nest boxes. Range: Only known to nest in southwestern Ontario, primarily along the north shore of Lake Erie. Overs half	Absent	No dead or dying trees with small, shallow holes in flooded woodlands or swamps were found within or adjacent to the Subject Lands. No individuals were identified within the Subject Lands during site investigations.

Common Name	Scientific Name	SARO	Source	Habitat Requirements[2]	Potential in the Subject Lands	Rationale
				of the population is found in Rondeau Provincial Park.		
Reptiles						
Eastern Foxsnake (Carolinian Population)	*Patherophis gloydi*	END	Ontario Nature, 2019	Mainly unforested, early successional vegetation communities during active season. Range: Restricted to two discrete regions in Essex-Kent and Haldimand-Norfolk. 70% of species range is in Ontario.	Absent	There is no evidence of hibernacula (bedrock fissures, mammal burrows, or old foundations) within the Subject Lands. The woodlot contains some fallen rotting logs that could provide nesting habitat, but no evidence of this was observed. No individuals were identified within the Subject Lands during site investigations, including a snake coverboard survey from May 6 to September 24, 2021. This record in the ORAA is assumed to be a released or escaped pet as the City of London is not within the natural range of this species.
Eastern Hog-nosed Snake	*Heterodon platirhinos*	THR	Ontario Nature, 2019	Prefer habitats with sandy, well-drained soil and open vegetative cover such as woods, brushland, fields, forests, edges, and disturbed sites; often near water. Range: Found in the Carolinian Region and the Great Lakes-St. Lawrence Region.	Absent	No suitable foraging or nesting habitat is present within the Subject Lands. No open sandy areas were observed and the soils of the woodlot are clay-silt dominated rather than sandy. No individuals were identified within the Subject Lands during site investigations, including a snake coverboard survey from May 6 to September 24, 2021.
Spiny Softshell	*Apalone spinifera*	END	iNaturalist, 2021	Highly aquatic, rarely traveling far from water. Primarily in rivers and lakes but also creeks, ditches, and ponds near rivers. Require open sand or gravel nesting areas, shallow muddy or sandy areas to bury in, deep pools for hibernation, areas for basking, and food availability. Range: Lake St. Clair, Lake Erie, western Lake Ontario watersheds. Majority in the Thames and Sydenham rivers and two sites in Lake Erie.	Absent	There are no permanent water bodies in the Subject Lands to provide habitat for this aquatic species, and there are no areas of sand/gravel for nesting. The Mineral Meadow Marsh only contains water in a small area in the southwest for a short period in the spring and is otherwise dry and vegetated with grasses.

Common Name	Scientific Name	SARO	Source	Habitat Requirements[2]	Potential in the Subject Lands	Rationale
Mammals						
American Badger	*Taxidea taxus*	END	NHIC, 2021	This species prefers large, open areas, such as grassland or sand barrens, which support small prey species, as well as woodlots, scrubland, or cropland edges. Range: Southwestern Ontario, close to Lake Erie in the Norfolk and Middlesex area. Northwestern population in Thunder Bay and Rainy River Districts.	Absent	Hedgerows and a small woodlot are present within the Subject Lands, but no burrows were observed and the area is heavily impacted by human activities. No individuals or burrows of this species were observed during site investigations.
Eastern Small-footed Myotis	*Myotis leibii*	END	Under-represented species	Roosts in caves, mine shafts, crevices, or buildings in or near a woodland. Hibernates in cold dry caves or mines. Range: From south of Georgian Bay to Lake Erie, east to Pembroke.	Absent	No suitable habitat features for this species are present in or adjacent to the Subject Lands.
Little Brown Myotis	*Myotis lucifugus*	END	Under-represented species	Little Brown Myotis roosts in caves, quarries, tunnels, hollow trees, or buildings. Little Brown Myotis typically prefer buildings or building-associated features for maternity roosting rather than natural features (Gerson, 1984; Humphrey & Fotherby, 2019). This species hibernates in humid caves and forages in wetlands and forest edges.	Potential	Five candidate bat maternity roost trees (trees with loose/curling bark, cavities, etc.) were identified in Community 1 (CUT1/CUW1), although they were all a higher decay class than preferred. The 120 m adjacent lands were not investigated for habitat for this species, but it may exist in adjacent woodlands.
Northern Myotis	*Myotis septentrionalis*	END	Under-represented species	Roosts in houses, manmade structures, but prefers hollow trees or under loose bark. Hunts in forests.	Potential	Five candidate bat maternity roost trees (trees with loose/curling bark, cavities, etc.) were identified in Community 1 (CUT1/CUW1), although they were all a higher decay class than preferred. The 120 m adjacent lands were not investigated for habitat for this species, but it may exist in adjacent woodlands.
Tri-colored Bat	*Perimyotis subflavus*	END	Under-represented species	Roosts in older forests and occasionally barns/structures. Hibernate in damp, draft-free caves. Hunt over water and along streams in a forest.	Absent	Five decay class 5 candidate bat maternity roost trees were identified in Community 1 (CUT1/CUW1). Suitable trees (Maple or Oak) with leaf clusters which may provide roosting habitat for Tri-coloured Bat were not observed.

References

Ministry of the Environment, Conservation and Parks. 2018. *Species at risk in Ontario.* Government of Ontario.

Ministry of Mines, Ministry of Northern Development, and Ministry of Natural Resources and Forestry. 2020. *Appendix G: Wildlife habitat matrices and habitat descriptions for rare vascular plants.* Government of Ontario.

Environment and Climate Change Canada. 2021. *Species at risk public registry.* Government of Canada.

Ministry of Natural Resources (MNR). n.d. General Habitat Description for the Bobolink (*Dolichonyx oryzivorus*). Retrieved from https://files.ontario.ca/environment-and-energy/species-at-risk/mnr_sar_ghd_bblnk_en.pdf

Gerson, H. 1984. Habitat Management Guidelines for Bats of Ontario. Ontario Ministry of Natural Resources. 42 pp.

Humphrey, C. and Fotherby, H. 2019. Recovery Strategy for the Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*) and Tri-colored Bat (*Perimyotis subflavus*) in Ontario. Ontario Recovery Strategy Series. Prepared by the Ministry of the Environment, Conservation and Parks, Peterborough, Ontario. vii + 35 pp. + Appendix. Adoption of the Recovery Strategy for the Little Brown Myotis (*Myotis lucifugus*), the Northern Myotis (*Myotis septentrionalis*), and the Tricolored Bat (*Perimyotis subflavus*) in Canada (Environment and Climate Change Canada 2018).

Special Concern Species

Common Name	Scientific Name	Source[1]	Habitat Requirements[2]	Potential in the Subject Lands	Rationale
Plants					
Green Dragon	*Arisaema dracontium*	NHIC, 2021	Grows in moderate to wet deciduous forests along streams, associated highly with maple forests and forests dominated by Red Ash and White Elm. Range: Great Lakes Region; specifically, southwestern Ontario.	Absent	The Subject Lands do include a moist/wet deciduous forest, but no Green Dragon individuals were observed during plant inventories. Suitable habitat may be present in the woodland along Thornicroft Drain in east adjacent lands.
Birds					
Bald Eagle	*Haliaeetus leucocephalus*	eBird	Nest in a variety of habitats and forests in close proximity to a major lake or river. Range: Higher density of nesting in northwest Ontario, with successful reintroductions in southern Ontario.	Absent	No large wetlands, lakes, or rivers present within or adjacent to the Subject Lands for nesting or foraging.
Barn Swallow	*Hirundo rustica*	eBird, 2021; OBBA, 2005	Barn Swallow are typically found nesting in close association with human rural settlements, such as in old sheds, barns, and under bridges or culverts. This species forages for aerial insects in open habitats including grassy fields, pastures, agricultural fields and farms, lake and river shorelines, wetlands, and clearings.	Moderate (foraging)	No suitable habitat structures, including barns and buildings, are present within the Subject Lands to provide nesting opportunities for this species. Several Barn Swallow individuals were seen foraging in adjacent agricultural fields, and barns to the south and west of the Subject Lands are likely active nesting habitat.
Common Nighthawk	*Chordeiles minor*	OBBA, 2005	Lives in open areas with little to no ground vegetation. Tend to occupy natural sites. Range: All over the province, except James and Hudson Bay regions.	Absent	The Subject Lands and adjacent lands are generally heavily impacted and do not include potential nesting habitat for this species.
Eastern Wood-Pewee	*Contopus virens*	eBird, 2021; OBBA, 2005	Lives in mid-canopy layer of forest clearings and the edges of deciduous and mixed forests. Abundant in middle-aged forests with little understory. Range: Found across most of southern and central Ontario.	Absent	This species is a habitat generalist and the Subject Lands do include a woodlot, however the woodlot is relatively small and impacted, and breeding bird surveys confirm this species is not present in the Subject Lands. Adjacent woodlands to the northeast and east next to Thornicroft Drain were not investigated for this species.
Peregrine Falcon	*Falco peregrinus*	eBird, 2019	Nests on tall, steep cliff ledges close to large bodies of water. Also adapted to city life using tall buildings and ledges. Range: Nest in and around Toronto and other southern Ontario cities, majority of breeding is found around Lake Superior.	Absent	No cliffs or ledges are present in or adjacent to the Subject Lands for nesting of Peregrine Falcons.

Common Name	Scientific Name	Source[1]	Habitat Requirements[2]	Potential in the Subject Lands	Rationale
Wood Thrush	*Hylocichla mustelina*	OBBA, 2005	Lives in mature deciduous and mixed forests, seeking moist stands with well-developed undergrowth. Prefer large forests but will use smaller. Range: Across southern Ontario, less common up north to Lake Superior.	Absent	The woodlands in the Subject Lands are small and this species was not identified during breeding bird surveys. Adjacent woodlands to the northeast and east next to Thornicroft Drain were not investigated for this species.
Reptiles					
Northern Map Turtle	Graptemys geographica	Ontario Nature, 2019	Lives in rivers and lakeshores. Basks on emergent rocks and fallen trees, and hibernates in deeps, slow-moving sections of the river. Range: Great Lakes region and west. Primarily on shores of Georgian Bay, Lake St. Clair, Lake Erie, and Lake Ontario. Rivers include the Thames, Grand, and Ottawa.	Absent	No suitable aquatic habitat is present within the Subject Lands. The adjacent Thornicroft Drain may provide habitat but this was not investigated.
Snapping Turtle	Chelydra serpentina	Ontario Nature, 2019; NHIC, 2021	Spend most of their time in water, preferring shallow waters to hide in soft mud and leaf litter. Nest in gravelly or sandy areas along streams, taking advantage of man-made structures for nesting sites, including roads, dams, and aggregate pits. Range: Limited to southern part of Ontario.	Absent	No suitable aquatic habitat is present within the Subject Lands. The adjacent Thornicroft Drain may provide habitat but this was not investigated.

Appendix C

Ecological Land Classification (ELC) Data

49130-100

ELC
COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: Amiraco Properties | POLYGON: 1
SURVEYOR(S): WH | DATE: April 21 June 26 | TIME: start finish
UTMZ: 17 | UTME: | UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
■ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	☐ NATURAL	☐ PLANKTON	☐ LAKE
☐ WETLAND	■ MINERAL SOIL	☐ RIVERINE	■ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
	☐ ACIDIC BEDRK.	☐ TERRACE		☐ GRAMINOID	☐ STREAM
	☐ BASIC BEDRK.	☐ VALLEY SLOPE		☐ FORB	☐ MARSH
	☐ CARB. BEDRK.	■ TABLELAND		☐ LICHEN	☐ SWAMP
SITE		☐ ROLL. UPLAND	**COVER**	☐ BRYOPHYTE	☐ FEN
☐ OPEN WATER		☐ CLIFF	☐ OPEN	■ DECIDUOUS	☐ BOG
☐ SHALLOW WATER		☐ TALUS	☐ SHRUB	☐ CONIFEROUS	☐ BARREN
■ SURFICIAL DEP.		☐ CREVICE / CAVE	■ TREED	☐ MIXED	☐ MEADOW
☐ BEDROCK		☐ ALVAR			☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH / BAR			☐ SAVANNAH
		☐ SAND DUNE			■ WOODLAND
		☐ BLUFF			☐ FOREST
					☐ PLANTATION

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	3	CARcord >> TILamer >> OSTvirg = PRUsero
2	SUB-CANOPY	3	3	CARcord >> ACEnegu > CRApune > SALalba
3	UNDERSTOREY	3	2	RHAcath > LONtata > PRUvirg = ROSmult
4	GRD. LAYER			PARinse = GEUcana = VIOspp > TOXrad

HT CODES: 1 = >25 m 2 = 10<HT 25 m 3 = 2<HT 10 m 4 = 1<HT 2 m 5 = 0.5<HT 1 m 6 = 0.2<HT 0.5 m 7 = HT<0.2 m
CVR CODES 0= NONE 1= 0% < CVR 10% 2= 10 < CVR 25% 3= 25 < CVR 60% 4= CVR > 60%

STAND COMPOSITION: CARcord 51 CRAspp 14 OSTvirg 9 (DEAD 5) | BA: 12

SIZE CLASS ANALYSIS:		< 10		10 - 24		25 - 50		> 50
	O		O		R		R	
STANDING SNAGS:	O		A		A		O	
DEADFALL / LOGS:	A		A		A		O	

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG	X	MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: SiL	DEPTH TO MOTTLES / GLEY	g = 40	G= 63
MOISTURE: 5	DEPTH OF ORGANICS: 0		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK: 999		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:	Cultural	CU
COMMUNITY SERIES:	Cultural Woodland	CUW
ECOSITE:	Mineral	CUW1
VEGETATION TYPE:		
INCLUSION		
COMPLEX		

Notes: Once Bittternut forest, now Buckthorn with regenerating canopy. Bitternut bore damage extensive.

ELC
MANAGEMENT / DISTURBANCE

SITE: Amiraco Properties (49130-100)
POLYGON: 1
DATE: April 21, 2017
SURVEYOR(S): WH

DISTURBANCE EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	1
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	1
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	9
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	6
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	0
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	0
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	1
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	2
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	0
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	9
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	9
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	4
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	2
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC

SOILS ONTARIO

SITE: Amiraco Properties (49130-100)
POLYGON: 1
DATE: Jn 26, 2015
SURVEYOR(S): WH

	P/A	PP	Dr	Position	Aspect	Slope %	Slope Type	Slope Class	UTM Z	UTM EASTING	UTM NORTHING
1	A			1	345	1			17	476084	4752773
2	A			1	120	2			17		
3	A			2	351	5			17	475987	4752740
4											
5											

SOIL	1	2	3	4	5
TEXTURE x HORIZON	SiCL 22 / SiL 63 / CL 70	SiCL 23 / SiL 63 / CL 70	SiCL 28 / SiL 44 / SiC 70		
A TEXTURE	SiCL	SiCL	SiCL		
COURSE FRAGMENTS	999	999	999		
B TEXTURE	SiL	SiL	SiL		
COURSE FRAGMENTS	999	999	999		
C TEXTURE	CL	CL	SiC		
COURSE FRAGMENTS	999	999	62		
EFFECTIVE TEXTURE	SiL	SiL	SiL		
SURFACE STONINESS	no	no	no		
SURFACE ROCKINESS	no	no	no		
DEPTH TO / OF					
MOTTLES	22	40	999		
GLEY	62	63	999		
BEDROCK	999	999	999		
WATER TABLE	999	999	999		
CARBONATES	61	61	50		
DEPTH OF ORGANICS	0	0	0		
PORE SIZE DISC #1	999	999	999		
PORE SIZE DISC #2	999	999	999		
MOISTURE REGIME	6	5	3		
SOIL SURVEY MAP					
LEGEND CLASS					

ELC

STAND CHARACTERISTICS

SITE: Amiraco Properties (49130-100)
POLYGON: 1
DATE: Jn 8, 2017
SURVEYOR(S): WH

TREE TALLY BY SPECIES:

PRISM FACTOR 2 m

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
CARcord	3	4	2			4	51
OSTvirg	0	0.5	1			1.5	9
ULMamer	1	0	0			1	6
CRAspp.	2.5	0	0			2.5	14
FRApenn	0	1	0			1	6
PRUsero	0	0.5	1			1.5	9
TILamer	0	0	1			1	6
TOTAL	6.5	6.0	5.0			17.5	100
BASAL AREA (BA)	13	12	10			35	12
DEAD	4.5	8	6			18.5	51

STAND COMPOSITION:

CARcord 51 CRAspp. 14 OSTvirg 9 PRUsero 9

COMMUNITY PROFILE DIAGRAM

See Photos

Notes:

ELC — COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: Amiraco (49130-100) | POLYGON: 2
SURVEYOR(S): WH | DATE: Apr 21, Jn 26 | TIME: start / finish
UTMZ: 17 | UTME: 475957 | UTMN: 4752775

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☐ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	■ NATURAL	☐ PLANKTON	☐ LAKE
■ WETLAND	■ MINERAL SOIL	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
	☐ ACIDIC BEDRK.	☐ TERRACE		■ GRAMINOID	☐ STREAM
	☐ BASIC BEDRK.	☐ VALLEY SLOPE		☐ FORB	■ MARSH
	☐ CARB. BEDRK.	■ TABLELAND		☐ LICHEN	☐ SWAMP
		☐ ROLL. UPLAND		☐ BRYOPHYTE	☐ FEN
		☐ CLIFF		☐ DECIDUOUS	☐ BOG
		☐ TALUS		☐ CONIFEROUS	☐ BARREN
		☐ CREVICE / CAVE		☐ MIXED	☐ MEADOW
		☐ ALVAR			☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH / BAR			☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☐ FOREST
					☐ PLANTATION

SITE

Spring
☐ OPEN WATER
■ SHALLOW WATER
■ SURFICIAL DEP.
☐ BEDROCK

COVER

■ OPEN
☐ SHRUB
☐ TREED

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	1	ACEnegu
2	SUB-CANOPY			
3	UNDERSTOREY	4	2	RHAcath > CORstol
4	GRD. LAYER	5	4	PHAarun = BOEcyli = CARsp = IMPcape

HT CODES: **1** = >25 m **2** = 10<HT 25 m **3** = 2<HT 10 m **4** = 1<HT 2 m **5** = 0.5<HT 1 m **6** = 0.2<HT 0.5 m **7** = HT<0.2 m
CVR CODES **0**= NONE **1**= 0% < CVR 10% **2**= 10 < CVR 25% **3**= 25 < CVR 60% **4**= CVR > 60%

STAND COMPOSITION: | BA:

	< 10	10 - 24	25 - 50	> 50
SIZE CLASS ANALYSIS:				
STANDING SNAGS:				
DEADFALL / LOGS:				

ABUNDANCE CODES: **N** = NONE **R** = RARE **O** = OCCASIONAL **A** = ABUNDANT

COMM. AGE :	PIONEER	YOUNG	MID-AGE	MATURE	OLD GROWTH

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:	Marsh	MA
COMMUNITY SERIES:	Meadow	MAM
ECOSITE:	Mineral	MAM2
VEGETATION TYPE:		
INCLUSION		
COMPLEX		

Notes:

ELC — MANAGEMENT / DISTURBANCE

SITE: Amiraco Properties (49130-100)
POLYGON: 2
DATE: Apr. 21, 2017
SURVEYOR(S): WH

DISTURBANCE EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	(> 30 YRS)	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	0
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	0
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	(LARGE)	9
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	(EXTENSIVE)	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	(ABUNDANT)	DOMINANT	4
EXTENT OF ALIEN SPECIES	NONE	LOCAL	(WIDESPREAD)	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	0
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	0
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	(LIGHT)	MODERATE	HEAVY	1
EXTENT OF DISPLACEMENT	NONE	(LOCAL)	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	0
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	(HEAVY)	9
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	(EXTENSIVE)	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	(HEAVY)	9
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	(EXTENSIVE)	
FIRE	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	0
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC

SOILS ONTARIO

SITE: Amiraco Properties 49130-100
POLYGON: 2
DATE: Jn. 26, 2017
SURVEYOR(S): WH

	P/A	PP	Dr	Position	Aspect	Slope %	Slope Type	Slope ~~Class~~ Time	Z	UTM EASTING	UTM NORTHING
1	A			5	255	2		7:18	17	475957	4752775
2											
3											
4											
5											

SOIL	1	2	3	4	5
TEXTURE x HORIZON	SiCL 34 / SiL 65 / CL 70				
A TEXTURE	SiCL				
COURSE FRAGMENTS	999				
B TEXTURE	SiL				
COURSE FRAGMENTS	999				
C TEXTURE	CL				
COURSE FRAGMENTS	999				
EFFECTIVE TEXTURE	SiL				
SURFACE STONINESS	no				
SURFACE ROCKINESS	no				
DEPTH TO / OF					
MOTTLES	35				
GLEY	55				
BEDROCK	999				
WATER TABLE	54				
CARBONATES	999				
DEPTH OF ORGANICS	0				
PORE SIZE DISC #1	999				
PORE SIZE DISC #2	999				
MOISTURE REGIME	6				
SOIL SURVEY MAP					
LEGEND CLASS					

7:18

ELC

STAND CHARACTERISTICS

SITE: Amiraco 49130-100
POLYGON: 2
DATE:
SURVEYOR(S): WH

TREE TALLY BY SPECIES:

PRISM FACTOR

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
TOTAL							100
BASAL AREA (BA)							
DEAD							

STAND COMPOSITION:

COMMUNITY PROFILE DIAGRAM

Notes:

Fencerow

ELC COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: Amiraco 49130-100 | POLYGON: 3

SURVEYOR(S): | DATE: | TIME: start / finish

UTMZ: | UTME: | UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☐ TERRESTRIAL ☐ WETLAND ☐ AQUATIC	☐ ORGANIC ☐ MINERAL SOIL ☐ PARENT MIN. ☐ ACIDIC BEDRK. ☐ BASIC BEDRK. ☐ CARB. BEDRK.	☐ LACUSTRINE ☐ RIVERINE ☐ BOTTOMLAND ☐ TERRACE ☐ VALLEY SLOPE ☐ TABLELAND ☐ ROLL. UPLAND ☐ CLIFF ☐ TALUS ☐ CREVICE / CAVE ☐ ALVAR ☐ ROCKLAND ☐ BEACH / BAR ☐ SAND DUNE ☐ BLUFF	☐ NATURAL ☐ CULTURAL	☐ PLANKTON ☐ SUBMERGED ☐ FLOATING-LVD. ☐ GRAMINOID ☐ FORB ☐ LICHEN ☐ BRYOPHYTE ☐ DECIDUOUS ☐ CONIFEROUS ☐ MIXED	☐ LAKE ☐ POND ☐ RIVER ☐ STREAM ☐ MARSH ☐ SWAMP ☐ FEN ☐ BOG ☐ BARREN ☐ MEADOW ☐ PRAIRIE ☐ THICKET ☐ SAVANNAH ☐ WOODLAND ☐ FOREST ☐ PLANTATION
SITE ☐ OPEN WATER ☐ SHALLOW WATER ☐ SURFICIAL DEP. ☐ BEDROCK			**COVER** ☐ OPEN ☐ SHRUB ☐ TREED		

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY			
2	SUB-CANOPY			
3	UNDERSTOREY			
4	GRD. LAYER			

HT CODES: **1** = >25 m **2** = 10<HT 25 m **3** = 2<HT 10 m **4** = 1<HT 2 m **5** = 0.5<HT 1 m **6** = 0.2<HT 0.5 m **7** = HT<0.2 m

CVR CODES **0**= NONE **1**= 0% < CVR 10% **2**= 10 < CVR 25% **3**= 25 < CVR 60% **4**= CVR > 60%

STAND COMPOSITION:	BA:

		< 10		10 - 24		25 - 50		> 50
SIZE CLASS ANALYSIS:								
STANDING SNAGS:								
DEADFALL / LOGS:								

ABUNDANCE CODES: **N** = NONE **R** = RARE **O** = OCCASIONAL **A** = ABUNDANT

COMM. AGE :		PIONEER		YOUNG		MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:		
INCLUSION		
COMPLEX		

Notes: Sweet Corn in field in 2017

ELC MANAGEMENT / DISTURBANCE

SITE:

POLYGON:

DATE:

SURVEYOR(S):

DISTURBANCE EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

Appendix D

Site Photos

Photograph No. 1 – Terrestrial Crayfish burrow at edge of agricultural field and Community 2.

Photograph No. 2 – Headwater drainage feature #1 (facing upstream) on March 17, 2022.

Photograph No. 3 – Culvert in Community 3 on March 17, 2022

Photograph No. 4 – Headwater drainage feature #2 facing downstream to south adjacent lands on March 17, 2022.

Photograph No. 5 – Community 3 wetland inclusion viewed from farm field (April 23, 2021).

Photograph No. 6 – Culvert in Community 3 (April 23, 2021).

Photograph No. 7 – Community 1 (CUT1/CUW1) viewed from the east side (May 10, 2021).

Photograph No. 8 – South edge of Community 1 (CUT1/CUW1) on May 10, 2021.

Photograph No. 9 – Community 1 (CUT1/CUW1) on April 23, 2021.

Photograph No. 10 – Community 1 (CUT1/CUW1) on April 23, 2021.

Photograph No. 11 – Community 2 (MAM2 inclusion) on May 10, 2021.

Photograph No. 12 – Community 2 (MAM2 inclusion) on April 23, 2021.

Appendix E

Significant Wildlife Habitat Table

ELCs: CUT1/CUW1, MAM2, SWT2

Seasonal Concentration of Animals

Wildlife Habitat	ELC Triggers	Additional Habitat Criteria	Candidate SWH
Waterfowl Stopover and Staging Areas (Terrestrial)	CUT1	- The Subject Lands are sloped from northwest to southeast and do not pool large areas of water during spring melt that could concentrate staging waterfowl. - There was an area of sheet water in the agricultural field to the west, but this feature was relatively small and not investigated in detail. - NHIC does not identify the site as a Waterfowl Concentration Area.	No
Waterfowl Stopover and Staging Areas (Aquatic)	-	- No suitable habitat present.	No
Shorebird Migratory Stopover Area	-	- No beach areas, bars, seasonally flooded, muddy and un-vegetated shoreline habitat available.	No
Raptor Wintering Area	CUT1/ CUW1	- No forest communities are present within or directly adjacent to the Subject Lands in combination with upland fields providing an area > 20ha for raptor wintering. - No open water or very large roosting trees are available for eagles.	No
Bat Hibernacula	-	- No caves, mine shafts, underground foundations, or other suitable features present.	No
Bat Maternity Colonies	-	- No suitable forest or swamp communities are present. - Five candidate maternity roost trees were identified within Community 1 (CUT1/CUW1). Community 1 has a density of roughly 3 bat habitat trees per hectare, which is below the threshold of 10 trees/ha. for candidate SWH.	No
Turtle Wintering Areas	MAM2	- Over-wintering sites are permanent water bodies, large wetlands, and bogs and fens with adequate dissolved oxygen. There are no permanent water bodies within the Subject Lands. Community 2 (MAM2) is dry through the summer and is 10-30 cm at its deepest in the spring.	No
Reptile Hibernaculum	all other than really wet	- One small rock pile in southwest Subject Lands, however it does not appear to provide access below grade. No observed animal burrows, rock fissures, crevices, foundations, or other potential hibernacula. Nevertheless, the feature was evaluated for significance based on consultation with the City of London.	Yes
Colonially-Nesting Bird Breeding Habitat (Bank / Cliff)	CUT1	- No exposed soil banks, sandy hills, pits, steep slopes, cliffs, sand piles, or manmade structures present.	No
Colonially-Nesting Bird Breeding Habitat (Trees/Shrubs)	-	- No suitable ELC communities present.	No
Colonially-Nesting Bird Breeding Habitat (Ground)	CUT1, MAM2	- No islands, watercourses, or peninsulas present. - No ground cover/low bushes surrounding a stream or irrigation ditch present for Brewer's Blackbird.	No
Migratory Butterfly Stopover Areas	CUT1	- A butterfly stopover area will be >10ha in size with a combination of forest (FOD) and field (CUM/CUT). - Site is not within 5 km of Lake Erie or Lake Ontario.	No
Land Bird Migratory Stopover Areas	-	- No woodlots >5 ha in size and within 5 km of Lake Ontario/Lake Erie.	No
Deer Winter Congregation Areas	-	- Deer winter congregation areas are generally mapped by MNRF. No deer winter congregation areas were mapped in the NHIC or LIO database. - The southwest woodlot is a cultural thicket/woodland and only 1.8 ha. This is well under the 100 ha size requirement.	No

Rare Vegetation Communities

Wildlife Habitat	ELC Codes Triggers	Additional Habitat Criteria	Candidate SWH
Cliffs and Talus Slopes	-	Not present.	No
Sand Barren	-	Not present.	No
Alvar	-	Not present.	No
Old Growth Forest	-	Not present. Woodlot is cultural and trees are young/mid-aged.	No
Savannah	-	Not present.	No
Tallgrass Prairie	-	Not present.	No
Other Rare Vegetation	-	All vegetation communities are common and secure in Ontario.	No

Specialized Habitats of Wildlife considered SWH

Wildlife Habitat	ELC Triggers	Additional Habitat Criteria	Candidate SWH
Waterfowl Nesting Area	MAM2	- Community 2 (MAM2) is only 0.1 ha and the surrounding upland community is not 120 metres wide.	No
Bald Eagle and Osprey Nesting, Foraging, Perching	-	- No suitable forested areas associated with riparian habitat.	No
Woodland Raptor Nesting Habitat	CUW1	- Woodlot is only 1.8 ha, which does not meet the 30 ha requirement. No interior habitat present.	No
Turtle Nesting Areas	-	- No suitable aquatic habitat within the Subject Lands. - Soils are clay-silt dominant, not sandy.	No
Springs and Seeps	CUW1	- No springs or seeps were observed.	No
Amphibian Breeding Habitat (Woodland)	MAM2 within CUW1, SWT2	- Community 2 (MAM2) is located within a woodland. This wetland has an area with some standing water in spring, but this dries before mid-July. - The pool is <500m^2 of standing water	No
Amphibian Breeding Habitat (Wetlands)	SWT2	- Community 3 is a 0.1 ha thicket wetland formed by agricultural drainage. This feature was not observed to hold water greater than 10cm depth in spring due to its channelized shape and the presence of a piped outlet.	No
Woodland Area-Sensitive Bird Breeding Habitat	-	- No interior forest habitat present. No large mature (>60 years old) forest stands or woodlots >30 ha.	No

Habitats of Species of Conservation Concern considered SWH

Wildlife Habitat	ELC Codes Triggers	Additional Habitat Criteria	Candidate SWH
Marsh Breeding Bird Habitat	MAM2	- Community 2 (MAM2) is of insufficient size to support a concentration of marsh breeding birds or the target species listed in the Ecoregion Criteria Schedules for 7E.	No
Open Country Bird Breeding Habitat	-	- Natural and cultural fields >30 ha are not present.	No
Shrub/Early Successional Bird Breeding Habitat	CUT1/CUW1	- No large fields succeeding to shrub and thicket habitats >10 ha in size.	No
Terrestrial Crayfish	MAM2	- Several chimneys observed in Community 2.	Yes
Special Concern and Rare Wildlife Species (NHIC and MNRF pre-consultation)	-	- NHIC element occurrences of Special Concern or rare species within 1 km Atlas Squares 17MH7553, 7653, 7652 and 7552 include Green Dragon [SC] and Snapping Turtle [SC]. No pond or large wetland features are present to provide habitat for Snapping Turtle. The woodland may provide habitat for Green Dragon. Presence/absence will be determined through botanical inventory.	Yes

Animal Movement Corridors

Wildlife Habitat	ELC Codes Triggers*	Additional Habitat Criteria	Candidate SWH
Amphibian Movement Corridors	-	- No confirmed amphibian breeding habitat present.	No

SWH exceptions

Wildlife Habitat	Ecosites	Habitat Criteria and Information	Candidate SWH
Bat Migratory Stopover Area	no triggers	- The site is not near Long Point.	No

Appendix F

Floral Inventory Data

		Floral Inventory (2017 04 21, 2017 06 08, 2017 06 26, 2017 09 11)									
1	2	Scientific Name	Common Name	CW	GRank	COSEWIC	Nrank	SARO	SRank	MD	Invasive
X	X	*Acer negundo*	Manitoba Maple	0.0	G5		N5		S5	C	
X		*Acer saccharum*	Sugar Maple		G5		N5		S5	C	
	X	*Agrostis stolonifera*	Creeping Bentgrass	-3.0	G5		N5		SE5	IC	
X		*Alliaria petiolata*	Garlic Mustard	0.0	GNR		NNA		SE5	IC	
X	X	*Ambrosia artemisiifolia*	Common Ragweed	3.0	G5		N5		S5	C	
X	X	*Apocynum cannabinum*	Hemp Dogbane		G5		N5		S5		
X		*Arisaema triphyllum*	Jack-in-the-pulpit	-3.0	G5		N5		S5	C	
X	X	*Bidens frondosa*	Devil's Beggarticks	-3.0	G5		N5		S5	X	
X	X	*Boehmeria cylindrica*	False Nettle	-5.0	G5		N5		S5	X	
	X	*Carex bebbii*	Bebb's Sedge	-5.0	G5		N5		S5	C	
X		*Carex blanda*	Woodland Sedge		G5		N5		S5	C	
	X	*Carex gracilescens*	Slender Loose-flowered Sedge	5.0	G5?		N4		S4	U	
X	X	*Carex lupulina*	Hop Sedge	-5.0	G5		N5		S5	C	
X	X	*Carex normalis*	Larger Straw Sedge	-3.0	G5		NNR		S4		
X		*Carex pensylvanica*	Pennsylvania Sedge	5.0	G5		N5		S5	C	
X	X	*Carex scoparia*	Pointed Broom Sedge	-3.0	G5		N5		S5		
	X	*Carex stipata*	Awl-fruited Sedge	-5.0	G5		N5		S5	C	
X		*Carpinus caroliniana ssp. virginiana*	Blue-beech	0.0	G5T5		N5		S5		
X		*Carya cordiformis*	Bitternut Hickory	0.0	G5		N5		S5	X	
X	X	*Circaea canadensis ssp. canadensis*	Canada Enchanter's Nightshade		GNR		NNR		S5		
	X	*Cirsium arvense*	Canada Thistle		G5		NNA		SE5	IC	
X	X	*Cirsium muticum*	Swamp Thistle	-5.0	G5		N5?		S5	X	
X		*Claytonia virginica*	Narrow-leaved Spring Beauty		G5		NNR		S5	C	
	X	*Cornus sericea*	Red-osier Dogwood	-3.0	G5		N5		S5	C	
X		*Crataegus punctata*	Dotted Hawthorn	5.0	G5		N5		S5	C	
X		*Dryopteris carthusiana*	Spinulose Wood Fern	-3.0	G5		N5		S5	X	
X		*Elymus repens*	Creeping Wildrye		GNR		NNA		SE5	IC	
X		*Epilobium ciliatum ssp. glandulosum*	Glandular Willowherb	-3.0	G5T5		N5		SU		
	X	*Epilobium coloratum*	Purple-veined Willowherb	-5.0	G5		N5		S5	X	
X		*Epipactis helleborine*	Eastern Helleborine		GNR		NNA		SE5	IX	
X	X	*Erigeron annuus*	Annual Fleabane		G5		N5		S5	C	
X		*Erythronium americanum*	Yellow Trout-lily	5.0	G5		N5		S5	X	
X		*Euonymus europaeus*	European Euonymus	5.0	GNR		NNA		SE2	IR	
X	X	*Euonymus obovatus*	Running Strawberry Bush	3.0	G5		N5		S4	C	
	X	*Euthamia graminifolia*	Grass-leaved Goldenrod		G5		N5		S5	C	
	X	*Galium palustre*	Marsh Bedstraw	-5.0	G5		NNR		S5	X	
X		*Geranium maculatum*	Spotted Geranium	3.0	G5		N5		S5	X	
	X	*Geum canadense*	White Avens		G5		N5		S5	X	
	X	*Glyceria striata*	Fowl Mannagrass	-5.0	G5		N5		S5	X	
X	X	*Hackelia virginiana*	Virginia Stickseed		G5		N5		S5	U	
X		*Hypericum perforatum*	Common St. John's-wort	5.0	GNR		NNA		SE5	IC	
	X	*Impatiens capensis*	Spotted Jewelweed	-3.0	G5		N5		S5	C	
X		*Juncus tenuis*	Path Rush	0.0	G5		N5		S5	X	
X	X	*Lapsana communis*	Common Nipplewort		GNR		NNA		SE5	IR	
	X	*Leersia oryzoides*	Rice Cutgrass	-5.0	G5		N5		S5	X	
X	X	*Leersia virginica*	Virginia Cutgrass	-3.0	G5		N4N5		S4	X	
X		*Lonicera tatarica*	Tartarian Honeysuckle		GNR		NNA		SE5	IX	
	X	*Lycopus americanus*	American Water-horehound	-5.0	G5		N5		S5	C	
	X	*Muhlenbergia mexicana*	Mexican Muhly	-3.0	G5		N5		S5	C	
X	X	*Onoclea sensibilis*	Sensitive Fern	-3.0	G5		N5		S5	X	
X		*Ostrya virginiana*	Eastern Hop-hornbeam		G5		N5		S5	C	
X	X	*Oxalis stricta*	Upright Yellow Wood-sorrel		G5		N5		S5	X	
X	X	*Parthenocissus vitacea*	Thicket Creeper		G5		N5		S5	X	
	X	*Persicaria amphibia var. emersa*	Scarlet Smartweed	-5.0	G5T5		N5		S5?		
X	X	*Persicaria lapathifolia*	Pale Smartweed	-3.0	G5		N5		S5	X	
X	X	*Persicaria virginiana*	Virginia Smartweed	0.0	G5		N4		S4	X	
	X	*Phalaris arundinacea*	Reed Canary Grass		G5		N5		S5	X	
X	X	*Pilea pumila*	Dwarf Clearweed		G5		N5		S5	X	

	X	*Poa palustris*	Fowl Bluegrass	-3.0	G5		N5		S5	X	
X		*Poa pratensis*	Kentucky Bluegrass	3.0	G5		N5		S5		
X		*Podophyllum peltatum*	May-apple	3.0	G5		N5		S5	X	
X		*Prunus serotina*	Black Cherry	3.0	G5		N5		S5	C	
X		*Prunus virginiana*	Choke Cherry	3.0	G5		NNR		S5	C	
X		*Rhamnus cathartica*	Common Buckthorn	0.0	GNR		NNA		SE5	IC	Y
X		*Ribes americanum*	Wild Black Currant	-3.0	G5		N5		S5	C	
	X	*Ribes triste*	Swamp Red Currant	-5.0	G5		N5		S5	X	
X	X	*Rosa multiflora*	Multiflora Rose	3.0	GNR		NNA		SE5	IX	Y
X		*Rubus occidentalis*	Black Raspberry	5.0	G5		N5		S5	C	
X		*Salix alba*	White Willow	-3.0	G5		NNA		SE4	IX	
	X	*Schoenoplectus tabernaemontani*	Soft-stemmed Bulrush	-5.0	G5		N5		S5	C	
	X	*Setaria faberi*	Giant Foxtail	3.0	GNR		NNA		SE4	IC	
	X	*Setaria pumila*	Yellow Foxtail	0.0	GNR		NNA		SE5	IX	
X	X	*Solanum dulcamara*	Bittersweet Nightshade	0.0	GNR		NNA		SE5	IC	Y
X	X	*Solidago canadensis*	Canada Goldenrod	3.0	G5		N5		S5		
	X	*Solidago gigantea*	Giant Goldenrod	-3.0	G5		N5		S5	X	
X		*Sonchus arvensis*	Field Sow-thistle	3.0	GNR		NNA		SE5	IX	
X		*Tilia americana*	American Basswood	3.0	G5		N5		S5	C	
X		*Toxicodendron radicans var. rydbergii*	Western Poison Ivy	0.0	G--T5		N5		S5	X	
	X	*Urtica dioica ssp. gracilis*	Slender Stinging Nettle	0.0	G5T5		N5		S5	C	
X	X	*Verbena urticifolia*	White Vervain	0.0	G5		N5		S5	X	
	X	*Viola sororia*	Woolly Blue Violet	0.0	G5		N5		S5	X	
X	X	*Vitis riparia*	Riverbank Grape	0.0	G5		N5		S5	C	

Appendix G

Breeding Bird Survey Data

AVIFAUNAL SURVEY INFORMATION SUMMARY SHEET

Project: Amiraco Properties Inc. Collector(s): WH

Visit 1 Date: 8-Jun-17 Visit 2: 26-Jun-17

Start: 6:00 End: 8:30 Start: 5:45 End: 10:15

Weather: clear, still, cool Weather: still, cool, part cloud

Species Code	Species Name	Evidence Code		No.		S Rank	ESA Status	PIF Status	Community	Notes
		vis 1	vis 2	vis 1	vis 2					
RBWO	Red-bellied Woodpecker	-	T	0	1	S4	-		1 & 2	GOOD HABITAT
DOWO	Downy Woodpecker	SH	FY	1	2	S5			1 & 2	CONFIRMED BREEDING
NOFL	Northern Flicker	-	FY	0	2	S4			1 & 2	CONFIRMED BREEDING
GCFL	Great Crested Flycatcher	-	P	0	2	S4	-		1 & 2	POSSIBLE BREEDER, LIMITED HABITAT
BCCH	Black-capped Chickadee	SM	SH	1	1	S5	-		1 & 2	SUITABLE HABITAT, POTENTIAL BREEDER
AMRO	American Robin	FY	FY	4	3	S5			1 & 2	CONFIRMED BREEDING
GRCA	Gray Catbird	SM	SM	1	1	S4			1 & 2	SUITABLE HABITAT, POTENTIAL BREEDER
CEDW	Cedar Waxwing	-	P	0	2	S5			1 & 2	POSSIBLE BREEDER, LIMITED HABITAT
YWAR	Yellow Warbler	-	SM	0	1	S5			1 & 2	SUITABLE HABITAT, POTENTIAL BREEDER
VESP	Vesper Sparrow	SM	-	1	0	S4			1 & 2	HABITAT IN ADJACENT AGRICULTURE
SOSP	Song Sparrow	P	T	2	3	S5			1 & 2	LIKELY BREEDER, GOOD HABITAT
NOCA	Northern Cardinal	P	P	2	2	S5			1 & 2	LIKELY BREEDER, GOOD HABITAT
RBGR	Rose-breasted Grosbeak	-	D	0	2	S4			1 & 2	LIKELY BREEDER, GOOD HABITAT
RWBL	Red-winged Blackbird	-	P	0	6	S4			1 & 2	LIKELY BREEDER, GOOD HABITAT
COGR	Common Grackle	P	P	2	5	S5		RC	1 & 2	LIKELY BREEDER, GOOD HABITAT
BHCO	Brown-headed Cowbird	P	-	2	0	S4			1 & 2	LIKELY BREEDER, GOOD HABITAT
AMGO	American Goldfinch	SM	FY	1	5	S5			1 & 2	CONFIRMED BREEDING

Evidence Codes:

Breeding Bird - Possible

SH=Suitable Habitat SM=Singing Male

Breeding Bird - Probable

T=Territory A=Anxiety Behaviour D=Display N=Nest Building P=Pair V=Visiting Nest

Breeding Bird - Confirmed

DD=Distraction NE=Eggs AE=Nest Entry NU=Nest Used NY=Nest Young FY=Fledged Young FS=Food/Faecal Sack

Other Wildlife Evidence

OB=Observed DP=Distinctive Parts TK=Tracks VO=Vocalization HO=House/Den FE=Feeding Evidence CA=Carcass

Fy=Eggs or Young SC=Scat SI=Other Signs (specify)

Appendix H

Amphibian Breeding Survey Data

GENERAL SITE INFORMATION FIELD SHEET

Project: Amiraco Properties
Date: April 11, 2017 Project Manager: ____
Collector(s): LM Visit #: ____
Time started: 9:15 Time finished: 10:15 Combined collectors' hours: ____
☐ NHIC List ☐ MNR EO's ☐ none ☐ not provided to collector

WEATHER CONDITIONS				
Temp.	Wind: 2		Cloud Cover (%)	Precipitation
10°C	Direction: NW		100%	Today: 2.8mm Yesterday: 6.5mm

	WIND SCALE
0	Calm
1	Smoke Drifts
2	Wind Felt on Face
3	Leaves in constant motion
4	Wind raises dust and paper
5	Small trees sway
6	Large branches sway
7	Lots of resistance when walking into
8	Limbs breaking off trees

DATA FOCUS

☐	Birds 1__ 2__ Mig__	☐	ELC's	☐	Dripline/Tree Survey
☐	Mammals	☐	Floral V_ _ S_ _ A_	☐	Aquatic - Physical
☑	Amphibians 1_ 2_ 3_	☐	Wetland	☐	Aquatic - Biological
☐	Reptiles	☐	Butternut (BHA)	☐	Faunal Habitat
☐	Inverterbrates	☐	other SAR	☐	Other - see notes

FEATURES (with GPS co-ordinates where applicable)	Mapped	Follow-up Req'd		
	UTM	Yes	No	Who
Man-made Structures: ☐ None observed				
Yes No				
☐ ☐ Barns/Footings/Wells/other(list)				
☐ ☐ Rock Piles				
☐ ☐ Garbage				
Natural Vegetation: ☐ None observed				
☐ ☐ Fallen Logs outside woods (#'s)				
☐ ☐ Brush Piles				
☐ ☐ Snags (raptor perch)				
☐ ☐ Tree Cavities (nesting)				
☐ ☐ Sentinel Trees				
☐ ☐ Butternut Identified				
☐ ☐ Mast Trees (6E) ☐ Berry Shrubs (6E)				
Wildlife Features: ☐ None observed				
☐ ☐ Waterfowl nesting (large #'s, # of species)				
☐ ☐ Exposed Banks (nesting swallows)				
☐ ☐ Stick Nests				
☐ ☐ Animal Burrows (>10cm)				
☐ ☐ Heronry				
☐ ☐ Crayfish mounds				
☐ ☐ Sand/gravel on site				
☐ ☐ Marsh/open country/shrub				
☐ ☐ Winter Deer yards				
☐ ☐ Corridor from pond to woods (ampibian movement)				
☐ ☐ Bat corridor (shorelines, escarpments)				
☐ ☐ Bat hibernacula (caves, mines, crevices, etc.)				
Aquatic Features:				
☐ ☐ Perm. pond in woodland ☐ emergents/submergents/logs ☐ temp.				
☐ ☐ Perm. pond in open ☐ emergents/submergents/logs ☐ temp.				
☐ ☐ Water in woodland ☐ pools ☐ flowing ☐ dry				
☐ ☐ Waterways flowing dry pools				
☐ natural stream ☐ ☐ ☐				
☐ swale ☐ ☐ ☐ ☐ None observed				
☐ open drain ☐ ☐ ☐				
☐ Seeps/Springs ☐ ☐ ☐				
Incidental Observations/Notes:				
Pack Rd wetland full chorus 8:15 10°C				

Graphic ☐ Attached or Name: L:\ENV\Biological Services\Templates\MTE NEnv_General Field Sheet Checked by Project Manager ☐ Date: ____

GENERAL SITE INFORMATION FIELD SHEET

Project: Amiraco Properties Inc. (49130-100)
Date: May 11, 2017 Project Manager: LM
Collector(s): LM Visit #:
Time started: 10:05 Time finished: 11:00 PM Combined collectors' hours:
☐ NHIC List ☐ MNR EO's ☐ none ☐ not provided to collector

WEATHER CONDITIONS				
Temp.	Wind:		Cloud Cover (%)	Precipitation
11°C	Direction: Ø		Ø	Today: 1.3 m Yesterday: Ø

	WIND SCALE
0	Calm
1	Smoke Drifts
2	Wind Felt on Face
3	Leaves in constant motion
4	Wind raises dust and paper
5	Small trees sway
6	Large branches sway
7	Lots of resistance when walking into
8	Limbs breaking off trees

DATA FOCUS

☐	Birds 1__ 2__ Mig__	☐	ELC's	☐	Dripline/Tree Survey
☐	Mammals	☐	Floral V__ S__ A_	☐	Aquatic - Physical
☑	Amphibians 1_(2)3_	☐	Wetland	☐	Aquatic - Biological
☐	Reptiles	☐	Butternut (BHA)	☐	Faunal Habitat
☐	Inverterbrates	☐	other SAR	☐	Other - see notes

FEATURES (with GPS co-ordinates where applicable)

		Mapped	Follow-up Req'd		
		UTM	Yes	No	Who
Man-made Structures: ☐ None observed					
Yes	No				
☐	☐	Barns/Footings/Wells/other(list)				
☐	☐	Rock Piles				
☐	☐	Garbage				
Natural Vegetation: ☐ None observed					
☐	☐	Fallen Logs outside woods (#'s)				
☐	☐	Brush Piles				
☐	☐	Snags (raptor perch)				
☐	☐	Tree Cavities (nesting)				
☐	☐	Sentinel Trees				
☐	☐	Butternut Identified				
☐	☐	Mast Trees (6E) ☐ Berry Shrubs (6E)				
Wildlife Features: ☐ None observed					
☐	☐	Waterfowl nesting (large #'s, # of species)				
☐	☐	Exposed Banks (nesting swallows)				
☐	☐	Stick Nests				
☐	☐	Animal Burrows (>10cm)				
☐	☐	Heronry				
☐	☐	Crayfish mounds				
☐	☐	Sand/gravel on site				
☐	☐	Marsh/open country/shrub				
☐	☐	Winter Deer yards				
☐	☐	Corridor from pond to woods (ampibian movement)				
☐	☐	Bat corridor (shorelines, escarpments)				
☐	☐	Bat hibernacula (caves, mines, crevices, etc.)				
Aquatic Features:					
☐	☐	Perm. pond in woodland ☐ emergents/submergents/logs ☐ temp.				
☐	☐	Perm. pond in open ☐ emergents/submergents/logs ☐ temp.				
☐	☐	Water in woodland ☐ pools ☐ flowing ☐ dry				
☐	☐	Waterways flowing dry pools				
	☐	natural stream ☐ ☐ ☐				
	☐	swale ☐ ☐ ☐ ☐ None observed				
	☐	open drain ☐ ☐ ☐				
	☐	Seeps/Springs ☐ ☐ ☐				

Incidental Observations/Notes:

- No frogs heard on site
- Heard to the North at Pack Rd wetland and to south at C. Talbot Rd

Graphic ☐ Attached or Name

Checked by Project Manager ☐ Date:

GENERAL SITE INFORMATION FIELD SHEET

Project: Amiraco Properties Inc. (49130-100)
Date: June 12, 2017 Project Manager: LM
Collector(s): LM Visit #:
Time started: 10:00 Time finished: 11:00 Combined collectors' hours:
☐ NHIC List ☐ MNR EO's ☐ none ☐ not provided to collector

WEATHER CONDITIONS				
Temp.	Wind:		Cloud Cover (%)	Precipitation
28.5°C	Direction:		90%	Today: Ø Yesterday: Ø

WIND SCALE	
0	Calm
1	Smoke Drifts
2	Wind Felt on Face
3	Leaves in constant motion
4	Wind raises dust and paper
5	Small trees sway
6	Large branches sway
7	Lots of resistance when walking into
8	Limbs breaking off trees

DATA FOCUS

☐	Birds 1__ 2__ Mig__	☐	ELC's	☐	Dripline/Tree Survey
☐	Mammals	☐	Floral V__ S__ A_	☐	Aquatic - Physical
☑	Amphibians 1_ 2_ (3)	☐	Wetland	☐	Aquatic - Biological
☐	Reptiles	☐	Butternut (BHA)	☐	Faunal Habitat
☐	Inverterbrates	☐	other SAR	☐	Other - see notes

FEATURES (with GPS co-ordinates where applicable)	Mapped	Follow-up Req'd		
	UTM	Yes	No	Who
Man-made Structures: ☐ None observed				
Yes No				
☐ ☐ Barns/Footings/Wells/other(list)				
☐ ☐ Rock Piles				
☐ ☐ Garbage				
Natural Vegetation: ☐ None observed				
☐ ☐ Fallen Logs outside woods (#'s)				
☐ ☐ Brush Piles				
☐ ☐ Snags (raptor perch)				
☐ ☐ Tree Cavities (nesting)				
☐ ☐ Sentinel Trees				
☐ ☐ Butternut Identified				
☐ ☐ Mast Trees (6E) ☐ Berry Shrubs (6E)				
Wildlife Features: ☐ None observed				
☐ ☐ Waterfowl nesting (large #'s, # of species)				
☐ ☐ Exposed Banks (nesting swallows)				
☐ ☐ Stick Nests				
☐ ☐ Animal Burrows (>10cm)				
☐ ☐ Heronry				
☐ ☐ Crayfish mounds				
☐ ☐ Sand/gravel on site				
☐ ☐ Marsh/open country/shrub				
☐ ☐ Winter Deer yards				
☐ ☐ Corridor from pond to woods (ampibian movement)				
☐ ☐ Bat corridor (shorelines, escarpments)				
☐ ☐ Bat hibernacula (caves, mines, crevices, etc.)				
Aquatic Features:				
☐ ☐ Perm. pond in woodland ☐ emergents/submergents/logs ☐ temp.				
☐ ☐ Perm. pond in open ☐ emergents/submergents/logs ☐ temp.				
☐ ☐ Water in woodland ☐ pools ☐ flowing ☐ dry				
☐ ☐ Waterways flowing dry pools				
☐ natural stream ☐ ☐ ☐				
☐ swale ☐ ☐ ☐ ☐ None observed				
☐ open drain ☐ ☐ ☐				
☐ Seeps/Springs ☐ ☐ ☐				
Incidental Observations/Notes:				
Veg comm 2 had ~10 deer in it				
Gray treefrog heard on adjacent property to the south of 4				
Gray treefrog heard at Pack Rd wetland + in the church Rd				
When standing in the middle (between patch 10069 + 10066)				
you can hear frogs (treefrog) at Pack Rd + Church Rd				
*No frogs on W3 site or in Patch 10066				

Graphic ☐ Attached or Name L:\ENV\Biological Services\Templates\MTE NEnv_General Field Sheet Checked by Project Manager ☐ Date:

AMPHIBIAN BREEDING SURVEY INFORMATION FIELD SHEET

Project: Amiraco Properties (49130-100) Page 1 of 1

Station Name: _____ Watercourse Name: _____

Darinage Sys.: Dingmen Creek GPS Coordinates: _____

Visit 1 Date: April 11, 2017 Start: 4:15 End: 10:15

Weather: 100% cloud

Water °C: _____ Wind: _____ Noise: 2 Today- Rain: 2.8mm Max °C: 20°C

Air °C: 10°C Cloud%: 100% Yesterday- Rain: 6.5mm Max °C: 22°C

Control Site: Y/N Were Frogs Calling: (Y)/N Where: Back Rd wetland Code 3 peepers @ 8:15pm Collector(s): LM

Amphibian Data:

Field Note Community:		1		2		3		4		5		6		7		Pasture SWale	
ELC Community:																	
Species	Season	CC	#	CC	#	CC	#	CC	#	CC	#	CC	#	CC	#	CC	#
Wood Frog	e. spring																
Spring Peeper	e. spring		2														
Western Chorus Frog	e. spring																2
Boreal Chorus Frog	e. spring																
American Toad	spring																
Northern Leopard Frog	spring																
Pickerel Frog	spring																
Gray Treefrog	spring																
Fowler's Toad	spring																
Mink Frog	summer																
Green Frog	summer																
Bullfrog	summer																

Visit 2 Date: May 11/17 Start: 10:05 End: 11:00

Weather: Clear, calm

Water °C: _____ Wind: _____ Noise: 2 Today- Rain: n/mm Max °C: 15°C

Air °C: 11°C Cloud%: 0 Yesterday- Rain: 0 Max °C: 15.5°C

Control Site: Y/N Were Frogs Calling: Y/N Where: Back Rd Collector(s): LM

Amphibian Data:

Species	Season	CC	#	CC	#	CC	#	CC	#	CC	#	CC	#	CC	#	CC	#
Wood Frog	e. spring																
Spring Peeper	e. spring																
Western Chorus Frog	e. spring																
Boreal Chorus Frog	e. spring																
American Toad	spring																
Northern Leopard Frog	spring																
Pickerel Frog	spring																
Gray Treefrog	spring																
Fowler's Toad	spring																
Mink Frog	summer																
Green Frog	summer																
Bullfrog	summer																

Visit 3 Date: June 12/17 Start: 10:00 End: 11:00

Weather: humid, cloudy

Water °C: _____ Wind: 1 Noise: 2 Today- Rain: 0 Max °C: 30°C

Air °C: 28.5°C Cloud%: 90% Yesterday- Rain: 0 Max °C: 30°C

Control Site: Y/N Were Frogs Calling: Y/N Where: Back Rd - treefrog CC2 Collector(s): LM

Amphibian Data:

Species	Season	CC	#	CC	#	CC	#	CC	#	CC	#	CC	#	CC	#	CC	#
Wood Frog	e. spring																
Spring Peeper	e. spring																
Western Chorus Frog	e. spring																
Boreal Chorus Frog	e. spring																
American Toad	spring																
Northern Leopard Frog	spring																
Pickerel Frog	spring																
Gray Treefrog	spring																
Fowler's Toad	spring																
Mink Frog	summer																
Green Frog	summer																
Bullfrog	summer																

AMPHIBIAN MONITORING FIELD SHEET

Project: 49130-100 Bostwick (Westwinds)
Date: March 17, 2022 Project Manager: MC
Collector(s): VS AL Visit #:

WEATHER CONDITIONS					
Temp.	Wind: 2		Cloud Cover (%)	Precipitation	
9°C	Direction: S		5%	☒ None/Dry ☐ Drizzle ☐ Damp/Fog ☐ Rain	

WIND SCALE	
0	Calm
1	Smoke Drifts
2	Wind Felt on Face
3	Leaves in constant motion
4	Wind raises dust and paper

CALL LEVEL CODES

Code 1: Calls not simultaneous, number of individuals can be accurately counted
Code 2: Some calls simultaneous, number of individuals can be reliably estimated
Code 3: Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

11 AM

Reference Site: ☒ No ☐ Yes UTM

Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

* Check if species is calling from inside 100-metre station area.
** Check if species is calling from outside 100-metre station area.

Station: 475980 4752735
(By main wetland of Comm 2)

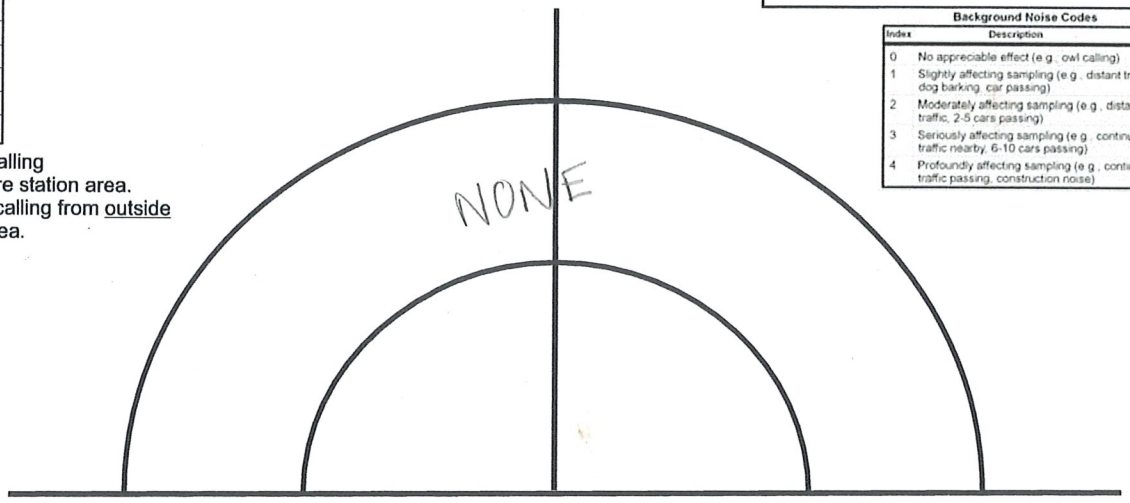
NW

Station Start Time (24 hr):

Background Noise Code (1-4):

Background Noise Codes

Index	Description
0	No appreciable effect (e.g., owl calling)
1	Slightly affecting sampling (e.g., distant traffic, dog barking, car passing)
2	Moderately affecting sampling (e.g., distant traffic, 2-5 cars passing)
3	Seriously affecting sampling (e.g., continuous traffic nearby, 6-10 cars passing)
4	Profoundly affecting sampling (e.g., continuous traffic passing, construction noise)



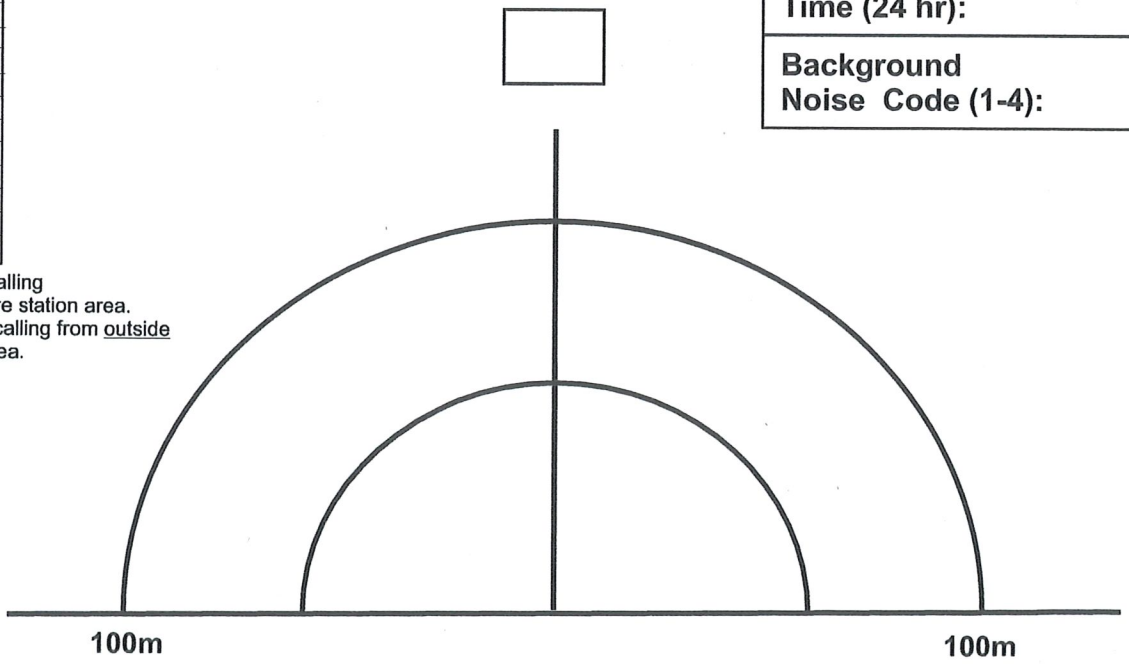
Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

* Check if species is calling from inside 100-metre station area.
** Check if species is calling from outside 100-metre station area.

Station:

Station Start Time (24 hr):

Background Noise Code (1-4):



GENERAL SITE INFORMATION FIELD SHEET

Project: 49130-100
Date: April 13/22 Project Manager: DH
Collector(s): VS + AL Visit #:
Time started: 21:10 Time finished: 21:35 Combined collectors' hours: 1
☐ NHIC List ☐ MNR EO's ☐ none ☐ not provided to collector

WEATHER CONDITIONS				
Temp.	Wind:	22 km	Cloud Cover (%)	Precipitation
15	Direction:	S	100	Today: Yes Yesterday: No

WIND SCALE	
0	Calm
1	Smoke Drifts
(2)	Wind Felt on Face
3	Leaves in constant motion
4	Wind raises dust and paper
5	Small trees sway
6	Large branches sway
7	Lots of resistance when walking into
8	Limbs breaking off trees

DATA FOCUS

☐	Birds 1__ 2__ Mig__	☐	ELC's	☐	Dripline/Tree Survey		
☐	Mammals	☐	Floral V__ S__ A_	☐	Aquatic - Physical		
☒	Amphibians 1☒ 2_ 3_	☐	Wetland	☐	Aquatic - Biological		
☐	Reptiles	☐	Butternut (BHA)	☐	Faunal Habitat		
☐	Inverterbrates	☐	other SAR	☐	Other - see notes		

FEATURES (with GPS co-ordinates where applicable)	Mapped	Follow-up Req'd		
	UTM	Yes	No	Who
Man-made Structures: ☐ None observed				
Yes No				
☐ ☐ Barns/Footings/Wells/other(list)				
☐ ☐ Rock Piles				
☐ ☐ Garbage				
Natural Vegetation: ☐ None observed				
☐ ☐ Fallen Logs outside woods (#'s)				
☐ ☐ Brush Piles				
☐ ☐ Snags (raptor perch)				
☐ ☐ Tree Cavities (nesting)				
☐ ☐ Sentinel Trees				
☐ ☐ Butternut Identified				
☐ ☐ Mast Trees (6E) ☐ Berry Shrubs (6E)				
Wildlife Features: ☐ None observed				
☐ ☐ Waterfowl nesting (large #'s, # of species)				
☐ ☐ Exposed Banks (nesting swallows)				
☐ ☐ Stick Nests				
☐ ☐ Animal Burrows (>10cm)				
☐ ☐ Heronry				
☐ ☐ Crayfish mounds				
☐ ☐ Sand/gravel on site				
☐ ☐ Marsh/open country/shrub				
☐ ☐ Winter Deer yards				
☐ ☐ Corridor from pond to woods (ampibian movement)				
☐ ☐ Bat corridor (shorelines, escarpments)				
☐ ☐ Bat hibernacula (caves, mines, crevices, etc.)				
Aquatic Features:				
☐ ☐ Perm. pond in woodland ☐ emergents/submergents/logs ☐ temp.				
☐ ☐ Perm. pond in open ☐ emergents/submergents/logs ☐ temp.				
☐ ☐ Water in woodland ☐ pools ☐ flowing ☐ dry				
☐ ☐ Waterways flowing dry pools				
☐ natural stream ☐ ☐ ☐				
☐ swale ☐ ☐ ☐ ☐ None observed				
☐ open drain ☐ ☐ ☐				
☐ Seeps/Springs ☐ ☐ ☐				

Incidental Observations/Notes:

- Heard no frogs on site
- Heard some on adjacent land

Graphic ☐ Attached or Name E:\ENV\Biological Services\Templates\MTE NEnv_General Field Sheet Checked by Project Manager ☐ Date:

AMPHIBIAN MONITORING FIELD SHEET

Project: 49130-100 Bostwick
Date: April 13, 2022 — Project Manager: MC
Collector(s): AL VS — Visit #:

Rain before

WEATHER CONDITIONS					
Temp.	Wind: 2		Cloud Cover (%)	Precipitation	
15°C	Direction: S		100%	☐ None/Dry ☐ Drizzle ☒ Damp/Fog ☐ Rain	

	WIND SCALE
0	Calm
1	Smoke Drifts
2	Wind Felt on Face
3	Leaves in constant motion
4	Wind raises dust and paper

CALL LEVEL CODES

Code 1: Calls not simultaneous, number of individuals can be accurately counted
Code 2: Some calls simultaneous, number of individuals can be reliably estimated
Code 3: Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

Reference Site: ☐ No ☐ Yes UTM

Station: 1 (476267 4752840)

Right at excavated wetland

S

Station Start Time (24 hr): 9:12

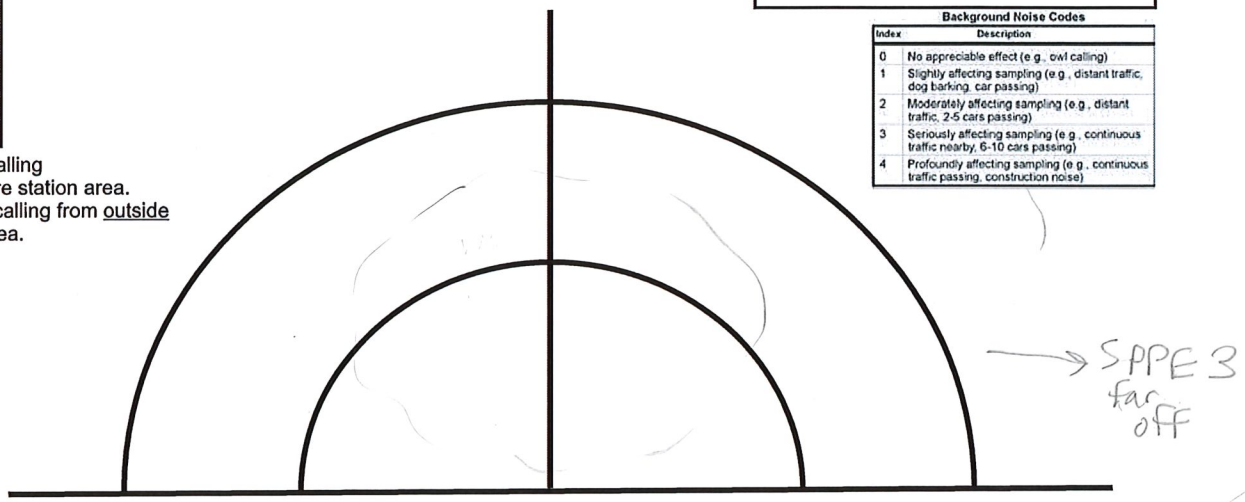
Background Noise Code (1-4): 2

Background Noise Codes

Index	Description
0	No appreciable effect (e.g., owl calling)
1	Slightly affecting sampling (e.g., distant traffic, dog barking, car passing)
2	Moderately affecting sampling (e.g., distant traffic, 2-5 cars passing)
3	Seriously affecting sampling (e.g., continuous traffic nearby, 6-10 cars passing)
4	Profoundly affecting sampling (e.g., continuous traffic passing, construction noise)

Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

* Check if species is calling from inside 100-metre station area.
** Check if species is calling from outside 100-metre station area.



Station: 2 (475958 4752709)

Edge of woodlot toward wetland

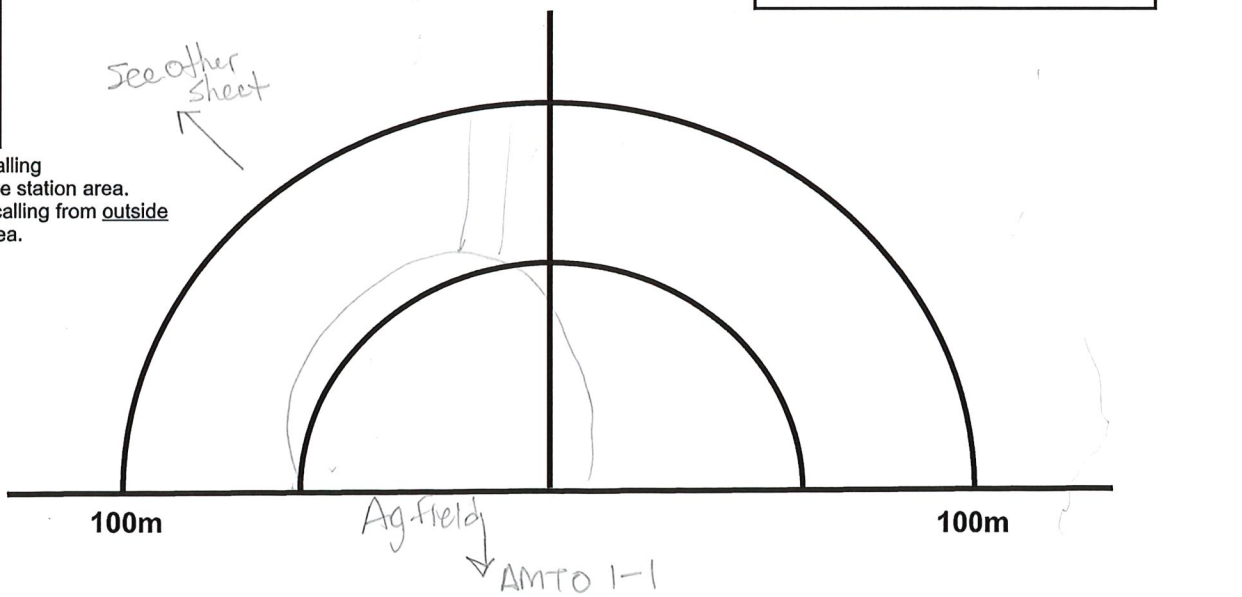
N

Station Start Time (24 hr): 9:21

Background Noise Code (1-4): 1

Species	In*	Out**
AMTO		☒
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		☒
WOFR		

* Check if species is calling from inside 100-metre station area.
** Check if species is calling from outside 100-metre station area.



AMPHIBIAN MONITORING FIELD SHEET

Project: 49130-100
Date: April 13, 2022
Collector(s): AL VS
Project Manager:
Visit #:

Adjacent Lands Sheet

WEATHER CONDITIONS				
Temp.	Wind:		Cloud Cover (%)	Precipitation
15°C	Direction:			☐ None/Dry ☐ Drizzle ☐ Damp/Fog ☐ Rain

	WIND SCALE
0	Calm
1	Smoke Drifts
2	Wind Felt on Face
3	Leaves in constant motion
4	Wind raises dust and paper

CALL LEVEL CODES

Code 1: Calls not simultaneous, number of individuals can be accurately counted
Code 2: Some calls simultaneous, number of individuals can be reliably estimated
Code 3: Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

Reference Site: ☐ No ☐ Yes UTM

Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

* Check if species is calling from inside 100-metre station area.
** Check if species is calling from outside 100-metre station area.

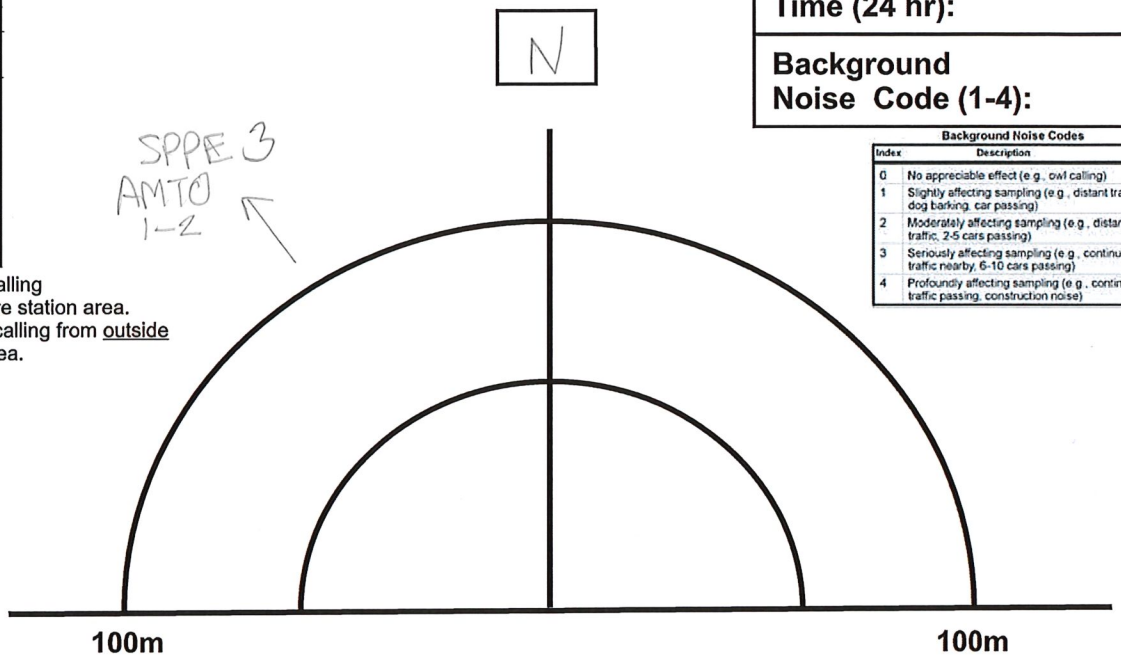
Station: 2

Station Start Time (24 hr):

Background Noise Code (1-4):

Background Noise Codes

Index	Description
0	No appreciable effect (e.g., owl calling)
1	Slightly affecting sampling (e.g., distant traffic, dog barking, car passing)
2	Moderately affecting sampling (e.g., distant traffic, 2-5 cars passing)
3	Seriously affecting sampling (e.g., continuous traffic nearby, 6-10 cars passing)
4	Profoundly affecting sampling (e.g., continuous traffic passing, construction noise)



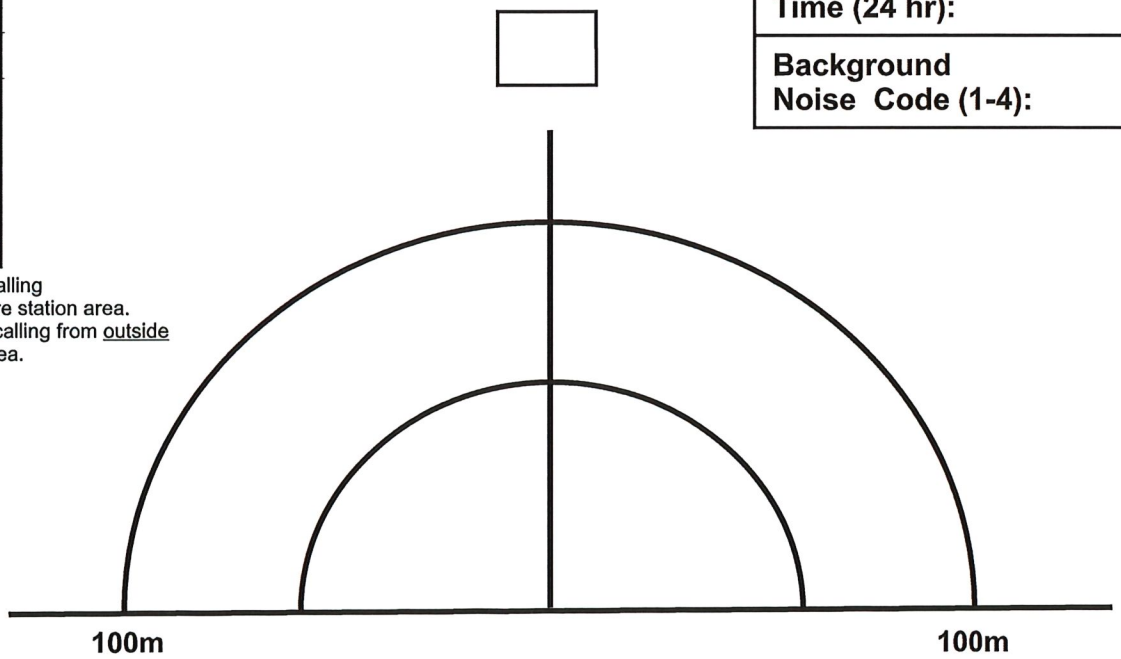
Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

* Check if species is calling from inside 100-metre station area.
** Check if species is calling from outside 100-metre station area.

Station:

Station Start Time (24 hr):

Background Noise Code (1-4):



GENERAL SITE INFORMATION FIELD SHEET

Project: 49130-100
Date: May 9, 2022 Project Manager: MC
Collector(s): JD AL Visit #:
Time started: 9:50 pm Time finished: 10:20pm Combined collectors' hours:
☐ NHIC List ☐ MNR EO's ☐ none ☐ not provided to collector

WEATHER CONDITIONS				
Temp.	Wind: 2		Cloud Cover (%)	Precipitation
14	Direction: E		10	Today: none Yesterday: none

DATA FOCUS					
☐	Birds 1__ 2__ Mig__	☐	ELC's	☐	Dripline/Tree Survey
☐	Mammals	☐	Floral V__ S__ A_	☐	Aquatic - Physical
☒	Amphibians 1_ 2_ 3_	☐	Wetland	☐	Aquatic - Biological
☐	Reptiles	☐	Butternut (BHA)	☐	Faunal Habitat
☐	Inverterbrates	☐	other SAR	☐	Other - see notes

	WIND SCALE
0	Calm
1	Smoke Drifts
2	Wind Felt on Face
3	Leaves in constant motion
4	Wind raises dust and paper
5	Small trees sway
6	Large branches sway
7	Lots of resistance when walking into
8	Limbs breaking off trees

FEATURES (with GPS co-ordinates where applicable)	Mapped UTM	Follow-up Req'd Yes	No	Who
Man-made Structures: ☐ None observed				
Yes No				
☐ ☒ Barns/Footings/Wells/other(list)				
☐ ☒ Rock Piles				
☐ ☒ Garbage				
Natural Vegetation: ☐ None observed				
☐ ☐ Fallen Logs outside woods (#'s)				
☐ ☐ Brush Piles				
☐ ☐ Snags (raptor perch)				
☐ ☐ Tree Cavities (nesting)				
☐ ☐ Sentinel Trees				
☐ ☐ Butternut Identified				
☐ ☐ Mast Trees (6E) ☐ Berry Shrubs (6E)				
Wildlife Features: ☐ None observed				
☐ ☐ Waterfowl nesting (large #'s, # of species)				
☐ ☐ Exposed Banks (nesting swallows)				
☐ ☐ Stick Nests				
☐ ☐ Animal Burrows (>10cm)				
☐ ☐ Heronry				
☐ ☐ Crayfish mounds				
☐ ☐ Sand/gravel on site				
☐ ☐ Marsh/open country/shrub				
☐ ☐ Winter Deer yards				
☐ ☐ Corridor from pond to woods (ampibian movement)				
☐ ☐ Bat corridor (shorelines, escarpments)				
☐ ☐ Bat hibernacula (caves, mines, crevices, etc.)				
Aquatic Features:				
☐ ☐ Perm. pond in woodland ☐ emergents/submergents/logs ☐ temp.				
☐ ☐ Perm. pond in open ☐ emergents/submergents/logs ☐ temp.				
☐ ☐ Water in woodland ☐ pools ☐ flowing ☐ dry				
☐ ☐ Waterways flowing dry pools				
☐ natural stream ☐ ☐ ☐				
☐ swale ☐ ☐ ☐ ☐ None observed				
☐ open drain ☐ ☐ ☐				
☐ Seeps/Springs ☐ ☐ ☐				
Incidental Observations/Notes:				

Graphic ☐ Attached or Name L:\ENV\Biological Services\Templates\MTE NEnv_General Field Sheet Checked by Project Manager ☐ Date:

AMPHIBIAN MONITORING FIELD SHEET

Project: 49130-100
Date: May 9, 2022
Collector(s): TC AL
Project Manager: MC
Visit #:

WEATHER CONDITIONS					
Temp.	Wind:	2	Cloud Cover (%)	Precipitation	
14°C	Direction:	E	10%	☒ None/Dry ☐ Drizzle ☐ Damp/Fog ☐ Rain	

WIND SCALE	
0	Calm
1	Smoke Drifts
2	Wind Felt on Face
3	Leaves in constant motion
4	Wind raises dust and paper

CALL LEVEL CODES

Code 1: Calls not simultaneous, number of individuals can be accurately counted
Code 2: Some calls simultaneous, number of individuals can be reliably estimated
Code 3: Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

Reference Site: ☐ No ☐ Yes UTM

Station: 1 (Almost fully dry)

Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

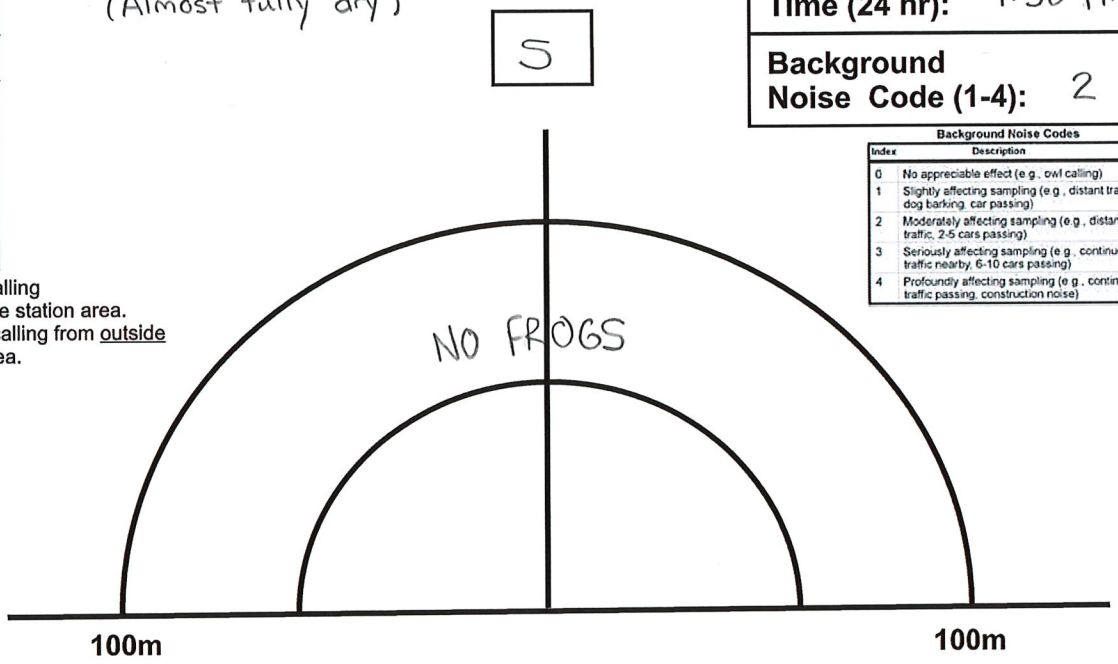
* Check if species is calling from inside 100-metre station area.
** Check if species is calling from outside 100-metre station area.

Station Start Time (24 hr): 9:56 PM

Background Noise Code (1-4): 2

Background Noise Codes

Index	Description
0	No appreciable effect (e.g., owl calling)
1	Slightly affecting sampling (e.g., distant traffic, dog barking, car passing)
2	Moderately affecting sampling (e.g., distant traffic, 2-5 cars passing)
3	Seriously affecting sampling (e.g., continuous traffic nearby, 6-10 cars passing)
4	Profoundly affecting sampling (e.g., continuous traffic passing, construction noise)



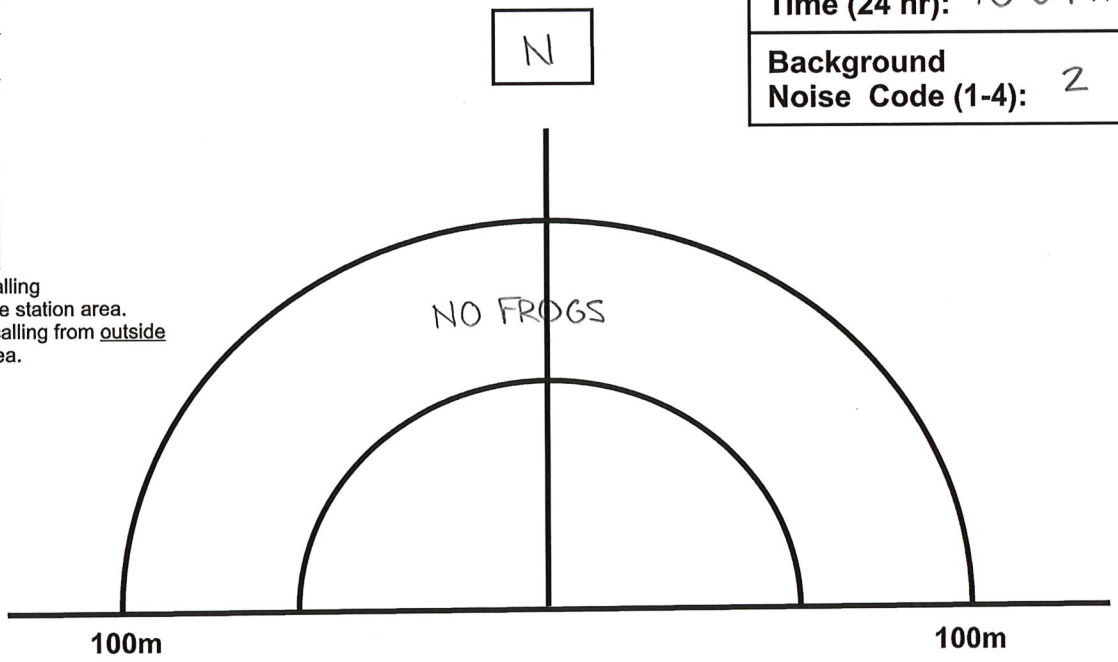
Station: 2

Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

* Check if species is calling from inside 100-metre station area.
** Check if species is calling from outside 100-metre station area.

Station Start Time (24 hr): 10:04 PM

Background Noise Code (1-4): 2



Appendix I

Bat Habitat Survey Data

GENERAL SITE INFORMATION FIELD SHEET

Project: 49130-100 Bostwick Rd
Date: May 10, 2021 Project Manager: MC
Collector(s): WH Visit #:
Time started: 11:00 Time finished: 12:15 Combined collectors' hours: 1.25
☐ NHIC List ☐ MNR EO's ☐ none ☐ not provided to collector

WEATHER CONDITIONS				
Temp.	Wind:	5	Cloud Cover (%)	Precipitation
10°	Direction:	W	55	Today: 0 Yesterday: 0

WIND SCALE	
0	Calm
1	Smoke Drifts
2	Wind Felt on Face
3	Leaves in constant motion
4	Wind raises dust and paper
5	Small trees sway
6	Large branches sway
7	Lots of resistance when walking into
8	Limbs breaking off trees

DATA FOCUS

☐	Birds 1__ 2__ Mig__	☐	ELC's	☐	Dripline/Tree Survey
☒	Mammals	☐	Floral V__ S__ A_	☐	Aquatic - Physical
☐	Amphibians 1_ 2_ 3_	☐	Wetland	☐	Aquatic - Biological
☐	Reptiles	☐	Butternut (BHA)	☒	Faunal Habitat
☐	Inverterbrates	☐	other SAR	☐	Other - see notes

FEATURES (with GPS co-ordinates where applicable)	Mapped	Follow-up Req'd		
	UTM	Yes	No	Who
Man-made Structures: ☐ None observed				
☐ ☒ Barns/Footings/Wells/other(list)				
☐ ☒ Rock Piles				
☐ ☒ Garbage				
Natural Vegetation: ☐ None observed				
☐ ☒ Fallen Logs outside woods (#'s)				
☐ ☒ Brush Piles				
☐ ☒ Snags (raptor perch) not good for raptors <30 dead ASH				
☒ ☐ Tree Cavities (nesting) squirrel activity				
☐ ☒ Sentinel Trees				
☐ ☒ Butternut Identified				
☐ ☒ Mast Trees (6E) ☐ Berry Shrubs (6E)				
Wildlife Features: ☐ None observed				
☐ ☒ Waterfowl nesting (large #'s, # of species)				
☐ ☒ Exposed Banks (nesting swallows)				
☒ ☐ Stick Nests CROW OR SQUIRREL				
☐ ☒ Animal Burrows (>10cm)				
☐ ☒ Heronry				
☒ ☐ Crayfish mounds				
☐ ☒ Sand/gravel on site				
☐ ☒ Marsh/open country/shrub				
☐ ☒ Winter Deer yards				
☐ ☒ Corridor from pond to woods (ampibian movement)				
☐ ☒ Bat corridor (shorelines, escarpments)				
☐ ☒ Bat hibernacula (caves, mines, crevices, etc.)				
Aquatic Features:				
☐ ☒ Perm. pond in woodland ☐ emergents/submergents/logs ☐ temp.				
☐ ☒ Perm. pond in open ☐ emergents/submergents/logs ☐ temp.				
☐ ☒ Water in woodland ☐ pools ☐ flowing ☐ dry				
☒ ☐ Waterways flowing dry pools				
☐ natural stream ☐ ☐ ☐				
☒ swale ☐ ☐ ☒ ☐ None observed				
☐ open drain ☐ ☐ ☐				
☐ Seeps/Springs ☐ ☐ ☐				
Incidental Observations/Notes:				
-BAT HABITAT INVESTIGATIONS.				

Graphic ☐ Attached or Named L:\ENV\Biological Services\Templates\MTE NEnv_General Field Sheet Checked by Project Manager ☐ Date:

MTE

Project Name: Bostwick Rd.			MTE File No.: 49130-100	
Designer:	Drawn By: WH	Date: May 10, 2021	Metric Scale: +/- 3m	Pg. 1 of
Subject: Bat Habitat Trees			Reference:	

	GPS	Size	Species	Decay / Notes / Features
BH1	476050, 4752791	45cm	FRAX dead	5, FALLEN SNAG LEANING ON ANOTHER TREE
BH2	476029, 4752774	65 cm	FRAX dead	5, ACTIVE SQUIRREL HOLE, BARK HOLES, BARK
BH3	475997, 4752766	17 cm	FRAX dead	5, BARK NEAR TOP.
BH4	475983, 4752775	18cm	FRAX dead	5, BARK NEAR TOP.
BH5	475979, 4752733	20cm	FRAX dead	5, BARK NEAR TOP
BH6				
BH7				
BH8				
BH9				
BH10				
BH11				
BH12				
BH13				
BH14				
BH15				
BH16				
BH17				
BH18				
BH19				
BH20				
BH21				
BH22				
BH23				
BH24				
BH25				
BH26				
BH27				
BH28				
BH29				
BH30				
BH31				
BH32				
BH33				
BH34				
BH35				
BH36				
BH37				
BH38				
BH39				
BH40				

Appendix J

Snake Coverboard Survey Data

Pack Road

Bostwick Road

Subject Lands

1

2

3

4

6

7

8

9

10

11

12

1

1

1

2

3

Snake Coverboard Locations

(City of London 2020 Air Photo)

0 1,000

Scale 1:50,000

Key Plan

Legend

1 CUT1/CUW1 Mineral Cultural Thicket/Woodland Ecosite (Buckthorn dominant with Bitternut and Hawthorn)

2 MAM2 Mineral Meadow Marsh Ecosite

3 Wetland Inclusion

Drain

* Locations are approximate and should be verified by survey where necessary.

Print on 11X17, Landscape Orientation

0 50

Scale 1:2000

July 2021

N

MTE

Table 1: 49130-100 Bostwick Meddaoui 2021 Common Snake Board study

1	Temp: 22C	Wind: 1			Clouds: 50%		Time: 14:15-15:45						Observers: AL	
		Boards												
Date	Species	1	2	3	4	5	6	7	8	9	10	11	12	SUM	Comments
17/05/2021	Milksnake													0	No snakes observed.
	Dekay's													0	
	E Garter													0	

2	Temp: 9C	Wind: 2			Clouds: 5%		Time: 9:28-10:20						Observers: AL	
		Boards												
Date	Species	1	2	3	4	5	6	7	8	9	10	11	12	SUM	Comments
27/05/2021	Milksnake													0	No snakes observed. Moved board 7 over 2 metres into better sunlight.
	Dekay's													0	
	E Garter													0	

3	Temp: 22C	Wind: 3			Clouds: 65%		Time: 18:30-19:15						Observers: AL	
		Boards												
Date	Species	1	2	3	4	5	6	7	8	9	10	11	12	SUM	Comments
01/06/2021	Milksnake													0	One mid-sized Eastern Gartersnake observed (minty colour on sides).
	Dekay's													0	
	E Garter						1							1	

4	Temp: 22C	Wind: 0			Clouds: 20%		Time: 19:00-19:45						Observers: AL	
		Boards												
Date	Species	1	2	3	4	5	6	7	8	9	10	11	12	SUM	Comments
03/06/2021	Milksnake													0	No snakes observed.
	Dekay's													0	
	E Garter													0	

5	Temp: 26C	Wind: 2			Clouds: 100%		Time: 19:46 - 20:30 PM						Observers: AL	
		Boards												
Date	Species	1	2	3	4	5	6	7	8	9	10	11	12	SUM	Comments
07/06/2021	Milksnake													0	No snakes observed. Mole under board 1.
	Dekay's													0	
	E Garter													0	

6	Temp: 19C	Wind: 5			Clouds: 10%		Time: 19:15 - 20:00 PM						Observers: AL	
		Boards												
Date	Species	1	2	3	4	5	6	7	8	9	10	11	12	SUM	Comments
15/06/2021	Milksnake													0	No snakes observed. A couple small rodents under boards.
	Dekay's													0	
	E Garter													0	

7	Temp: 24C	Wind: 2			Clouds: 90%		Time: 19:00 - 19:30 PM						Observers: AL	
		Boards												
Date	Species	1	2	3	4	5	6	7	8	9	10	11	12	SUM	Comments
24/06/2021	Milksnake													0	One Eastern Garter found under board 7 - medium size, no minty colours seen. Small rodent found under board 12.
	Dekay's													0	
	E Garter							1						1	

8	Temp: 28C	Wind: 1			Clouds: 25%		Time: 20:00 - 20:30 PM			Observers: AL				
		Boards												
Date	Species	1	2	3	4	5	6	7	8	9	10	11	12	SUM	Comments
28/06/2021	Milksnake													0	No snakes observed.
	Dekay's													0	
	E Garter													0	

9	Temp: 18C	Wind: 2			Clouds: 15%		Time: 18:50 - 19:50 PM			Observers: AL				
		Boards												
Date	Species	1	2	3	4	5	6	7	8	9	10	11	12	SUM	Comments
24/09/2021	Milksnake													0	One small Eastern Gartersnake found curled up (cold to touch) under board 6. Due to recent heavy rain, the woodlot was very wet with several inches of standing water around board 12. Boards 12, 3, 2, and 1 were quite overgrown with vegetation. Boards 8, 3, and 12 had water underneath.
	Dekay's													0	
	E Garter						1							1	

10		Temp:			Wind:			Clouds (%):					Observer:		
		Boards													
Date	Species	1	2	3	4	5	6	7	8	9	10	11	12	SUM	Comments
	Milksnake													0	
	Dekay's													0	
	E Garter													0	

Snakes	1	2	3	4	5	6	7	8	9	10	11	12	SUM
Total	0	0	0	0	0	2	1	0	0	0	0	0	3

NEED TO CHANGE THESE FORMULAS

Appendix K

Headwater Drainage Feature Assessment (HDFA) Data

GENERAL SITE INFORMATION FIELD SHEET

Project: 49130-100
Date: April 23, 2021 Project Manager: DH
Collector(s): VS + ME Visit #:
Time started: 13:10 Time finished: 14:13 Combined collectors' hours: 12
☐ NHIC List ☐ MNR EO's ☐ none ☐ not provided to collector

WEATHER CONDITIONS				
Temp.	Wind:	↓SW 4	Cloud Cover (%)	Precipitation
16°C	Direction:			Today: 0 Yesterday: Some snow

WIND SCALE	
0	Calm
1	Smoke Drifts
2	Wind Felt on Face
3	Leaves in constant motion
4	Wind raises dust and paper
5	Small trees sway
6	Large branches sway
7	Lots of resistance when walking into
8	Limbs breaking off trees

DATA FOCUS

☐	Birds 1__ 2__ Mig__	☐	ELC's	☐	Dripline/Tree Survey
☐	Mammals	☐	Floral V__ S__ A_	☒	Aquatic - Physical
☐	Amphibians 1_ 2_ 3_	☐	Wetland	☐	Aquatic - Biological
☐	Reptiles	☐	Butternut (BHA)	☐	Faunal Habitat
☐	Inverterbrates	☐	other SAR	☐	Other - see notes

FEATURES (with GPS co-ordinates where applicable)

Yes	No		Mapped UTM	Follow-up Req'd Yes	No	Who
Man-made Structures:		☐ None observed				
☐	☒	Barns/Footings/Wells/other(list)				
☐	☒	Rock Piles				
☒	☐	Garbage				
Natural Vegetation:		☐ None observed				
☐	☒	Fallen Logs outside woods (#'s)				
☐	☒	Brush Piles				
☐	☒	Snags (raptor perch)				
☐	☒	Tree Cavities (nesting)				
☐	☒	Sentinel Trees				
☐	☒	Butternut Identified				
☐	☒	Mast Trees (6E) ☐ Berry Shrubs (6E)				
Wildlife Features:		☐ None observed				
☐	☒	Waterfowl nesting (large #'s, # of species)				
☐	☒	Exposed Banks (nesting swallows)				
☐	☒	Stick Nests				
☐	☒	Animal Burrows (>10cm)				
☐	☒	Heronry				
☐	☒	Crayfish mounds				
☐	☒	Sand/gravel on site				
☐	☒	Marsh/open country/shrub				
☐	☒	Winter Deer yards				
☐	☒	Corridor from pond to woods (ampibian movement)				
☐	☒	Bat corridor (shorelines, escarpments)				
☐	☒	Bat hibernacula (caves, mines, crevices, etc.)				
Aquatic Features:						
☐	☒	Perm. pond in woodland ☐ emergents/submergents/logs ☐ temp.				
☐	☒	Perm. pond in open ☐ emergents/submergents/logs ☐ temp.				
☒	☐	Water in woodland ☒ pools ☐ flowing ☐ dry				
☐	☐	Waterways flowing dry pools				
		☐ natural stream ☐ ☐ ☐				
		☐ swale ☐ ☐ ☐ ☐ None observed				
		☐ open drain ☐ ☐ ☐				
		☐ Seeps/Springs ☐ ☐ ☐				

Incidental Observations/Notes:

HDFA
Some deer carcass found

Graphic ☐ Attached or Name L:\ENV\Biological Services\Templates\MTE NEnv_General Field Sheet Checked by Project Manager ☐ Date:

Aquatic Habitat Assessment

Project Name: Bostwick Rd NHS
MTE File No.: 49130-100
Station Name: 1
Date: April 22, 2021
Collectors: VS ; MC
Time Started: 13:10
Time Finished: 13:30

Watercoure Name: Dingman Creek
Drainage System: Thornicroft Drain
GPS Coordinates: E 476214 N 4752877
Weather: Overcast
Air Temp: 16°C
Land Use: Left Bank: Agricultural Right Bank: Agricultural
Pollution Sources: Point: Agricultural Non-Point: Road salt

Flow Regime: ☐ Flowing ☐ Dry ☐ Permanent ☐ Intermittent ☒ Ephemeral
Channel Form: ☐ Defined ☒ Undefined ☐ Natural ☐ Channelized ☐ Swale
Groundwater Evidence: ☒ None ☐ Springs/Seeps ☐ Vegetation ☐ Iron Staining ☐ Other

Pond/Lake Substrate – Agricultural soil → No bottom substrate to watercourse

Type	Bedrock	Sand	Silt	Clay	Muck	Marl	Detritus
%			30	70			

Shoreline Substrate – Agricultural Soil ⇒ No bottom substrate to watercourse

Type	Bedrock	Boulder	Cobble	Gravel	Sand	Silt	Clay	Marl	Detritus
%					30		70		

General Comments

Snow / rain in last 24 hours
2 days ago → 1 inch of snow

MTE

In-Water Habitat Agricultural Field

Underwater Cover		Vegetation			Algae
Type	%	Type	%	Examples	
None		None			☐ None
Undercut Banks					☐ Slight
Boulders		Submergent			☐ Moderate
Cobbles					☐ Heavy
Woody Debris		Floating			
Organic Debris					
Macrophytes		Emergent			

Bank Habitat

Bank Cover		Shore Cover
Type	%	% Shaded
None		☐ 100-90 %
Undercut Banks		☐ 90-60%
Boulders		☐ 60-30%
Cobbles		☐ 30-10%
		☒ 0%
Woody Debris		**Examples**
Organic Debris		
Macrophytes		

Migratory Obstructions

☒ None	
☐ Seasonal	☐ Permanent

Potential Critical Habitat

☒ None ☐ Nursery Habitat ☐ Season Refugia ☐ Unknown

☐ Spawning Habitat ☐ Other: _____

Comments: _____

Sketch

See photos → No system to sketch

Other Monitoring Conducted

☒ None ☐ Water Quality Sampling ☐ Flow Monitoring ☐ Fish Sampling ☐ Benthic Sampling ☐ Mussel Sampling

GENERAL SITE INFORMATION FIELD SHEET

Project: 49130-100 Bostwick (Westwinds)
Date: March 17, 2022 Project Manager: MC
Collector(s): VS AL Visit #:
Time started: 9 AM Time finished: 12:30 PM Combined collectors' hours:
☐ NHIC List ☐ MNR EO's ☐ none ☐ not provided to collector

WEATHER CONDITIONS				
Temp.	Wind: 2		Cloud Cover (%)	Precipitation
2°C	Direction: E		10%	Today: No Yesterday: No

WIND SCALE	
0	Calm
1	Smoke Drifts
2	Wind Felt on Face
3	Leaves in constant motion
4	Wind raises dust and paper
5	Small trees sway
6	Large branches sway
7	Lots of resistance when walking into
8	Limbs breaking off trees

DATA FOCUS

☐	Birds 1__ 2__ Mig__	☐	ELC's	☐	Dripline/Tree Survey
☐	Mammals	☐	Floral V__ S__ A_	☒	Aquatic - Physical
☒	Amphibians 1_ 2_ 3_	☐	Wetland	☐	Aquatic - Biological
☐	Reptiles	☐	Butternut (BHA)	☐	Faunal Habitat
☐	Inverterbrates	☐	other SAR	☐	Other - see notes

FEATURES (with GPS co-ordinates where applicable)	Mapped UTM	Follow-up Req'd Yes	No	Who
Man-made Structures: ☐ None observed				
☐ ☒ Barns/Footings/Wells/other(list)				
☒ ☐ Rock Piles				
☒ ☐ Garbage Not a lot				
Natural Vegetation: ☐ None observed				
☐ ☒ Fallen Logs outside woods (#'s)				
☒ ☐ Brush Piles				
☐ ☐ Snags (raptor perch)				
☐ ☒ Tree Cavities (nesting)				
☐ ☒ Sentinel Trees				
☐ ☒ Butternut Identified				
☐ ☒ Mast Trees (6E) ☐ Berry Shrubs (6E)				
Wildlife Features: ☐ None observed				
☐ ☒ Waterfowl nesting (large #'s, # of species)				
☐ ☒ Exposed Banks (nesting swallows)				
☐ ☒ Stick Nests				
☐ ☒ Animal Burrows (>10cm)				
☐ ☒ Heronry				
☐ ☒ Crayfish mounds				
☐ ☒ Sand/gravel on site				
☒ ☐ Marsh/open country/shrub				
☐ ☒ Winter Deer yards				
☐ ☒ Corridor from pond to woods (ampibian movement)				
☐ ☒ Bat corridor (shorelines, escarpments)				
☐ ☒ Bat hibernacula (caves, mines, crevices, etc.)				
Aquatic Features:				
☐ ☒ Perm. pond in woodland ☐ emergents/submergents/logs ☐ temp.				
☐ ☒ Perm. pond in open ☐ emergents/submergents/logs ☐ temp.				
☒ ☐ Water in woodland ☒ pools ☐ flowing ☐ dry Throughout woodland				
☐ ☐ Waterways flowing dry pools				
☐ natural stream ☐ ☐ ☐				
☐ swale ☐ ☐ ☐ ☐ None observed				
☐ open drain ☐ ☐ ☐				
☐ Seeps/Springs ☐ ☐ ☐				

Incidental Observations/Notes:

HDFA, daytime, frogs

* Hedgerow along south removed, some clearing along S woodland edge
* Wetland (Comm 3) has most veg gone, and dirt piled up

6 deer, Killdeer, Cardinal, several crows, Downy woodpecker, Turkey Vulture on snag

#10 Snakeboard – 1 vole (476045 4752745)
Boards gone → 11, 6, 7, 8, 4?

Slightly flowing into wetland comm2 from field, no defined feature

Graphic ☐ Attached or Name L:\ENV\Biological Services\Templates\MTE NEnv_General Field Sheet Checked by Project Manager ☐ Date:

Wetland comm 2 is wet, still a bit frozen (~20 cm deep)

#12 → flooded board
#3 → flooded and frozen
#2 → flooded, snow covered

Lots of ducks + geese in field to W (~40 counted)

#5 → mangled board, cleared near here?

AL, VS
March 17, 2022
49130-100 Field Notes

4

Figure 6: Vegetation Communities
(City of London 2020 Air Photo)

0 1,000
Scale 1:50,000
Key Plan

Legend

1 CUT1/CUW1 Mineral Cultural Thicket/Woodland Ecosite (Buckthorn dominant with Bitternut and Hawthorn) (1.70 ha)

2 MAM2 Mineral Meadow Marsh Ecosite (0.09 ha)

3 Wetland Inclusion (0.06 ha)

Drain

Candidate Bat Maternity Roost Tree

* Locations are approximate and should be verified by survey where necessary.
Print on 11X17, Landscape Orientation
0 50
Scale 1:2500
October 2021

MTE

HDFA 1

Bostwick

Headwater Drainage Features - Up- and Down- Stream

Stream Code	Site Code	Zone	Easting	Northing	Date (YYYY)	(MM)	(DD)	Time (24hr)
	49130-100	17	476021	4752940	2022	03	17	09 09

Stream Name:

Discharge Approximates Baseflow? ○ ⊗ Freshet ○

Upstream Site Length (m):

Access Route: Located off of Bostwick Rd.

Site Description: Agricultural Field with small woodland HDF are recently plowed? No distinct feature present

Optional Features

Water Temp (C)	Air Temp (C)	pH	Conductivity (Ns)	Turbidity (NTV)	Dissolved O_2 (ppm)

Number of upstream features: 2

Upstream Roughness: 2

Photo #: Yes

Photo Name: Refer to File folder

Upstream Feature(s)

Feature Number	Distance (m)	Bearing	Type	Flow	Sediment Transport: Adjacent Feature	Sediment Deposition	Width MT	Feature Width (m)	BF Depth (mm)	Entrenchment Width (m)	Feat. Veg	Riparian Vegetation 0-1.5 m Left	0-1.5 m Right	1.5-10 m Left	1.5-10 m Right	10-30 m Left	10-30 m Right	Upstream Longitudinal Gradient: Method Used	Distance (m)	Elevation Rise (cm)
1	Connct	measure	NO	D	Distinct	2		Feature			1							1		
2	//	//	5	4	—	2		0.3m	285		1									
3	/	//			—	2		195.58												
1																				

Flat slope

476142 4752916 - UTM

Upstream Flow Measure(s)

Record EITHER Hydraulic Head OR Volume OR Distance

Feature Number	Wetted Width (m)	Depth (mm) 1	2	3	Hydraulic Head (mm) 1	2	3	Volume (lt) 1	2	3	Distance (m) 1	2	3	Time (sec) 1	2	3
1	No flow															
2	Minimal flw															
3	No Flw															

Comments:

Point 3 Feature Width Not Defined for Feature width: Three seperate mini channels - refer to photo

HDFA1

If more than 1 downstream feature, complete a second Headwater Drainage form.

Photo #	Photo Name	Photo #	Photo Name	Downstream Site Length (m)

Downstream Feature UTM1: 17T 476267 4752826 UTM2: 17T 476340E 4752770N

Type	Flow	Sediment Transport Adjacent	Sediment Transport Valley	Sediment Deposition	Width MT	Feature Width (m)	BF Depth (mm)	Entrenchment Width (m)	Perched Ht (mm)	Jumping Ht (mm)	Feature Roughness	Feat. Veg	Riparian Vegetation 0-1.5 m Left	0-1.5 m Right	1.5-10 m Left	1.5-10 m Right	10-30 m Left	10-30 m Right	Upstream Longitudinal Gradient Method Used	Distance (m)	Elevation Rise (cm)
1	4			3		1.93	250	127cm			2	5		X			X		1		
	3			2		3.25	125	228.6cm			3	4					X	X			

Flat Slope

Downstream Flow Measure — Record EITHER Hydraulic Head OR Volume OR Distance

Wetted Width (m)	Depth (mm) 1	2	3	Hydraulic Head (mm) 1	2	3	Volume (lt) 1	2	3	Distance (m) 1	2	3	Time (sec) 1	2	3
0.25															

Minimal Flow

Upstream and Downstream Site Features	Category Value	Comments
Major Nutrient Sources Upstream	1	Agricultural Field
Potential Contaminant Sources Upstream	1	Roadside Feature
Channel Hardening	4	None
Dredging or Straightening	4	None
Barriers and/or Dams in proximity	1	Piled up soil & debris separating upstream + downstream
Online Ponds Upstream	4	None
Springs or Seeps at the Site	4	None
Evidence of Channel Scouring/Erosion	1	Yes through agricultural practices + downstream site has some erosion
BMPs or Restoration Activities	4	None

CHANNEL CONNECTIVITY (to downstream) :
☒ Connected ☐ Unconnected

Connected: A surface water flow connection is apparent from the donating feature, to the downstream watercourse with existing or potential overland flow.

Unconnected: A water flow feature that is not connected to the drainage network except by groundwater infiltration. These features drain to kettle wetlands or ponds, etc that have no outlet to the drainage network except via groundwater.

Site Feature Categories
1. Ongoing and active
2. Historical evidence
3. No evidence, but reported
4. No evidence
5. Unknown

Downstream Comments

Measured two potential downstream locations.
1. Measured onsite on east end of property.
2. Measured offsite across Bostwick Rd at culvert.

Crew Leader (initial & last name)	Crew	Recorder
V Schweighardt	AL	VS

HDFA 2.

Headwater Drainage Features - Up- and Down- Stream

Stream Code	Site Code	Zone	Easting	Northing	Date (YYYY)	(MM)	(DD)	Time (24hr)
	49130-100	17	475956	4752825	2022	03	17	

Stream Name:

Discharge Approximates Baseflow? ○ ⊗ Freshet ○

Upstream Site Length (m):

Access Route: Located off of Bostwick Rd.

Site Description: HDFA near / within woodland

Optional Features

Water Temp (C)	Air Temp (C)	pH	Conductivity (Ns)	Turbidity (NTV)	Dissolved O_2 (ppm)
	14				

Number of upstream features: 2

Upstream Roughness: 2

Photo #	Photo Name
Yes	Refer to file folder

Upstream Feature(s)

Feature Number	Distance (m)	Bearing	Type	Flow	Sediment Transport Adjacent Feature	Sediment Deposition	Width MT	Feature Width (m)	BF Depth (mm)	Entrenchment Width (m)	Feat Veg	Riparian Vegetation 0-1.5 m Left	0-1.5 m Right	1.5-10 m Left	1.5-10 m Right	10-30 m Left	10-30 m Right
1			4	4		2			762		3					X	X
2			4	4		2			508		3					X	X
1																	
1																	

Upstream Longitudinal Gradient

Method Used	Distance (m)	Elevation Rise (cm)
1		

Flat Slope

Upstream Flow Measure(s) — Record EITHER Hydraulic Head OR Volume OR Distance

Feature Number	Wetted Width (m)	Depth (mm) 1	2	3	Hydraulic Head (mm) 1	2	3	Volume (lt) 1	2	3	Distance (m) 1	2	3	Time (sec) 1	2	3
1	No channel															
2	No channel															

No flow
No flow

Comments

HDFA 2

UTM: 17T 475956E 4752663N

If more than 1 downstream feature, complete a second Headwater Drainage form

Photo #	Photo Name	Photo #	Photo Name	Downstream Site Length (m)

Downstream Feature

Type	Flow	Sediment Transport Adja-cent	Sediment Transport Valley	Sediment Deposition	Width MT	Feature Width (m)	BF Depth (mm)	Entrenchment Width (m)	Perched Ht (mm)	Jumping Ht (mm)	Feature Roughness	Feat Veg	Riparian Vegetation 0-1.5 m Left	0-1.5 m Right	1.5-10 m Left	1.5-10 m Right	10-30 m Left	10-30 m Right	Upstream Longitudinal Gradient Method Used	Distance (m)	Elevation Rise (cm)
4	4			2	1	0.58	127				1	3					2	2	1		

Flat Slope

Downstream Flow Measure — *Record EITHER Hydraulic Head OR Volume OR Distance*

Wetted Width (m)	Depth (mm) 1	2	3	Hydraulic Head (mm) 1	2	3	Volume (l) 1	2	3	Distance (m) 1	2	3	Time (sec) 1	2	3
0.55															

Minimal flow

Upstream and Downstream Site Features

	Category Value	Comments
Major Nutrient Sources Upstream	1	Within Agricultural Field
Potential Contaminant Sources Upstream	4	
Channel Hardening	4	
Dredging or Straightening	4	
Barriers and/or Dams in proximity	4	
Online Ponds Upstream	4	
Springs or Seeps at the Site	4	
Evidence of Channel Scouring/Erosion	4	
BMPs or Restoration Activities	4	

***CHANNEL CONNECTIVITY** (to downstream) :*

☒ Connected ☐ Unconnected

Connected: A surface water flow connection is apparent from the donating feature, to the downstream watercourse with existing or potential overland flow.

Unconnected: A water flow feature that is not connected to the drainage network except by groundwater infiltration. These features drain to kettle wetlands or ponds, etc that have no outlet to the drainage network except via groundwater.

Site Feature Categories
1. Ongoing and active
2. Historical evidence
3. No evidence, but reported
4. No evidence
5. Unknown

Downstream Comments

Crew Leader (initial & last name)	Crew	Recorder
V Schweighardt	AL	VS

Aquatic Habitat Assessment

Project Name: Bostwick Rd NHS
MTE File No.: 49130-100
Station Name: 2
Date: April 22, 2022
Collectors: VS & MC
Time Started: 13:30
Time Finished: 14:13

Watershed
~~Waterbody~~ Name: Dingman Creek **Drainage System:** Thornicraft Drain
GPS Coordinates: 42°55'37.35"N 81°17'40.53"W
Weather: Overcast **Air Temp:** 16°C
Dimensions: Length (m): Width (m): Depth (m): Bank Slope (%):
Land Use:
Pollution Sources:
Surface Condition: ☒ Calm ☐ Rippled ☐ Wavy ☐ Rough
Type: ☐ Large Lake >5ha ☐ Small Lake ☐ Pond <0.5ha ☒ Reservoir ☐ Dug Pond
Regime: ☐ Permanent ☒ Intermittent **Connection:** ☒ Offline ☐ Online
Water Colour: ☐ Colourless ☒ Yellow/Brown ☐ Blue/Green ☐ Other:
Groundwater Evidence: ☒ None ☐ Springs/Seeps ☐ Vegetation ☐ Iron Staining ☐ Other

Pond/Lake Substrate

Type	Bedrock	Sand	Silt	Clay	Muck	Marl	Detritus
%				20	80		

Shoreline Substrate

Type	Bedrock	Boulder	Cobble	Gravel	Sand	Silt	Clay	Marl	Detritus
%					30	10	60		

General Comments

Snow / rain in last 24 hours
Approximately 1 inch of snow in past 2 days
Common Gartersnake spotted near by

MTE

In-Water Habitat

Underwater Cover		Vegetation			Algae
Type	%	Type	%	Examples	
None	0	None	60		☒ None
Undercut Banks					☐ Slight
Boulders		Submergent	40		☐ Moderate
Cobbles					☐ Heavy
Woody Debris		Floating			
Organic Debris					
Macrophytes		Emergent			

Bank Habitat

Bank Cover		Shore Cover	Migratory Obstructions	
Type	%	% Shaded	☒ None	
None	0	☐ 100-90 %	☐ Seasonal	☐ Permanent
Undercut Banks		☐ 90-60%		
Boulders		☐ 60-30%		
Cobbles		☒ 30-10%		
		☐ 0%		
Woody Debris		**Examples**		
Organic Debris				
Macrophytes				

Potential Critical Habitat

☒ None ☐ Nursery Habitat ☐ Season Refugia ☐ Unknown

☐ Spawning Habitat ☐ Other: _____

Comments: _____

Sketch

See photos

Other Monitoring Conducted

☒ None ☐ Water Quality Sampling ☐ Flow Monitoring ☐ Fish Sampling ☐ Benthic Sampling ☐ Mussel Sampling

Appendix L

NRSI Woodland Patch Assessment (2016)

(AMD version, updated)

Woodland Patch Assessment Score Sheet — March 2006

Criterion	Factors for Evaluation	Score for each Factor HIGH-MEDIUM-LOW		
		Landscape Level	Community Level	Species Level
1.1 Site Protection	a) Presence of hydrological features	LOW		
	b) Erosion and slope protection	LOW		
Score for 1.1: Circle the highest standard achieved for any one of the two standards		**HIGH**	**MEDIUM**	**LOW**
1.2 Landscape Integrity	a) Landscape Richness	LOW		
	b) Landscape Connectivity	LOW		
	c) Patch Distribution	LOW		
Score for 1.2: Circle the highest standard achieved for any one of the three standards		**HIGH**	**MEDIUM**	**LOW**
2.1 Age and Site Quality	a) Community Successional Stage		MEDIUM	
	b) Mean Coefficient of Conservatism of Communities		LOW	
	c) Disturbance related to Human Activity		LOW	
Score for 2.1 : Circle the highest standard achieved for any one of the three standards		**HIGH**	**MEDIUM**	**LOW**
2.2 Size and Shape	a) Patch Size	LOW		
	b) Patch Shape/Interior	LOW		
	c) Conservative Bird Species			LOW
Score for 2.2: Circle the highest standard achieved for any one of the three categories		**HIGH**	**MEDIUM**	**LOW**
2.3 Diversity of Natural Communities and Associated Species	a) ELC Community Diversity	LOW	LOW	
	b) ELC Vegetation Type and Topographic Diversity (variation and heterogeneity)		LOW	
	c) Diversity (species and individuals) & Critical Habitat Components for Amphibians			LOW
	d) Presence of Conifer Cover			LOW
	e) Fish Habitat Quality			LOW
Score for 2.3: Circle the highest standard achieved for any one of the five standards		**HIGH**	**MEDIUM**	**LOW**
3 Endangered and Threatened Species presence		**YES = HIGH**		**NO = no score**

Criterion	Factors for Evaluation	Score for each Factor HIGH-MEDIUM-LOW		
		Landscape Level	Community Level	Species Level
4.1 Distinctive, Unusual or High Quality Natural Communities	a) ELC Community SRANK		LOW	
	b) Specialized or rare species presence/absence			LOW
	c) Size and distribution of large trees		MEDIUM	
	d) Basal Area		LOW	
Score for 4.1: Circle the highest standard achieved for any one of the four standards		**HIGH**	**MEDIUM**	**LOW**
4.2 Distinctive, Unusual, or High Quality Landforms	a) Distinctive Landforms	MEDIUM		
Score for 4.2: Circle the highest standard achieved		**HIGH**	**MEDIUM**	**LOW**

Woodland Patch Evaluation Summary Score sheet March 2006

Assessment for Woodland Significance :

A woodland will be considered as a significant component of the Natural Heritage System and designated as open space based on the following categories:

If one or more criteria meet the standard for High;
If five criteria meet the standard for Medium. Proposed Threshold not yet approved

CRITERION	SCORE
CRITERION 1.1 Site Protection	LOW
CRITERION 1.2 Landscape Integrity	LOW
CRITERION 2.1 Age and Site Quality	MEDIUM
CRITERION 2.2 Size and Shape	LOW
CRITERION 2.3 Diversity of Natural Communities and Associated Species	LOW
CRITERION 3 Endangered and Threatened Species (TE Habitat)	NO SCORE
CRITERION 4.1 Distinctive, Unusual or High Quality Natural Communities	MEDIUM
CRITERION 4.2 Distinctive, Unusual or High Quality Landforms	MEDIUM
SUMMARY OF SIGNIFICANCE OF EIGHT ECOLOGICAL CRITERIA Number of High	0
Number of Medium	3
Number of Low	4
Presence of habitat for Species at Risk	YES (POSSIBLE) NO

Patch Number: Subwatershed: Dingman Creek

Woodland Patch is a Significant Component of the Natural Heritage System: ☐ YES ☒ NO

Refer to Official Plan Policy 15.4.5, Woodlands for the Council approved threshold of significance.

Prepared by: Andrew Dean, NRSI (updated from earlier version)

Date: Sept. 22/16

Appendix M

“Living with Natural Areas” Brochure (UTRCA, 2005)

Living With Natural Areas

a guide for homeowners

Is this information for me?

Natural areas are valuable features of our communities' parks and open spaces. Many citizens, however, may not be aware of these local treasures and the need to protect them. What can you do - whether as a property owner or as someone out to enjoy the scenery and get some exercise - to minimize your impact on natural areas? This brochure answers that question. First, it provides guidelines for those of us who live near natural areas, outlining ways to make the spillover impact from our properties more positive. Next, a "code of behaviour" describes what activities are appropriate in a natural area. The last section lists sources where more information can be obtained.

What is a natural area?

Natural areas include wetlands, meadows, woodlots, valley lands and other relatively undisturbed lands that are home to many different plants and wildlife. Natural areas also include the green spaces and stormwater management ponds found in many new developments.

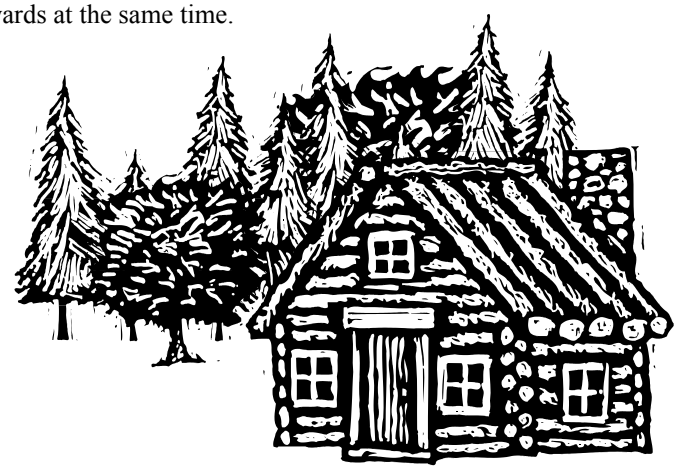
Some natural areas contain rare plants, wildlife or landforms, or have features characteristic of the region before European settlement, or are especially large or diverse in habitat. Many natural areas are considered environmentally significant on a local, regional, provincial or even national scale.

Many municipalities are working to preserve local natural areas. Settlement and development have destroyed much natural vegetation and caused some types of habitat to disappear completely. Often, natural areas contain the only remaining large sections of forest or wetland. They help us to learn about nature, provide clues to the current health of our environment, and add to our quality of life.

Around your home - having a positive impact

The properties that surround natural areas were once part of a wild landscape. Some yards still have remnants of particular habitat types, such as wet areas along the edge of a wetland. As development moves closer to natural areas, trees and other plants that were once in the middle of woodlands or wetlands, shielded by forests, are now exposed.

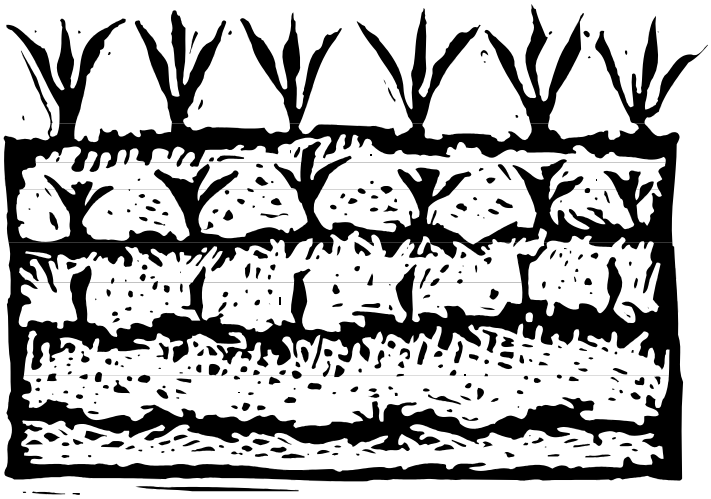
Because urban development sits on the doorstep of many natural areas, what is done in neighbouring yards is critical to their health. Here are some ideas to help home owners to ensure that their activities can help neighbouring natural areas and enhance their yards at the same time.



What about encroachment into natural areas?

Thanks to people who recognize their property limits! If a lawn is mowed past property boundaries into a natural area, the rich habitat is replaced by a manicured lawn and the original diversity is reduced. The cumulative impact of dozens, even hundreds of landowners cutting into the edges of natural areas threatens their integrity.

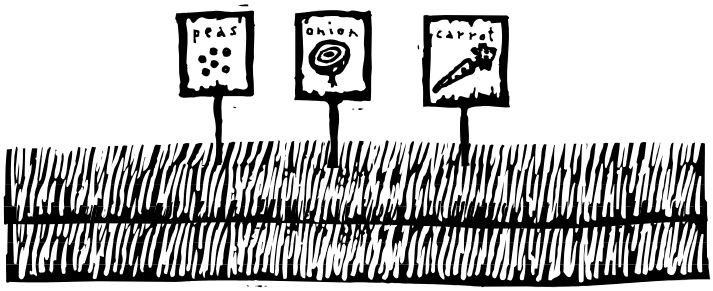
Encroaching past private lot lines into municipal parkland or open space is not permitted and may result in legal proceedings. Call your municipality for more information.



Can I dump my yard & garden waste in a natural area?

Dumped yard waste is bad news for any natural area. Dumped material smothers natural vegetation, may contain harmful chemicals, and often has plant seeds not found normally in the wild. If these materials are dumped in a natural area, the introduced seeds may grow where they fall. Native plants and the wildlife that depends on are constantly under threat from invading non-native plants.

Your local municipality has by-laws concerning dumping waste. For more serious offences, charges can be laid under the Provincial Offences Act, with fines of up to $5000. Call your municipality if you have concerns about waste being dumped illegally.

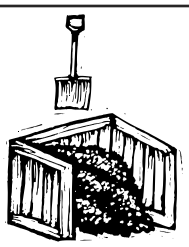


What should I do with yard & garden waste?

The best solution is to reduce and recycle as much as possible, by composting leaves, grass clippings, weeds and other materials on your own property. You reduce the amount of garbage going to landfills and create rich soil for your lawn and garden. If you can't use all your grass clippings, leaves and brush, ask your neighbours if they need more material for their home composters. Alternatively, put your yard waste out for curbside collection, or drop it off at London's Yard Waste Depots.

If you employ a professional gardener, check that proper disposal practices are followed. Reputable commercial gardeners are well aware of the City's yard waste regulations.

If you are having home composting problems, such as visits from unwanted wildlife, call the Rot Line (operated by the Thames Region Ecological Association, or TREA) at 519-672-5991 for free advice.



Is it okay to use lawn and garden chemicals?

Remember that, just as water landing on your property doesn't always stay there, neither may all the chemicals that you put on your lawn, garden or driveway. If your property drains into a natural area, any chemical that you use can be carried by water into that area. By adopting an environmentally friendly approach to yard maintenance, you will enhance both your yard and the natural area beyond.

Here are some tips to follow:

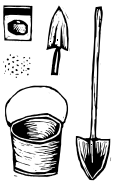
- Add compost to your lawn to fertilize it.
- Use a mulching lawnmower to return nutrients to your lawn.
- Cut your lawn at a high setting to reduce weed growth and retain moisture.
- Water grass early in the morning and allow it to dry out between waterings.
- Use alternative native ground covers in shaded areas.
- If you live next to a natural area, consider creating a buffer strip (up to 5 metres wide) on your property. Plant native shrubs and trees in the buffer to reduce the spillover effect.
- Investigate non-toxic alternatives to chemicals for control of pests, weeds and plant diseases.
- If you have to use pesticides, read the product labels carefully and use only as directed. Dispose of household and pool chemicals safely.

Did you know that, in general, approximately 10 times more pesticides are applied by city home owners than are used by farmers on an equal area of farm land?

Does it matter what I grow in my garden?

Alien alert! Be careful when growing plants that are not native to Southern Ontario. Plants don't recognize property boundaries and can spread easily from gardens to natural areas. Many alien species do not have natural predators here and are extremely invasive. For example, the beautiful European import called Purple Loosestrife is flourishing across North America, invading wetlands and out-competing native plants. As a result, plant diversity is reduced and fewer places remain where native wildlife can survive.

Other common species that out-compete native plants are Norway Maple, Periwinkle, and Goutweed (Goat's Foot). Check with your local nursery to find out which plants are native to your region before purchasing. Native plants are better adapted to the climate, soil conditions, insects and diseases of this area.



Many municipalities or counties have information on plants that are suitable for use near natural areas and which plants to avoid.

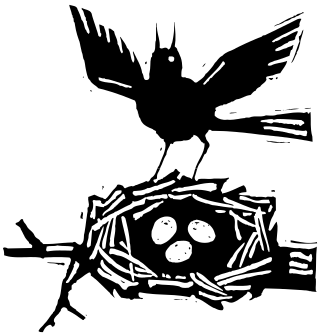
Can I attract wildlife to my yard?

Habitat loss is the number one threat to wildlife today. With time and careful planning, you can create habitat in your back yard and provide a safe haven for many species to visit. Wildlife will be attracted by food, water and shelter, but these elements must be arranged so that birds and animals are not exposed to danger. Cats can have a major impact on bird and animal populations. Keeping your cat indoors from May to July will reduce its impact on nesting birds and small animals. Squirrels drawn to birdfeeders will also eat eggs and nestlings.

A natural area can be a great source of scenic beauty and pleasure. These areas may also be home to insects, such as mosquitoes, that are an important link in the food chain. Suitable clothing and insect repellants will help you avoid becoming part of the chain.

Stepping out in a natural area - "Take only memories, leave only footprints"

Many natural areas are accessible to the public. Local significant areas may contain rare and endangered plants and animals, unique landforms, and habitats that are prized for their high quality and diversity. However, the very features that make them precious are also those that could be easily damaged by thoughtless actions. Most damage occurs when people leave the marked trails and trample vegetation. By following the guidelines below, you can enjoy these natural areas without harming them, and leave them in a healthy state for their "residents" and future visitors.



Rules to remember in a natural area

- Please use the official access points and managed trails. Don't create or use trails that originate in people's backyards, as these additional trails cause more widespread trampling and disturbance of wildlife and plants.
- Avoid walking in natural areas when the trails are muddy, such as in the early spring or after a heavy rainfall. More vegetation gets trampled when people have to walk around mudholes.
- Please respect signs indicating that bicycles are not permitted in a natural area.
- Keep natural areas litter free.
- Keep dogs leashed. Cats and dogs are hunters by nature. If allowed to run loose, they put great stress on or kill birds and small animals. Don't forget to stoop and scoop!
- Do not disturb wildlife or pick or transplant flowers.

Can I take anything from a natural area?

Natural areas are often the only wild place remaining for rare native wildflowers to grow. These plants may have complicated life cycles or need seeds from existing flowers to regenerate the next year. Removing even a few plants can jeopardize the remaining population. Some garden centres stock a wide variety of native plants, trees and shrubs. These have a much better chance of surviving in your yard as they have been raised under similar soil and light conditions.

It is tempting to pick plants for food or herbal remedies, but this practice, just like transplanting, is not appropriate or sustainable. Even a few people picking plants can put the local population of that species in danger. Besides, those plants have a more important role in the natural environment than as food or medicine for humans!

A natural area is no place to find firewood or lawn decorations. Taking dead wood from a natural area will hurt that area's health in the long-term. As wood decays, it contributes nutrients to the soil and provides food and shelter for thousands of tiny organisms. In addition, new growth often depends on old stumps and logs. Cutting trees and brush destroys habitat, tramples vegetation and disturbs wildlife.

Enjoy wildlife when you discover it, but leave it in its natural setting. Don't make survival harder by taking animals out of their homes, leaving fewer behind to carry on. It is impossible to give a wild animal the proper care and nutrition to keep it healthy and happy. Also, it is illegal to keep wild animals, even injured ones, in captivity without a permit.

You can help out the local naturalist and trail groups that regularly remove litter from the natural areas. Pick up any litter that you find and dispose of it properly, and, of course, don't leave any more behind!

Beware!

If you encounter a plant with three shiny green leaflets, leave it alone! You may have found poison ivy, which is abundant in many natural areas. Many people get nasty rashes from the sap of this plant, whether from direct contact with the leaves, roots and stems or from touching pets or equipment that have the sap on them. Remember, though, that poison ivy is part of the food chain, growing berries that are edible for birds and animals. Learn to recognize and avoid it, rather than trying to get rid of it. Poison ivy is usually found in partial shade as a knee-high ground cover, but can also grow as a vine up tree trunks. "Leaflets three, let it be!"

Deer, Deer!

If you are bothered by deer foraging in your backyard, here are some suggestions to protect your garden.

Make your garden unpalatable - Garden centres and the Internet are good sources of information on "deer proof plants." Beebalm, bleeding heart, butterfly bush, cone flower, foxglove and rhododendron are among the plants that deer don't like eating.

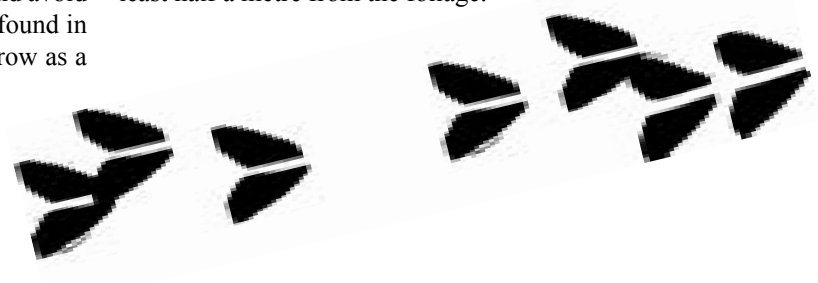
Make the fringes unpalatable - Surround your property with unpalatable and repellent native plants, and the deer may decide to forage elsewhere. Cedar and yew are delicacies for deer and should be avoided. White spruce, tamarack and juniper are good substitutes as deer will avoid them.

Block the view - Deer want an unobstructed view to see approaching predators and do not like to venture past anything that they cannot see through or over. A trellis covered in vines may discourage them.

Block the landing sites - Deer will not jump into your yard if they cannot see where they will land. Wooden fences or lattices that obstruct their view are a good deterrent.

Tidy up - Pick fruit such as apples and pears as they ripen, and remove or till under plants in the vegetable garden after harvest.

Fence them out - Specific trees or beds can be protected with mesh or screen. The barriers should be at least two metres high and at least half a metre from the foliage.



Where can I find out more?

More information on being a good natural neighbour:

- For composting tips call the "Rot Line" at 519-672-5991. This free service is offered to the public by the Thames Region Ecological Association (TREA).
- *Backyard Habitats* (pamphlet) and *Natural Invaders* (booklet). Available from the Federation of Ontario Naturalists at 1-800-440-2366, www.ontarionature.org
- Johnson, Lorraine, 1995. *The Ontario Naturalized Garden*. Whitecap Books, Toronto, Ontario.
- Ministry of Natural Resources, 1990. *Landscaping for Wildlife*. Queen's Printer for Ontario, Ontario.
- Rubin, Carole, 1989. *How to Get your Lawn & Garden off Drugs*. Friends of the Earth, Ottawa, Ontario.

This brochure was published in 2005 by the Upper Thames River Conservation Authority, and based on *Living with Natural Areas - A Guide for Citizens of London*, originally produced by the Upper Thames River Conservation Authority, the City of London's Ecological and Environmental Planning Advisory Committee, and Celebrate the Thames.

UPPER THAMES RIVER
CONSERVATION AUTHORITY
Inspiring a healthy environment
1424 Clarke Road, London, Ontario N5V 5B9
519-451-2800 www.thamesriver.on.ca

Appendix N

Environmental Management Plan (EMP)

MTE Consultants
123 St. George St., London, Ontario N6A 3A1

September 20, 2023

MTE File No.: 49130-100

Amiraco Properties Inc.
470 Dundas St. Suite 106
London, ON N6B 1W3
mmeddaoui@yorkproperty.ca

Dear Mike,

RE: ENVIRONMENTAL MANAGEMENT PLAN (EMP) FOR WESTWINDS SUBDIVISION AT 3563 BOSTWICK ROAD, LONDON, ON

Amiraco Properties (the 'Proponent') has initiated the Draft Plan of Subdivision approval and zoning amendment process for residential development (the 'Project') at 3563 Bostwick Road, southwest of the intersection with Pack Road, in the City of London (the 'Subject Lands'). MTE Consultants has been retained to prepare an Environmental Impact Study (EIS) and Environmental Management Plan (EMP) for the proposed development. The EIS (MTE, 2023) provides recommendations for avoidance and mitigation measures to protect adjacent significant natural heritage features. This EMP has been prepared to complement the EIS and provide the mitigation and monitoring recommendations in the order to be completed.

Based on the analysis of the Subject Lands in the EIS (MTE, 2023), the significant features identified on or adjacent to the Subject Lands are:

- Woodland
- Wetlands
- Valleyland (adjacent lands)
- Significant Wildlife Habitat (Terrestrial Crayfish SWH in Community 1)
- Fish Habitat (downstream contributions to Thornicroft Drain)
- Potential Habitat Endangered Species (Endangered bat species in Community 1)

1.0 Pre-Construction

Pre-construction planning includes defining the project, development design, identifying potential risks, and mitigating risks before development begins. The recommendations are to be completed prior to the initiation of construction activities.

Buffer Establishment

The proposed Draft Plan provides adequate buffers and setbacks to natural heritage features [**Figure 11**; MTE, 2023] taking into consideration the feature functions and sensitivities. Buffers and setbacks are outlined in Section 7.0 of the EIS (MTE, 2023), but will be restated here for clarity. Buffers are defined as areas to be naturalized between the development and natural heritage features; setbacks are the distance between the development and the natural heritage feature to be protected from impacts.

Table 1: Proposed Buffers and Setbacks

Natural Heritage Feature	Buffer/Setback
Community 2 (MAM2)	A minimum 15 m buffer of retained vegetation is provided for this feature. The buffer extends up to or beyond 30 m between the wetland and the proposed development.
Woodland (Community 1)	No buffer is proposed, so the conceptual 10 m buffer for the existing woodland has been included in the target compensation area calculations. The proposed 5 m pathway will act as a setback or transition zone between the development and the enhanced woodland corridor.

Other Design and Pre-Construction Considerations

Recommendation 1.1:
A Tree Preservation Report (TPR) should be completed by a Certified Arborist in conjunction with the grading plan for the trees to remain within the Subject Lands. Mitigation measures to protect retained trees should be provided.

Recommendation 1.2:
Install tree protection fencing after vegetation removal and prior to any construction activities within the Subject Lands. Locations for tree protection fencing will be outlined in the TPR. Tree protection fencing may be able to be combined with ESC fencing.

Recommendation 1.3:
Exterior lighting within the development area should be fully shielded and pointed downward to minimize skyglow, glare, and light trespass into the woodland post-construction.

Recommendation 1.4:
Maintain and improve the wetland function of Community 2 through retention of wetland area and maintenance of downstream surface water drainage through redirection of seasonal flow to a designated naturalized swale.

Recommendation 1.5:
Refer to the Hydrogeological Assessment (EXP, 2023) for recommended LID and other mitigation measures, as well as water balance calculations. Refer to the SWM Brief (AGM, 2023) as well for controls to meet hydrogeological objectives. LID or other measures are needed to reduce runoff so hydrological inputs will be sufficient to maintain Community 2 (MAM2) and its associated drainage system (HDF2) post-construction. Maintenance of pre-development surface water inputs should be considered when finalizing SWM design.

Recommendation 1.6:
Maintain water quality and pre-development levels of surface water conveyance to Thornicroft Drain through the existing culvert or proposed SWM system to the east. Water balance calculations should be completed to evaluate anticipated flows post-construction and help inform SWM design.

Recommendation 1.7:
Water quality will need to be accounted for in the design of any mitigation measures (i.e., LID measures) to account for potential impacts from contaminant sources such as winter maintenance on roads and parking lots (EXP, 2023).

Recommendation 1.8:
Erosion and sediment control measures must be implemented prior to and during construction to prevent impacts to the retained wetland area.

Recommendation 1.9:
A detailed interim stormwater management plan is needed to guide the construction phase and protect the wetland features. Stormwater must be discharged away from the retained Wetland and Woodland. This should be provided along with LID measures at detailed design.

Recommendation 1.10:
Robust sediment and erosion control fencing should be installed along the north and east side of the retained Wetland (Community 2) and Woodland, and around the east culvert (Community 3). The exact location of ESC fencing should be determined on the grading plan. ESC fence installation should occur after vegetation removal but prior to construction activities on site. The fence should act as a barrier to keep construction equipment and spoil away from the vegetation to remain and prevent erosion and sedimentation of the Wetland and Woodland features and downstream systems.

Recommendation 1.11:
Sediment and erosion control fencing should be installed according to the *City of London Design Specifications and Requirements Manual* specifications (2019) and *The Erosion and Sediment Control Guide for Urban Construction* (TRCA, 2019).

Recommendation 1.12:
Sediment and erosion control fencing should be inspected prior to construction to ensure it was installed correctly.

Recommendation 1.13:
Stockpile locations should be determined at detailed design. Soil stockpiles should be established in locations where natural drainage is away from the Wetland (Community 2) and culvert if possible. No soil should be stockpiled in close proximity to these features. If this is not possible and there is a possibility of any stockpile slumping and moving toward the edge of these hydrological features, the stockpiles should be protected with robust sediment and erosion control. Access to the stockpile should be confined to the up-gradient side.

Recommendation 1.14:
A Best Management Practice (BMP) and spill contingency plan (including a spill action response plan) should be in place for fuel handling, storage, and onsite equipment maintenance activities to minimize the risk of contaminant releases as a result of the proposed construction activities (EXP, 2023).

2.0 During Construction

These recommendations are to be conducted from initiation of construction activities until a specified build-out stage as determined in consultation with the City of London.

Recommendation 2.1:
Removal of trees >10 cm DBH should occur between October 1 and March 31, outside of the active bat season, to avoid potential impacts to roosting bats. This includes dead standing trees.

Recommendation 2.2:
Alter the Valleyland (HDF2) and replace Community 3 with SWM/LID measures outside the spring freshet period to limit interruption to downstream systems.

Recommendation 2.3:
Avoid vegetation clearing and site disturbance during migratory bird breeding season (April 1 to August 31) to ensure that no active nests are removed or disturbed, in accordance with the *Migratory Birds Convention Act* and/or Regulations under that Act. If works are proposed within the breeding season, the area should be checked for nesting birds by a qualified person prior to any vegetation removal or ground disturbance. If nesting birds are present, works in the area should not proceed until after August 31 or until the nest has been confirmed inactive (e.g., young have fledged).

Recommendation 2.4:
Dust abatement measures (e.g., watering) are recommended if the site grading will occur during extended dry weather periods.

Recommendation 2.5:
Equipment should be cleaned prior to arrival on site including tires, undercarriage, and any part of the equipment that may transport invasive seeds to the site. Clean equipment protocols are provided by London's *Invasive Plant Management Strategy* (2017) and should be followed where appropriate.

Recommendation 2.6:
Sedimentation controls during site grading work must help control and reduce the turbidity of runoff that could flow to surface water features (i.e., the retained wetland and headwater drainage features to be altered) (EXP, 2023).

Recommendation 2.7:
Roof runoff to bare ground can generate considerable sediment movement beyond the construction limits. Until the grounds have been vegetated and stable for housing and development adjacent to vegetation, roof leaders should be directed to the streets or nearby stabilized vegetated areas.

Recommendation 2.8:
Regular cleanup of the Subject Lands must be completed during construction to ensure the adjacent natural heritage features are not degraded.

Recommendation 2.9:
Contractors working at the site should ensure that construction equipment is in good working order. Equipment operators should have spill-prevention kits, where appropriate (EXP, 2023).

Recommendation 2.10:
Noise disturbance during construction should be limited to allowable hours per City of London By-law.

Recommendation 2.11:
Make workers aware of potential incidental encounters with wildlife and the necessary protections. If an animal (protected or not) enters the work site, work at that location will stop and the animal should be permitted to leave without being harassed. If there are repeat observations of wildlife in the work area, barrier fencing may be used to direct wildlife away from active construction and toward natural areas.

Recommendation 2.12:
No Bank Swallow [THR] were observed within or adjacent to the Subject Lands, however creation of suitable habitat (e.g., soil stockpiles) during construction should be avoided. Best management practices for deterring nesting during construction activities should be implemented (OMNRF, 2017). These measures should include stockpile slope management

(i.e., grading stockpiles, eliminating vertical extraction faces, reducing slopes to 70 degrees or less) until at least July 15.

Monitoring Phase 1 - During Construction

The construction monitoring plan will monitor for construction-related impacts, document successes or deficiencies of the implemented mitigation measures, and provide guidance on remedial actions for circumstances when mitigation is not successful [e.g., Erosion and Sedimentation Control (ESC) measures]. This plan should continue from clearing and grubbing through to apartment building construction until grounds adjacent to natural features are vegetated and stabilized. This plan will be developed during the detailed design stage. Reports should be made available to the UTRCA and City design services staff.

Recommendation 2.13:
Sediment and erosion control fencing should be inspected regularly during construction to ensure that the fencing is being maintained and functioning properly. Checks after storm events are also recommended. Any issues that are identified should be resolved as quickly as possible, ideally the same day.

3.0 Post-Construction

These recommendations are to be carried out following construction until the end of the Assumption of Development Stage.

Recommendation 3.1:
Sediment and erosion control fencing should not be removed until adequate re-vegetation and site stabilization has occurred. Additional re-vegetation plantings and/or more time for vegetation to establish may be required; however, two growing seasons are typically sufficient to stabilize most sites.

Recommendation 3.2:
All disturbed areas should be re-seeded as soon as possible to maximize erosion protection and to minimize volunteer populations of invasive species which may spread to the adjacent feature.

Recommendation 3.3:
Regular cleanup of the Subject Lands must be completed post-construction to ensure the adjacent natural heritage features are not degraded.

Recommendation 3.4:
Provide new residents with the brochure “Living with Natural Areas” (UTRCA, 2005) to encourage stewardship and responsible living practices near natural heritage features. This brochure addresses encroachment, invasive species, yard waste and garbage disposal, lawn/garden chemicals, trail creation, vegetation trampling, and pets among other important impacts to natural areas.

Recommendation 3.5:
Provide waste disposal bins along the proposed 5 m pathway to discourage littering next to the Open Space corridor.

Recommendation 3.6:
Limit the use of commercial fertilizers and other chemical applications in the landscaped areas bordering the Open Space corridor and retained woodland (EXP, 2023).

Recommendation 3.7:
Consideration may be given to using grass varieties in the landscaped areas which are heartier and require less extensive watering or fertilizers (EXP, 2023).

Recommendation 3.8:
Limit the use of salts or other additives for ice and snow control on the roadways and parking areas (EXP, 2023).

Naturalization and Restoration

This section provides recommendations for the proposed enhanced natural corridor within the Subject Lands and other naturalization areas. A detailed landscape plan should be provided at detailed design.

Recommendation 3.9:
All naturalized areas (i.e., enhanced OS corridor) should incorporate species native to Ecoregion 7E that are suitable to the existing soil conditions of the Subject Lands. The goal for community creation in the corridor should be a deciduous woodland contiguous with the existing Woodland. Suitable tree species may include Sugar Maple, Bitternut Hickory, Ironwood, Black Cherry, and Basswood. A landscape plan should be provided at detailed design.

Recommendation 3.10:
Understory and ground layer plant species should be incorporated into the restoration and naturalization plan through seeding where the ground is disturbed during construction and/or not already naturalized with native species. Seed mixes should consist of species native to the Ecoregion (7E), adapted to the site conditions, and approved by the City of London.

Recommendation 3.11:
Invasive species management should be completed using best management practices (City of London, 2017) within the retained Woodland, with a focus on Buckthorn removal. After invasive species removal, restoration can be completed using suitable woodland native species. Restoration details should be provided at detailed design.

Recommendation 3.12:
Naturalize the vegetated swale in the south adjacent drainage feature block with species native to Ecoregion 7E after construction is complete.

Recommendation 3.13:
Install two rocket-style bat boxes in a suitable location (e.g., along the OS corridor edge or in the east habitat compensation area) as greater than 2:1 habitat compensation. Rocket-style bat boxes replace tree habitat at a rate of one box per five habitat trees removed. The location of the bat boxes should be incorporated into the landscape plan at detailed design. A conceptual location is shown on **Figure 11** of the EIS (MTE, 2023). Installation of the bat boxes should be advised by a qualified professional.

Recommendation 3.14:
The proposed culverts under Street A and Bostwick Road should be oversized to facilitate wildlife movement. The Bostwick Road culvert should have both terrestrial and aquatic characteristics.

Monitoring Phase 2 – Post-Construction

Long-term post-construction monitoring shall evaluate the success of the proposed active naturalization efforts and planting compensation, as well as areas of invasive species management. Monitoring should be undertaken at Year 1 of Open Space corridor planting (e.g.,

plant warranty) to document survivorship or replacements, and at Year 3 to document plant establishment and growth. Remedial actions are triggered if effects exceed pre-determined thresholds (e.g., supplemental plantings if survival rates are low, additional invasive species management). Recommendations for monitoring are:

- Encroachment into the OS corridor should be monitored for two years (Years 1 and 2) starting once the development is at 80% build-out. Monitoring should include looking for litter, informal trail creation, mowing, and other impacts. Annual reports must be provided to the City of London. Additional strategies should be implemented if required.
- Additional strategies should be tailored to the encroachment issue, but may include the addition of signage, adding or repairing fences, installing monitored garbage cans, additional homeowner awareness, or other strategies.
- Vegetation monitoring in the Open Space corridor should be completed for two years (Years 1 and 3) after planting to document compliance with the plans and establishment of planted material. Monitoring in Year 1 (e.g., plant warranty) should document success of seed germination and confirm the correct seed mix and/or species were used. Monitoring in Year 3 should document plant establishment and growth.
- Implement adaptive management strategies when required such as supplemental plantings, and/or control of non-native invasive species. Adaptive management may be triggered by poor survival of planted material (70% survival is target) or insufficient native vegetation cover (80% natural groundcover is target).
- Adaptive management strategies within the OS corridor will depend on the problem encountered but may include removal of invasive species (refer to the Best Management Practices from the Ontario Invasive Plant Council for the appropriate method), reseeding or replanting with target species, or increasing the frequency of monitoring.
- As suggested by EXP, consider post-development water quality testing in the retained wetland area to monitor for changes.

This Environmental Management Plan has provided recommendations to protect significant natural heritage features from both direct and indirect impacts through avoidance, mitigation, management, and monitoring. Timelines (pre-, during, and post-construction) have been outlined. Provided these recommendations are followed, it is our opinion that the proposed development will have no significant impacts on the adjacent natural heritage features.

Yours Truly,

MTE Consultants Inc.

Allie Leadbetter, B.Sc.
Ecologist
519-204-6510 ext. 2243
aleadbetter@mte85.com

Dave Hayman, M.Sc.
Senior Biologist
519-204-6510 ext. 2241
dhayman@mte85.com

AXL:sdm
\\mte85.local\mte\Proj_Mgmt\49130\100\05-Reports\Environmental Impact Study\Appendices\Appendix N - EMP\49130-100_EMP_2023-09-20.docx