1176 Crumlin Sideroad

Focused Environmental Impact Study (EIS)

Project Location:
1176 Crumlin Sideroad, London, ON

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Contents

Figures

Tables

Appendices

1.0 Introduction

Peter Drankowsky (the 'Proponent) has initiated the Draft Plan Approval and Zoning By-Law Amendment approval process for the severance of a lot into three parcels (the 'Project') on a property located at 1176 Crumlin Sideroad, south of Dundas Street, in the City of London (the 'Subject Lands'). The property is approximately 3.3 ha and is located on Lot 1, Concession 1 North Division Dorchester.

The Legal Parcel is referred to as the Subject Lands throughout this report [Figure 1]. The Subject Lands were the focus of field investigations for the Focused Environmental Impact Study (EIS), as well as a desktop review in the 120 m adjacent lands.

Through discussions with the City of London, it has been determined that a Focused EIS is appropriate for this Project. The objective of this type of EIS will be discussed in Section 1.1, below, while the pre-consultation history with the City is provided in Section 1.4.

1.1 Report Objective

This report is a Focused EIS as requested by the City of London and agreed-upon by UTRCA. A Focused EIS is appropriate where a commitment by the proponent is made to establish ecological buffers for natural heritage features that meet or exceed the City of London's minimum buffers as per the *Environmental Management Guidelines* (City of London, 2021). The typical detailed natural heritage field studies have therefore been waived and the focus of this EIS will be on the identification of natural heritage features and confirmation of buffers. Mitigation measures will also be provided to ensure the proposed buffers are effective and potential indirect impacts are limited.

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 Focused 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 (2021).

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

This Focused 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:

- Upper Thames River Source Protection Area Assessment Report (Thames-Sydenham and Region Source Protection Committee, 2015)
- Record of Pre-Application Consultation – 1176 Crumlin Sideroad (Nancy Pasato, 2022)

- Plan of Survey Showing Topographical Detail – Lots 15 and 16, Registered Plan No. 17(C) (AGM, 2022)

1.4 Pre-Consultation and Site History

A Proposal Summary was submitted by the Proponent to the City of London on December 23, 2021 and reviewed by City Staff at an Internal Review Meeting on January 13, 2022. A Record of Pre-Application Consultation was subsequently provided to Strik Baldinelli Moniz (SBM; Simona Rasanu, Planner), dated January 18, 2022. The Record of Pre-Application Consultation outlines the major concerns and comments from the City of London regarding the proposed Project. In addition, this document outlines the City's option for a Focused EIS. City staff stated that for a complete application, a full SLSR could be waived (including field study requirements) if a suitable buffer to the drain was provided. The City comment states, "In this case, a buffer of 30 m on each side of the high-water mark would be required surrounding the water feature associated with the Significant Valleylands feature". It was later confirmed with City of London Ecologist Planner Shane Butnari in late April 2022 that the buffer should be 30 m to either side of the high-water mark plus any contiguous woodland. The comments that are related to ecology and the Focused EIS will be addressed in this report. The Record of Pre-Application Consultation is provided in Appendix A.

A Scoping Meeting was held on August 19, 2022, with Shane Butnari (City Ecologist Planner), Mike Serra (UTRCA), Sandy Levin (ECAC), Steve Evans (ECAC), Kiana Lee (ECAC), Peter Drankowsky (Proponent), Simona Rasanu (SBM Planner), Melissa Cameron (MTE Ecologist) and Allie Leadbetter (MTE Ecologist). The Scoping Checklist was finalized and approved by Shane Butnari on October 21, 2022. The Scoping Checklist is provided in Appendix B.

A site visit was completed on August 31, 2022, with Will Huys (MTE Plant and Wildlife Technician), Allie Leadbetter, Shane Butnari, Mike Serra, Peter Drankowsky, and Simona Rasanu to review the staked woodland dripline, as well as discuss the buffers within the Subject Lands. The final revised woodland dripline was surveyed by AGM and will be used in this Focused EIS.

2.0 Land Use Setting and Policy Overview

The Subject Lands are comprised of an existing residential property, agricultural fields, and natural vegetation communities along an open drain. The surrounding area is primarily residential and agricultural, with a commercial region further to the southwest.

Federal, provincial, and municipal legislation and policies, summarized in an overview below, were reviewed to inform the evaluation of significant natural heritage features on the Subject Lands.

2.1 The London Plan

The London Plan (2021) 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 2021). Development and site alteration is not permitted within or adjacent to Unevaluated Wetlands, Provincially Significant Wetlands, Significant Valleylands 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 Environmental Classifications

Map 5 (City of London, 2021) identifies a Significant Valleyland associated with a drain (Loveless Municipal Drain) passing north to south through the Subject Lands and extending to adjacent lands (OMAFRA, 2022). No other natural heritage features are shown within or adjacent to the Subject Lands on Map 5 [Figure 2].

2.1.2 Land Use Designations

The Subject Lands are shown on Map 1 (City of London, 2021) to be located outside the Urban Growth Boundary [Figure 3]. Place Types within the Subject Lands include Rural Neighbourhood in the west, Farmland in the east, and Green Space associated with the Significant Valleyland.

Place Types in the surrounding area primarily include Neighbourhoods to the north and west, and Farmland to the east. The Green Space designation follows the Significant Valleyland to the north and south.

2.2 City of London Zoning Bylaws

The west Subject Lands are zoned Agricultural 1 (AG1), and the east is zoned Agricultural 2 (AG2) [Figure 4]. The AG1 Zone permits a wide range of non-intensive agricultural uses, whereas the AG2 Zone variation permits intensive and non-intensive agricultural uses (Zoning By-law No. Z.-1). The west driveway is zoned Residential 1 (R1-11) which provides for and regulates single detached dwellings.

The drain through the property is zoned Open Space (OS4). The OS4 variation is intended to be applied to hazard lands, and development proposed there will be regulated by the Conservation Authorities Act. In this case, the floodway of the drain is the associated hazard.

2.3 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, wetlands and the surrounding area, and requires that landowners obtain written approval from the Authority prior to undertaking any site alteration or development within the regulation limit.

The Upper Thames River Conservation Authority (UTRCA) regulations within the Subject Lands are primarily associated with the flood and erosion hazard of the drain flowing through the property [Figure 5]. An area in the southwest is also regulated due to a flood hazard. These regulation areas will be discussed further in this EIS.

2.4 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.

2.5 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. No contraventions of the *ESAct* are anticipated, and this will be discussed further later in this EIS.

2.6 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).

This Focused EIS will take into account the potential fish habitat in the drain and, through avoidance or additional mitigation, ensure the federal Fisheries Act is not contravened.

2.7 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.

2.8 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

When a development proposal requires a Planning Act application (i.e., Draft Plan submission, or amendments to the Official Plan and/or zoning by-law), the City of London requires an EIS to be completed where development or site alteration is proposed within or adjacent to the Natural Heritage System, as set out in Table 13 (Areas Requiring Environmental Study) of the London Plan (2021a).

The Proponent is proposing the severance of the Subject Lands into three parcels with the construction of two single family detached houses on two of the parcels. Based on the London Plan Maps 1, 5, and 6 (2021a), the triggers for the Environmental Impact Study (EIS) are as follows:

- Proposed development within 120 m of potential Fish Habitat
- Proposed development within 120 m of Significant Valleylands
- Proposed development within 30 m of a Significant Groundwater Recharge Area and Highly Vulnerable Aquifer

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.

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 using satellite imagery.

4.1 Physical Setting

4.1.1 Physiography

The Subject Lands are underlain by Middle Devonian aged limestone, minor dolostone, and shale of the Dundee Formation based on mapping from the Ministry of Northern Development, Mines, Natural Resources and Forestry (MNDMNRF, 2017). Bedrock is not exposed in the area of the Subject Lands. Physiographic regional mapping indicates that the Subject Lands are situated within the Sand Plains (MNDMNRF, 2017).

4.1.2 Soils

The Subject Lands are located in an area of ice-contact stratified deposits based on OGSEarth surficial geology mapping (MNDMNRF, 2017). These deposits include sand and gravel, minor silt, clay, and till. No site-specific soil investigations have been completed.

4.1.3 Topography

The topography in the general region is very gently sloping to nearly flat (Hagerty & Kingston, 1992). The Subject Lands are generally flat (AGM, 2022). The drain is approximately 1.5 m deep from top of slope to the bottom of the ditch (AGM, 2022).

4.1.4 Surface Water Features

A drain flows approximately north to south through the Subject Lands. This drain is identified as "Loveless Drainage Works -1998" on the Ministry of Agriculture, Food and Rural Affairs mapping (OMAFRA, 2022) and "Loveless Municipal Drain" on UTRCA mapping (2022) [Figure 5]. The drain flows south to Waubuno Creek approximately 2.9 km downstream. The drain is classified as a Class F drain by DFO (AgMaps, 2022), indicating it is an intermittent drain that is dry for at least three months of the year (Kavanagh, Wren, & Hoggarth, 2017). Field observations of the Loveless Municipal Drain were limited, but the drain was observed to be clearly channelized on August 31, 2022. This drain is piped north of the Subject Lands.

OMAFRA drain mapping (AgMaps, 2022) shows another constructed drain called Toloczko Drain passing through the Subject Lands and joining with the Loveless Municipal Drain to the south. Toloczko Drain is not apparent in air photos or UTRCA regulation mapping and was not encountered during site visits. Water does appear to pool near the south adjacent residential properties in the spring, but a flowpath was not observed.

4.1.5 Hydrogeology

According to the Upper Thames River Source Protection Area Assessment Report (Thames-Sydenham and Region Source Protection Committee, 2015), the Subject Lands are located within a Significant Groundwater Recharge Area (SGRA) and Highly Vulnerable Aquifer (HVA), although the site-specific recharge conditions are not known (TSRSPC, 2015).

4.2 Biological Setting

This section summarizes the background review of the Subject Lands and 120 m adjacent lands and the results of field investigations completed in 2022.

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), and London Plan Map 5 were reviewed for natural heritage features in and adjacent to the Subject Lands.

A review of the LIO mapping did not identify any natural heritage features (woodlands, wetlands, ANSIs) within 120 m of the Subject Lands, except for a small patch of woodland approximately 117 m west across Crumlin Sideroad. The London Plan Map 5 identified a Significant Valleyland associated with the Loveless Municipal Drain flowing through the Subject Lands and extending to the north and south.

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* (2007). Only Protected Species receive protection for individuals or habitat under the *ESAct*.

Species of Conservation Concern (SOCC) are those listed as Special Concern on the SARO list and species with a provincial ranking of S1-S3. 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 the Ontario Natural Heritage Information Centre (NHIC), Ontario Breeding Bird Atlas (OBBA), Ontario Reptile and Amphibian Atlas database, DFO Aquatic Species at Risk Map, and Citizen Science sources (iNaturalist and eBird) identified several Protected Species and SOCC as potentially present in the area of the Subject Lands. The areas included in the background review vary, including 10 km Atlas squares (OBBA and Ontario Reptile/Amphibian Atlas), a 1 km Atlas square (NHIC), and the 120 m adjacent lands (eBird, iNaturalist). 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. The observation dates are provided for each species where possible. These sources display data for a broad area and therefore provide only a general potential for species presence on or near the Subject Lands.

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

Common Name	Scientific Name	SARO Status	SARA Status	Date Observed (If known)	Source
Red-headed Woodpecker	*Melanerpes erythrocephalus*	END	THR	2001-2005	Birds Canada, 2005
Queensnake	*Regina septemvittata*	END	END	2016	Ontario Nature, 2019
Bank Swallow	*Riparia riparia*	THR	THR	2001-2005	Birds Canada, 2005
Barn Swallow	*Hirundo rustica*	THR	THR	2001-2005	Birds Canada, 2005
Black Redhorse	*Moxostoma duquesnei*	THR	THR	-	DFO, 2019
Bobolink	*Dolichonyx oryzivorus*	THR	THR	2001-2005	Birds Canada, 2005
Chimney Swift	*Chaetura pelagica*	THR	THR	2001-2005	Birds Canada, 2005
Eastern Hog-nosed Snake	*Heterodon platirhinos*	THR	THR	2013	Ontario Nature, 2019
Eastern Meadowlark	*Sturnella magna*	THR	THR	2001-2005	NHIC, 2022; Birds Canada, 2005

In addition to the above list, there are a number of other species that are poorly represented in the background information sources and which may be present within the City of London. These additional species to consider include bat species (Little Brown Myotis [END], Northern Myotis [END], Tri-coloured Bat [END], Eastern Small-footed Myotis [END]), American Badger, Butternut, and American Chestnut [END].

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 10 km of the Subject Lands)

Common Name	Scientific Name	SARO Status	Date Observed (If known)	Source
Bald Eagle	*Haliaeetus leucocephalus*	SC	2001-2005	Birds Canada, 2005
Common Nighthawk	*Chordeiles minor*	SC	2001-2005	Birds Canada, 2005
Eastern Wood-pewee	*Contopus virens*	SC	2001-2005	Birds Canada, 2005
Grasshopper Sparrow	*Ammodramus savannarum*	SC	2001-2005	Birds Canada, 2005
Northern Brook Lamprey	*Ichthyomyzon fossor*	SC	-	NHIC, 2022
Northern Map Turtle	*Graptemys geographica*	SC	2018	Ontario Nature, 2019
Snapping Turtle	*Chelydra serpentina*	SC	2019	Ontario Nature, 2019
Wood Thrush	*Hylocichla mustelina*	SC	2001-2005	Birds Canada, 2005

A complete assessment of habitat for Protected Species and SOCC is provided in Appendix C based on the field surveys described below. Many of these species are determined to be unlikely to be present within the Subject Lands based on habitat requirements. The results of the SAR assessment will be presented in the context of policy protections and appropriate buffers later in this report.

Vegetation Communities

The Subject Lands are currently occupied by cultural meadow (previously agricultural lands), an existing landscaped residential property, and a small woodlot surrounding the Loveless Municipal Drain. Trees are also present around the existing residential home and in hedgerows along property boundaries, particularly to the north and east.

Provincial significance of vegetation communities is based on the rankings assigned by the NHIC (2020). All communities listed in Table 3 are secure in Ontario. ELC communities within the Subject Lands are shown on Figure 6.

Table 3: Ecological Land Classifications for the Subject Lands

Polygon	ELC Code	Description	S-rank
1	CUM	Cultural Meadow	N/A
2	FOD7	Fresh-Moist Lowland Deciduous Forest Ecosite	N/A
3	CUM	Cultural Meadow	N/A

Community 1 is a Cultural Meadow in the south of the Subject Lands in an area previously used for agriculture. Grass species dominate this community, although Goldenrod was also noted to be prominent during a site visit on August 31, 2022. This community has been mowed annually.

Community 2 is a Fresh-Moist Lowland Deciduous Forest Ecosite (FOD7) along the Loveless Municipal Drain flowing through the Subject Lands. Plant species were not investigated in detail for this Focused EIS, but maple trees were noted as well as a large Eastern Cottonwood and a patch of Tree of Heaven in the north near the existing residence.

Community 3 is a Cultural Meadow in the east Subject Lands that includes common forb and grass species. Community 3 was used for agriculture in the past.

The north Subject Lands are residential with an existing single-family home and lawn. This home is accessed via a gravel driveway connected to Crumlin Sideroad. Several sheds are located in the backyard of the house.

4.2.2 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, 2021a). 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 D.

Candidate Seasonal Concentrations of Animals
Bat Maternity Colonies – Community 2 (FOD7)

Candidate Habitats for Species of Conservation Concern Considered SWH
Special Concern and Rare Wildlife Species – Subject Lands

Candidate SWH features were further evaluated using the results of a general habitat field investigation and background review. Targeted field surveys were not completed as this is a Focused EIS. Results of the assessment of significance for SWH are presented in Section 5.0.

4.2.3 Field Investigations

Field surveys were limited based on the scope of this Project and the agreement with the City of London to complete a Focused EIS. One site visit was completed on August 4, 2022, by MTE Plant and Wildlife Technician Will Huys to search for tree species protected under the *Endangered Species Act 2007*, inventory trees within 3 m of the property boundaries, delineate the woodland dripline, and complete a general habitat assessment. All incidental wildlife species observations were recorded, and potential habitat features were noted. Field sheets are provided in Appendix E and MTE staff CVs are in Appendix F.

A second site visit was completed on August 31, 2022, by Will Huys (MTE), Allie Leadbetter (MTE), Mike Serra (UTRCA), Shane Butnari (City of London Ecologist), Simona Rasanu (SBM), and Peter Drankowsky (Proponent) to review the woodland dripline and discuss feature buffers. All incidental wildlife species encountered were recorded.

Protected Species

No floral or faunal species protected under the *Endangered Species Act, 2007* were identified within the Subject Lands during the targeted Species at Risk search on August 4, 2022.

Several snags were observed in Community 2 (FOD7) that may be capable of providing maternity roost habitat for Little Brown Myotis [END], Northern Myotis [END], or Tri-coloured Bat [END]. Bat maternity roost habitat was not confirmed through a targeted survey, so candidate habitat will be assumed to be present in Community 2.

DFO identified the Loveless Municipal Drain flowing south through the Subject Lands as potentially containing Black Redhorse [THR] (DFO, 2019). This is likely because the Loveless Municipal Drain drains directly into Waubuno Creek approximately 2.9 km downstream. Waubuno Creek is identified as critical habitat for Black Redhorse by DFO (2019). The Loveless Municipal Drain is a small drain classified as a Class F drain (intermittent), and therefore is very unlikely to provide the moderate to fast-flowing warmwater river conditions with diverse substrates that Black Redhorse require (COSEWIC, 2005). However, protections for downstream habitat in Waubuno Creek will need to be considered in this Focused EIS.

Incidental Observations

Two Monarch butterflies [SC] were observed flying through Community 1 (CUM) on August 31, 2022. This is the early migratory period for this species.

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 adjacent lands.

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 28, 2021),
- 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 Focused EIS in order to determine which components of the natural heritage system will require additional consideration. Policy (provincial, municipal, and UTRCA) is reviewed below.

5.1 Provincial and Municipal Policy

5.1.1 Significant Wetlands, Wetlands, and Unevaluated Wetlands

No wetlands (significant or unevaluated) are present within 120 m of the Subject Lands (MNRF, 2021). The absence of wetlands within the Subject Lands was confirmed through field investigations.

5.1.2 Significant Woodlands and Woodlands

No Woodlands or Significant Woodlands are identified on Map 5 (City of London, 2021) within 120 of the Subject Lands. A wooded vegetation patch (Community 2) within the Subject Lands will be treated as a Woodland in this Focused EIS. The Woodland boundary was delineated in the field with Shane Butnari (City Ecologist), Simona Rasanu (SBM Planner), Mike Serra (UTRCA), Peter Drankowsky (Proponent), Will Huys (MTE), and Allie Leadbetter (MTE) on August 31, 2022.

5.1.3 Significant Valleylands and Valleylands

A Significant Valleyland is present within the Subject Lands based on Map 5 of the City of London Map 5 (2021). The Significant Valleyland is associated with the Loveless Municipal Drain flowing approximately north to south through the Subject Lands.

5.1.4 Significant Wildlife Habitat

Candidate significant wildlife habitat (SWH) is based on ELC communities that were identified in Section 4.2.2. 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). Candidate SWH identified on or adjacent to the Subject Lands is fully assessed in Appendix D and the results are presented here.

Bat Maternity Colonies

Community 2 (FOD7) contains several snags and may support bat maternity roost habitat. No targeted bat maternity roost surveys were conducted to confirm SWH.

Candidate SWH – Unconfirmed (Community 2 – FOD7)

Species Concern and Rare Wildlife Species

The potential for Special Concern and rare wildlife species within the Subject Lands was evaluated based on a general habitat investigation and a background review [Appendix C].

Two Monarch butterflies [SC] were observed flying through Community 1 on August 31, 2022, during the early migratory season for this species. No Milkweed was noted in Community 1 during site visits, so breeding habitat is not present. This community is grass-dominated and is unlikely to provide especially abundant nectaring opportunities. Community 1 is a culturally impacted grass-dominated community and Community 3 (CUM) is similarly disturbed by mowing and agricultural activities. No Monarch SWH is present within the Subject Lands.

Eastern Wood-pewee [SC] was not observed, however Community 2 (FOD7) may provide appropriate suitable breeding habitat for this species based on the Species at Risk assessment in Appendix C. Eastern Wood-pewee nests in a variety of wooded habitats, including small woodlots and forest edges. No breeding bird surveys were completed, so breeding habitat for Easter Wood-pewee is unconfirmed in Community 2.

As per Policy 1354 of the London Plan (2021), 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 (marshes, tall grass prairie and savannahs, bogs, fens, bluffs, shallow aquatic, and open aquatic types) were not identified within the Subject Lands.

Candidate SWH – Unconfirmed (Eastern Wood-pewee in Community 2 – FOD7)

5.1.5 Areas of Natural and Scientific Interest

No Areas of Natural and Scientific Interest (ANSIs) of provincial or regional significance are present within 120 m of the Subject Lands (MNRF, 2021).

5.1.6 Fish Habitat

The Loveless Municipal Drain within the Subject Lands may contain fish habitat although it is classified as an intermittent (Class F) drain and therefore aquatic habitat may not be available year-round (DFO, 2019). The Subject Lands support downstream fish habitat in Waubuno Creek approximately 2.9 km downstream.

5.1.7 Habitat of Endangered or Threatened Species

A complete habitat screening assessment for Protected Species was completed and is provided in Appendix C. Based on the vegetation communities and habitat features within and directly adjacent to the Subject Lands, the Protected Species that are most likely to be present include protected bat species [END] and Black Redhorse [THR].

Little Brown Myotis [END], Northern Myotis [END], and Tri-coloured Bat [END] maternity roost habitat may be present in Community 2 (FOD7). One potential habitat tree (Sugar Maple) was also identified along the north property boundary [Figure 6]. Several snags were observed in Community 2, but a targeted bat maternity roost survey was not completed to identify all trees with peeling/loose bark, knotholes, or cavities. Habitat will be assumed present in Community 2 for this Focused EIS.

DFO identified the Loveless Municipal Drain as potentially containing Black Redhorse [THR] (DFO, 2019). This is likely because the Loveless Municipal Drain drains directly into Waubuno Creek approximately 2.9 km downstream, which is identified as critical habitat for Black Redhorse. The Loveless Municipal Drain is a small Class F drain (intermittent), and therefore does not provide the moderate/fast flowing warmwater conditions and diverse substrates that Black Redhorse require (COSEWIC, 2005). However, protections for downstream habitat in Waubuno Creek will need to be considered in this Focused EIS.

5.1.8 Environmentally Significant Areas (1367-1371)

No Environmentally Significant Area (ESA) is present within or adjacent to the Subject Lands (City of London, 2021).

5.1.9 Upland Corridors (1372-1377)

No Upland Corridor is mapped within or adjacent to the Subject Lands (City of London, 2021).

5.1.10 Potential Naturalization Areas (1378-1381)

No Potential Naturalization Areas are mapped within or adjacent to the Subject Lands (City of London, 2021).

5.2 Conservation Authority Regulations

The Upper Thames River Conservation Authority (UTRCA) regulations fall across portions of the Subject Lands. The primary regulated area is associated with the flood and erosion hazards of the Loveless Municipal Drain through the Subject Lands. A small area in the southwest is also regulated by UTRCA due to a flood hazard. Any development proposed within the regulated areas will require a Section 28 Permit Application from the UTRCA.

5.3 Summary of Identified Features and Functions

Table 4 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 consideration in determination of appropriate buffers and mitigations in this Focused EIS. Features considered under the PPS are not re-stated under the London Plan.

Table 4: Environmental Considerations for the Study Area

Policy Category	Environmental Consideration	Natural Heritage Feature
Provincial Policy Statement (2020)	Significant Valleyland	Associated with the Loveless Municipal Drain flowing through the Subject Lands
	Significant Wildlife Habitat	• Candidate bat maternity colonies SWH – Community 2 (FOD7) • Candidate Eastern Wood-pewee [SC] SWH – Community 2 (FOD7)
	Fish Habitat	The Loveless Municipal Drain within the Subject Lands may support common fish habitat (DFO, 2019), as well as supports downstream fisheries in Waubuno Creek
	Habitat of Endangered and Threated Species	• Potential habitat for Little Brown Myotis [END], Northern Myotis [END], and Tri-coloured Bat [END] within Community 2 on the Subject Lands • The Loveless Municipal Drain does not contain suitable habitat itself, but it does support downstream critical habitat for Black Redhorse [THR] in Waubuno Creek (DFO, 2019)
London Plan (2021)	Woodland	• Community 2 (FOD7)
UTRCA Regulations	Regulated Area	UTRCA regulates the Significant Valleyland within the Subject Lands due to the flood/erosion hazard and a small area in the southwest regulated due to a flood hazard

6.0 Description of the Development

The proponent is proposing the severance of the existing Legal Parcel into three Parcels [Figure 7]. Parcels 1 and 2 are west of the Loveless Municipal Drain, and Parcel 3 is to the east and includes the drain [Figure 7]. Parcels 1 and 2 will both have developable areas outside UTRCA regulated areas and the finalized OS4 zone that will allow for one single-family home to exist on each parcel. Access to the homes on Parcels 1 and 2 is proposed via Crumlin Sideroad along separate driveways (approximately 10 m wide) with a shared 6.0 m wide access easement that leads to the existing agricultural access path.

The existing agricultural access pathway (maintained grass path several metres wide) provides access over a culvert for farm equipment travelling to the east (Parcel 3). This pathway is shown on Figure 8 and is proposed to be retained for agricultural vehicle access from Parcel 1 to the east field (Parcel 3). Agricultural use of the east property will continue and will not be impacted by the OS4 zoning.

6.1 Ecological Buffers and Pre-Development Considerations

Natural heritage features and functions of the Subject Lands and adjacent lands have been identified and will need to be considered as part of the development proposal.

6.1.1 Public Ownership/Acquisition

In policy section 1404-1407 of the London Plan (2021), the City recognizes not all natural heritage areas will be brought into public ownership or shall be open and accessible for public use. The OS4 zone will remain under the ownership of the Proponent.

6.1.2 Ecological Buffers

Through consideration of the natural heritage features within the Subject Lands, discussions with the City of London through Pre-Application Consultation [Appendix A], and a site meeting with City staff and the proponent, a buffer area 30 m from either side of the high-water mark of the drain is to be designated Open Space 4 (OS4), along with the inclusion of all contiguous woodland vegetation as delineated by the staked dripline [Figure 8]. This buffer fulfills the requirements for a Focused EIS as written in the EMGs (2021) as it provides the minimum ecological buffers for the Significant Valleyland and, in conjunction with other mitigation measures to be discussed, protects all significant features within the Subject Lands.

It should be noted that the OS4 zoning east of the Loveless Municipal Drain will not restrict agricultural uses as Policy 2.1.9 of the Natural Heritage section of the Provincial Policy Statement states “Nothing in Policy 2.1 is intended to limit the ability of agricultural uses to continue” (2020).

This OS4 zone is proposed to protect all significant ecological features that are or may be present within the Subject Lands, and the protection of each of these features will be discussed in greater detail in Section 7.0.

6.1.3 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 the context of mitigation measures and their contribution to the effectiveness of buffers.

7.0 Impacts and Mitigation

This section reviews the development proposal [Figures 7 and 8] and identifies potential impacts to the significant natural heritage features within and adjacent to the Subject Lands. No direct impacts

are anticipated because the OS4 buffer, as discussed in Section 6.1, will protect all significant natural heritage features present. This OS4 zone is shown on Figure 8 and is defined by a 30 m buffer from the high-water mark of the Loveless Municipal Drain and including the staked woodland dripline. The buffer is proposed to be vegetated with native species on the west side of the drain and is discussed further in Section 7.1.

Additional mitigation measures are presented in this section to ensure buffer effectiveness and mitigation of indirect impacts. Mitigation and avoidance measures are shown on Figure 9. At the conclusion of the section, a net effects table [Table 5] is provided for the proposed development application, summarizing potential impacts as well as proposed mitigation measures.

The potential direct impacts of the proposed development on natural heritage features identified in Table 4 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 Vegetation Removal and Tree Protection

No tree removal is required for the proposed severance. The dripline of Community 2 (FOD7) is fully included in the OS4 zone and therefore all trees in this Woodland will be retained and protected from future development.

Portions of the west OS4 buffer which are not currently vegetated will be naturalized with native woodland edge species wherever woodland vegetation is not already present [Figure 9]. This will not include the existing agricultural lane as access to the east field cannot be inhibited.

A Tree Preservation Report was completed by MTE (2022) for trees over 10 cm DBH within 3 m of the proposed severance boundaries. The report was requested by the City of London as a part of the Planning submissions to address boundary trees protected under the *Forestry Act* (2009). The Tree Preservation Report confirmed that no tree removals are required for the proposed severance, however six individual trees along the edge of the residential area are recommended for removal as a preventative/maintenance measure. All trees proposed for removal, except for one Sugar Maple with internal rot, are non-native species and do not provide potential bat habitat or contribute to a woodland feature. Overall tree cover will be maintained and no impact to woodlands or tree cover within the Subject Lands is anticipated.

Recommendation 1:
Naturalize the west OS4 buffer with native species wherever woodland vegetation is not present and provided agricultural access is not inhibited [Figure 9]. An Upland Woodland Edge seed mix suitable for site conditions should be used, as outlined in the Standard Contract Documents for Municipal Construction Projects 2020 Edition (City of London, 2020). 80% coverage is recommended. The contractor should follow the supplier's recommendations for overseeding.

Recommendation 2:
No mowing or encroachment should occur within the Naturalization Area. Small concrete monuments engraved with "OS4 Zone" should be installed along the west boundary of the Naturalization Area to clearly mark the permissible limits of mowing and maintenance. An example of City-designed monuments is provided in Appendix G of this EIS. The conceptual location of the monuments is shown on Figure 8.

Recommendation 3:
A point of access to the existing agricultural access over the Loveless Municipal Drain should be established to retain agricultural access to Parcel 3 from both Parcels 1 and 2, while avoiding the OS4 zone. The proposed shared access alignment is shown on the Severance Plan on Figures 7 and 8.

Recommendation 4:
If the removal of a tree is required for the shared access path, and the DBH is greater than 50 cm, a Private Tree Permit Application should be completed, and the appropriate number of replacement trees (as per Schedule A of the Tree Protection By-Law) should be planted on site. Replacement trees should be native to Ecoregion 7E.

Recommendation 5:
Refer to the Tree Preservation Plan (MTE, 2022) for recommendations regarding tree protection and recommended removals within the Subject Lands.

7.1.2 Significant Valleylands

The Significant Valleyland associated with the Loveless Municipal Drain on the Subject Lands is included within the proposed OS4 zone [Figure 9] and therefore no direct impacts from the proposed lot severance and home construction are anticipated. Indirect impacts are addressed in Section 7.2.

7.1.3 Significant Wildlife Habitat

Candidate SWH (Bat Maternity Colonies, Eastern Wood-pewee [SC] habitat) within Community 2 of the Subject Lands is proposed to be fully retained in the OS4 zone [Figure 9]. No direct impacts to confirmed or candidate SWH are anticipated.

7.1.4 Fish Habitat

The Loveless Municipal Drain within the Subject Lands may support common fish habitat as it is wet at least part of the year and connects to Waubuno Creek downstream which is known to include fish habitat. The City of London EMGs (2021) recommend fish habitat be provided a 15 m buffer for warm-water habitats and 30 m buffer for cold or cool-water habitats. The fish community of the Loveless Municipal Drain was not investigated but a conservative 30 m buffer from the high-water mark is included in the OS4 zone [Figure 9]. No aquatic Protected Species are present in the drain.

Downstream fish habitat also needs to be considered. The Loveless Municipal Drain flows south to Waubuno Creek approximately 2.9 km downstream. Waubuno Creek is identified by DFO as containing critical habitat for Black Redhorse [THR]. The proposed house construction will be outside the OS4 buffer so there should be no impact on the hydrological or nutrient inputs to Loveless Municipal Drain which would travel downstream to Waubuno Creek. Tree cover providing shade to the watercourse will remain as well.

Mitigation of indirect impacts (sediment and erosion, equipment spills, fertilizer/salt use) is addressed in Section 7.2 below.

Recommendation 6:
Install erosion and sediment control fencing surrounding the ground disturbance limits of the development to ensure the Loveless Municipal Drain and downstream systems are not impacted during home construction activities. Details for ESC measures are provided in Section 7.2.

7.1.5 Habitat of Endangered and Threatened Species

Little Brown Myotis [END], Northern Myotis [END], and Tri-coloured Bat [END] may be present within Community 2 in the Subject Lands, although these species were not confirmed present through targeted field investigations. Habitat for these bat species will be retained within Community 2 in the OS4 zone and one potential habitat tree (Sugar Maple) along the north property boundary will be retained, therefore no impacts to habitat are expected.

7.1.6 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 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 7:
Avoid vegetation clearing during the migratory bird breeding season (April 1 to August 31) to ensure that no active nests are removed or disturbed. 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 8:
Make workers aware of potential incidental encounters with wildlife. 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.

Recommendation 9:
Bank Swallow [THR] have not been identified within the Subject Lands, but the 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.

7.2 Indirect Impacts and Mitigation

Natural heritage features may also experience indirect effects. Indirect impacts on natural features will be limited as site activities are limited to the proposed severance and a single-family home to be built in the future on Parcel 2.

7.2.1 Sediment and Erosion Control

For all works adjacent to the OS4 zone, sediment and erosion control measures will be required to ensure that indirect impacts to natural heritage features are avoided or mitigated.

Recommendation 10:
Prior to construction works on site, sediment and erosion control fencing should be installed around the ground disturbance limits of the construction area. The fence will act as a barrier to keep construction equipment and spoil away from the vegetation to remain and prevent erosion and sedimentation of the adjacent natural heritage features. Sediment and erosion control fencing is to be installed according to the City of London Design Specifications and Requirements Manual specifications (2019b) and The Erosion and Sediment Control Guide for Urban Construction (TRCA, 2019). During construction, the lands between the sediment and erosion control fencing should be maintained.

Recommendation 11:
Soil stockpiles should be established in locations where natural drainage is away from the OS4 zone. If this is not possible and there is a possibility of any stockpile slumping and moving toward the edge of natural heritage features, the stockpiles should be protected with robust sediment and erosion controls. Access to the stockpile should be confined to the up-gradient side.

Recommendation 12:
Sediment and erosion control fencing should be inspected prior to construction to ensure it was installed correctly.

Recommendation 13:
Sediment and erosion control fencing should be inspected prior to rain events during construction to ensure that the fencing is being maintained and functioning properly. Any issues that are identified are resolved as quickly as possible, ideally the same day.

Recommendation 14:
Sediment and erosion control fencing should not be removed until adequate re-vegetation and site stabilization has occurred. 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. 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.

7.2.2 Construction Site Management

Recommendation 15:
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 16:
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

Recommendation 17:
Sedimentation controls during site grading work must help control and reduce the turbidity of runoff that could flow to the Loveless Municipal Drain.

Recommendation 18:
Use Best Management Practices (BMPs) for fuel handling, storage, and onsite equipment maintenance activities to minimize the risk of contaminant release as a result of the proposed construction activities.

Recommendation 19:
Contractors working at the site should ensure that construction equipment is in good working order. Equipment operators should have spill-prevention kits, where appropriate.

Recommendation 20:
Limit the use of commercial fertilizers, salts/ice melting additives, and other chemical applications within the Subject Lands, especially in areas that border the OS4 zone. Consideration may be given to using grass varieties which are hardier and require less extensive watering or fertilizers.

7.2.4 Lighting and Noise

The lands adjacent to the Subject Lands to the north, south, and west are in existing residential use, and a single home already exists on the Subject Lands. Residential noise is managed through existing By-laws which restrict excessive noise, and wildlife using the Subject Lands are already subject to some noise disturbance by neighbouring residents, traffic, or agricultural practices. Consequently, no impacts resulting from light or noise are anticipated as a result of development.

Recommendation 21:
Noise disturbance during construction should be limited to allowable hours per City of London By-law.

7.2.5 Landowner(s) Education

Recommendation 22:
Homeowners should be provided the "Living with Natural Areas" brochure published by UTRCA (2005) based on the *Living with Natural Areas - A Guide for Citizens of London* document. This

brochure [Appendix H] outlines the impacts of various encroachment activities (ex: use of fertilizers, creation of trails, disposal of yard waste, introduction of invasive species, etc.) and ways homeowners can reduce their impacts on adjacent natural areas.

7.3 Monitoring Plan

Mitigation and compensation measures recommended in this EIS aim to minimize and compensate for the 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 home construction until grounds adjacent to natural features are vegetated and stabilized. 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 mitigation measures. Monitoring should be undertaken at Year 1 of buffer planting (e.g., plant warranty) to document success of seed germination and cover, and at Year 3 to document plant establishment and growth. This plan should include remedial actions that are triggered if effects exceed pre-determined thresholds. Recommendations for monitoring are:

- Vegetation monitoring in the naturalized OS4 buffer should be completed for two years after planting to document compliance with the plans (e.g., the correct seed mix was used), and establishment of planted material. Implementation of adaptive management to correct deficiencies.
- Adaptive management strategies such as supplemental plantings, and/or control of non-native invasive species. Adaptive management may be triggered by poor survival/germination of seed mix (80% natural groundcover is target) and the presence of unacceptable non-native and invasive species.
- Monitor for tree damage post-construction of the single-family home. Consult a certified arborist if damage has occurred.

Monitoring requirements are restated in the Environmental Management Plan [Appendix I].

7.4 UTRCA Regulation

UTRCA regulates a portion of the Subject Lands under Ontario Regulation 157/06 based on UTRCA regulation mapping (UTRCA, 2022). The regulation area is associated with the flooding and erosion hazard for the Loveless Municipal Drain. No development or site alteration is proposed within the regulated areas, so no Section 28 Permit Application will be required.

7.5 Net Effects

Table 5, below, summarizes potential impacts to natural heritage features and functions as well as proposed mitigation or avoidance measures.

Table 5: Net Effects of the Proposed Development

Source of Impact	Affected Feature	Predictions of Impact	Mitigation Strategy	Net Effects	Recommendations for Management and Monitoring
Artificial Lighting	OS4 Zone (Community 2, Drain)	Low impacts expected - residential lights	Adding residential lighting from one house where one home already previously exists is unlikely to significantly impact wildlife species.	No net effect	None
Litter and Garbage	OS4 Zone (Community 2, Drain)	Low impacts expected - garbage/litter from two residential homes	Homeowner brochure (UTRCA, 2005) to discourage encroachment.	No net effect	Continuing education.
Creation of new trails	OS4 Zone (Community 2, Drain)	Low impacts expected - ad-hoc trails may trample ground cover or transport invasive species	Homeowner brochure (UTRCA, 2005) to discourage encroachment; maintenance of agricultural access may reduce the potential for informal trail development.	No net effect	Continuing education.
Tree damage (limb damage, soil compaction, changes in grade)	OS4 Zone (Community 2, Drain)	Low impacts expected - limb removal	Community 2 dripline is protected in the proposed OS4 zone; refer to TPP (MTE, 2022).	No net effect	Monitor for tree damage during and post-construction of the single-family home. Consult a certified arborist if damage has occurred.
Increased noise	OS4 Zone (Community 2, Drain)	Low impacts expected - only common faunal species present - residential home currently exists on the Subject Lands	Low level noise from adjacent two houses will not impact wildlife; noise disturbance during construction should be limited to allowable hours per City of London By-law.	No net effect	Residential by-laws restrict excessive noise.
Disturbance to wildlife during construction	OS4 Zone (Community 2, Drain)	Low impacts expected - disruption to activities of nearby wildlife will be temporary	Restrict timing of vegetation removal to outside breeding and sensitive periods for birds and other wildlife; make workers aware of potential incidental encounters and necessary protections.	No net effect	Disturbance is temporary and minimal for species within the retained OS4 zone. Monitoring and reporting protocols for incidental wildlife encounters should be followed.

Source of Impact	Affected Feature	Predictions of Impact	Mitigation Strategy	Net Effects	Recommendations for Management and Monitoring
Decreased infiltration and increased run-off	OS4 Zone (Community 2, Drain)	Low impacts expected - impervious surfaces decrease infiltration	Vegetated OS4 zone including minimum 30 m buffer from the high-water mark of the Loveless Municipal Drain; two single family home replacing one home is not expected to have a significant impact on infiltration rates.	No net effect	None.
Increased erosion	OS4 Zone (Community 2, Drain)	Low impacts expected	Vegetated OS4 zone including minimum 30 m buffer from the high-water mark of the Loveless Municipal Drain; no development proposed within the UTRCA regulated area; sediment and erosion control fencing installed at development limit during construction.	No net effect	Monitor sediment and erosion control fencing.
Increased nutrient, pesticide, chemicals, and sediment	OS4 Zone (Community 2, Drain)	Low impacts expected - The ESA may receive regular seasonal nutrient and sediment loads	Vegetated OS4 zone including minimum 30 m buffer from the high-water mark of the Loveless Municipal Drain; 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 hardier; limit the use of salts or other additives for ice and snow control; change in land use from agricultural (regular application of fertilizers and other chemicals) to single family residential may be a positive impact.	No net effect	Monitor sediment and erosion control fencing.
Domestic animals	OS4 Zone (Community 2, Drain)	Medium impacts expected - off-leash dogs can trample plants - outdoor cats can kill wildlife	Homeowner brochure (UTRCA, 2005) to discourage encroachment of pets.	No net effect	Continuing education.
Introduced invasive plants	OS4 Zone (Community 2, Drain)	Low impacts expected - inappropriate disposal of lawn/gardening waste	Homeowner brochure (UTRCA, 2005) to discourage encroachment and inappropriate disposal practices.	No net effect	Continuing education.
Air pollution	OS4 Zone (Community 2, Drain)	No impacts expected	Single family home will not generate substantial air pollution in the region.	No net effect	None.

Source of Impact	Affected Feature	Predictions of Impact	Mitigation Strategy	Net Effects	Recommendations for Management and Monitoring
Fire Hazards	OS4 Zone (Community 2, Drain)	Low impacts expected - potential for recreational gatherings	Homeowner brochure (UTRCA, 2005) to discourage encroachment.	No net effect	Continuing education.
Use of heavy machinery – oil, gasoline, grease spill	OS4 Zone (Community 2, Drain), SGRA, HVA	Low impacts expected - machinery can leak or refueling can generate spills	Establish storage/refueling area away from OS4 Zone; BMPs should be followed 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	None.

8.0 Summary and Conclusions

The Proponent (Peter Drankowsky) is proposing the severance of the Legal Parcel located at 1176 Crumlin Sideroad, London, ON into three Parcels [Figure 8]. The existing home will remain, and one new single-family home will be constructed on Parcel 2. Parcel 3 will continue to be actively farmed.

Based the application of the 2021 EMGs and discussion with the City of London, this Focused EIS has proposed an OS4 Zone defined by a 30 m buffer from the high-water mark of the Loveless Municipal Drain and the contiguous staked dripline of woodland Community 2 (FOD7). This vegetated OS4 zone [Figure 9] will protect the natural heritage features associated with the Loveless Municipal Drain and surrounding woodland, including a Significant Valleyland, candidate SWH, indirect fish habitat, and potential habitat for endangered bats. This Focused EIS has also set out recommendations to improve the effectiveness of the buffer through measures such as naturalized planting within the buffer and erosion and sediment control measures.

Provided the recommendations in this Focused EIS are followed; 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 Focused 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 Focused EIS, do not hesitate to contact us.

All of which is respectfully submitted,

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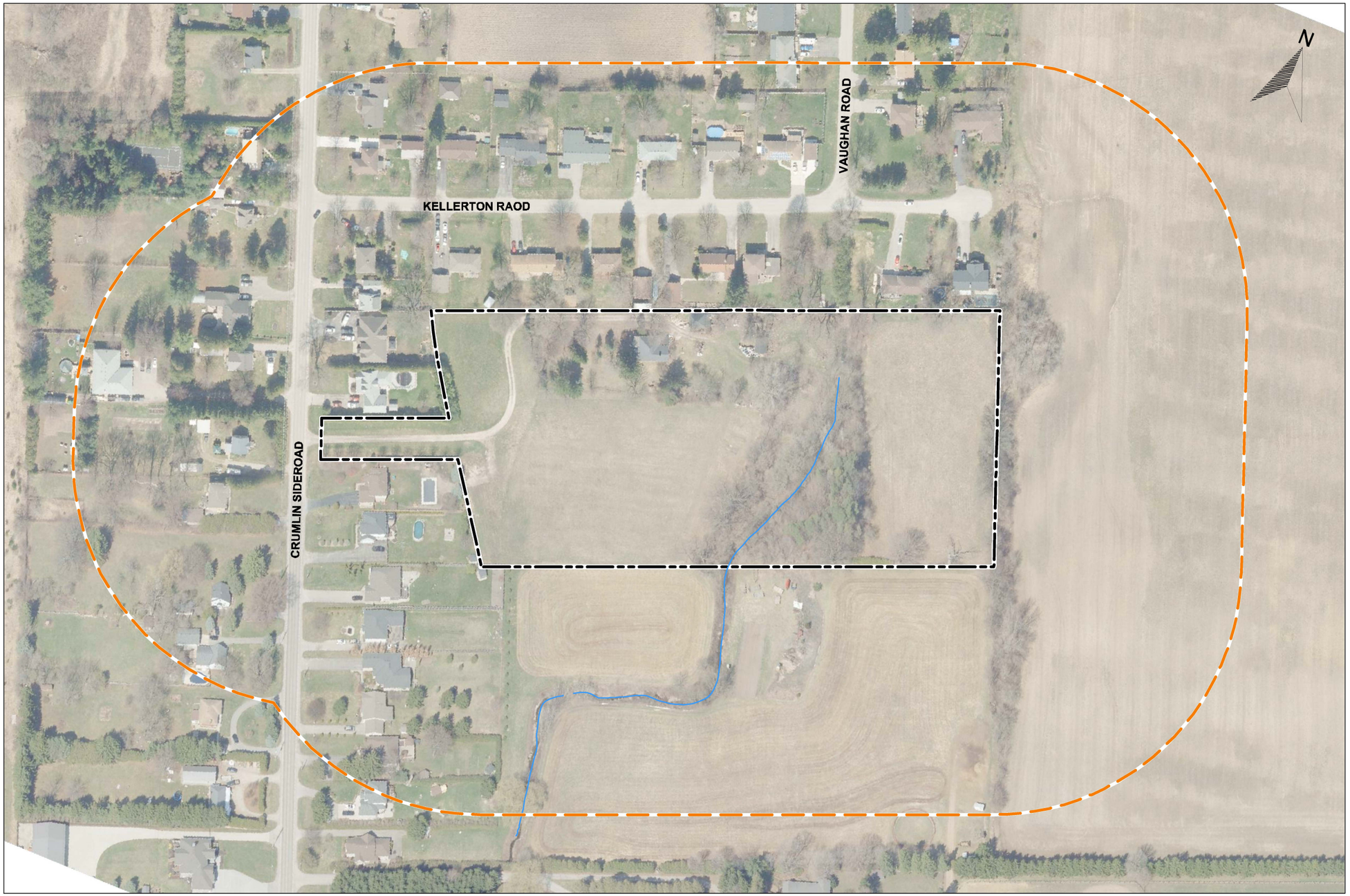
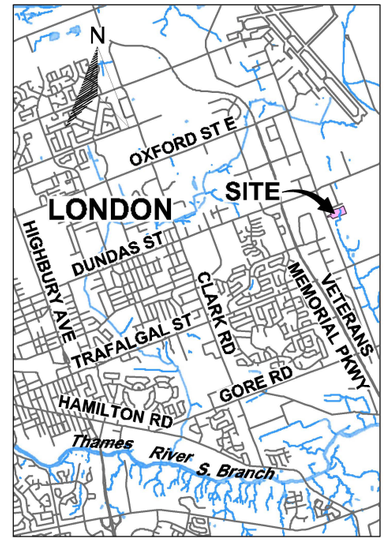
Figures





KEY PLAN

SCALE IN METRES
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1:2,000

LEGEND

- SUBJECT LANDS
- STUDY AREA (120m Buffer from Subject Site)

REFERENCES

CITY OF LONDON OPEN DATA SET, 2021.

NOTES

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

ALL LOCATIONS ARE APPROXIMATE.

MTE
Engineers, Scientists, Surveyors

PROJECT
ENVIRONMENTAL IMPACT STUDY
1176 CRUMLIN SIDEROAD
LONDON, ONTARIO

TITLE
PROJECT LOCATION

Drawn: DCH	Scale: AS SHOWN
Checked:	Project No.: 51594-100
Date: Jan 12/23	Rev No.: 0

FIGURE 1

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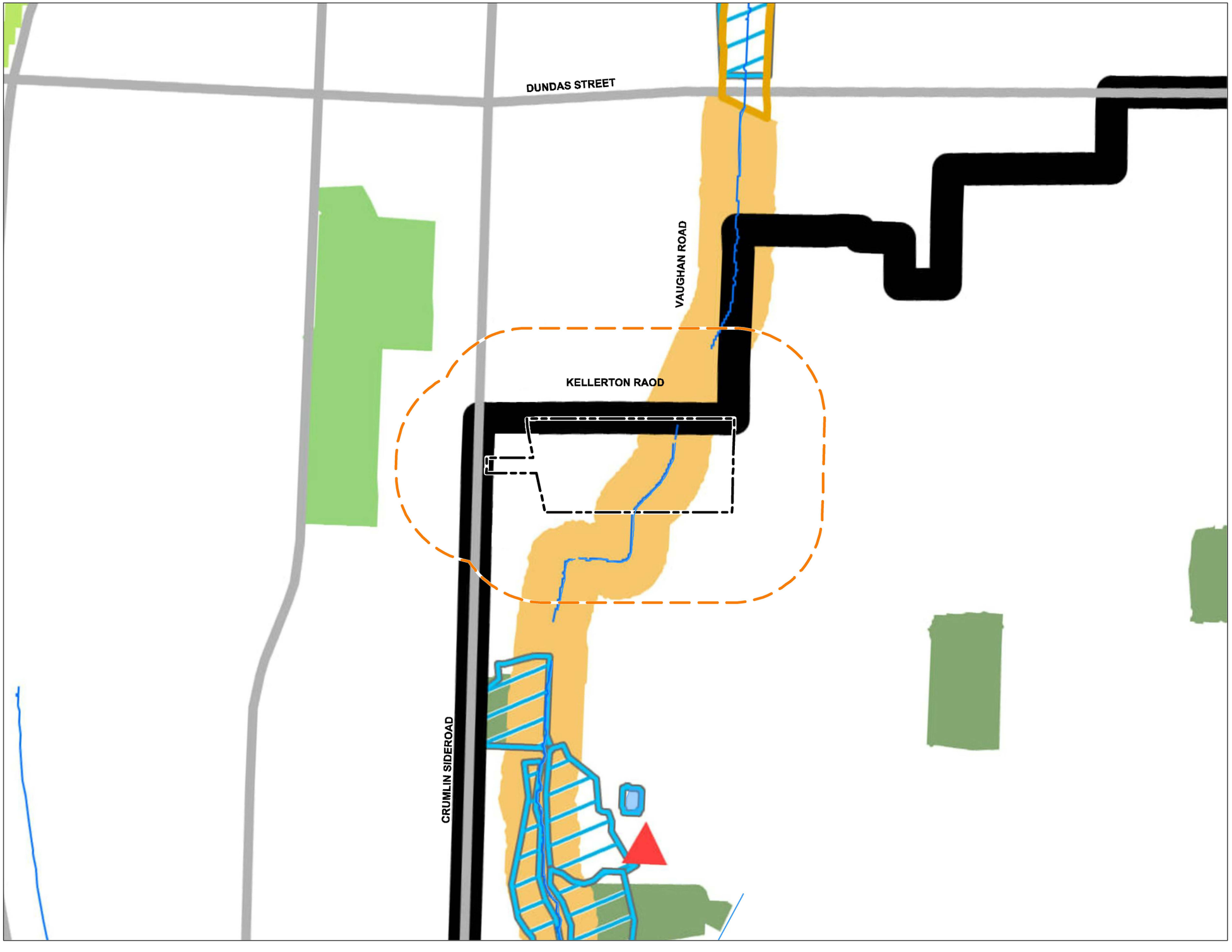

N

LEGEND

- SITE BOUNDARY
- STUDY AREA (120m Buffer from Subject Site)
- POTENTIAL NATURALIZATION AREA
- UNEVALUATED WETLAND
- SIGNIFICANT VALLEYLAND
- SIGNIFICANT WOODLAND
- STREET
- URBAN GROWTH BOUNDARY
- WATER BODY
- WATERCOURSE/POND
- WOODLAND

REFERENCES

CITY OF LONDON OPEN DATA SET, 2021; AND CITY OF LONDON, MAP 5 - NATURAL HERITAGE, MAY 28 - 2021.

NOTES

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

ALL LOCATIONS ARE APPROXIMATE.

SCALE IN METRES
0 100 200m
1:5,000

MTE
Engineers, Scientists, Surveyors

PROJECT
ENVIRONMENTAL IMPACT STUDY
1176 CRUMLIN SIDEROAD
LONDON, ONTARIO

TITLE
NATURAL HERITAGE

Drawn DCH	Scale AS SHOWN	**FIGURE 2**
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Date Jan 12/23	Rev No. 0	

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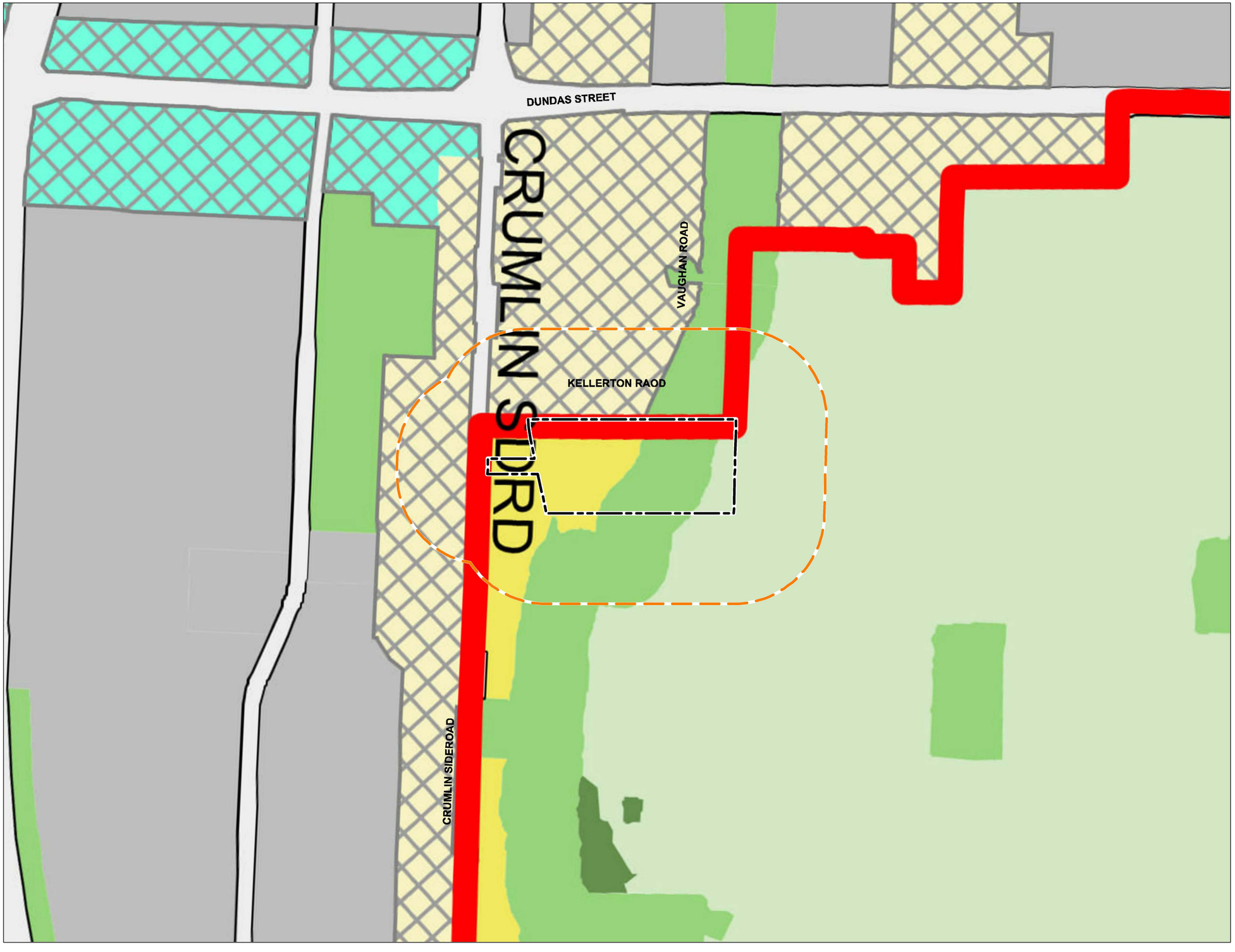

N

LEGEND

- SITE BOUNDARY
- STUDY AREA (120m Buffer from Subject Site)
- AREA WITHHELD FROM LPAT APPROVAL
- ENVIRONMENTAL REVIEW
- FARMLAND
- GREEN SPACE
- LIGHT INDUSTRIAL
- NEIGHBOURHOOD
- RURAL NEIGHBOURHOOD
- STREET
- URBAN CORRIDOR
- URBAN GROWTH BOUNDARY

REFERENCES

CITY OF LONDON OPEN DATA SET, 2021; AND CITY OF LONDON, MAP 5 - NATURAL HERITAGE, MAY 28 - 2021.

NOTES

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SCALE IN METRES
0 100 200m
1:5,000

MTE
Engineers, Scientists, Surveyors

PROJECT
ENVIRONMENTAL IMPACT STUDY
1176 CRUMLIN SIDEROAD
LONDON, ONTARIO

TITLE
PLACE TYPES

Drawn DCH	Scale AS SHOWN	**FIGURE 3**	
Checked	Project No. 51594-100		
Date Jan 12/23	Rev No. 0		

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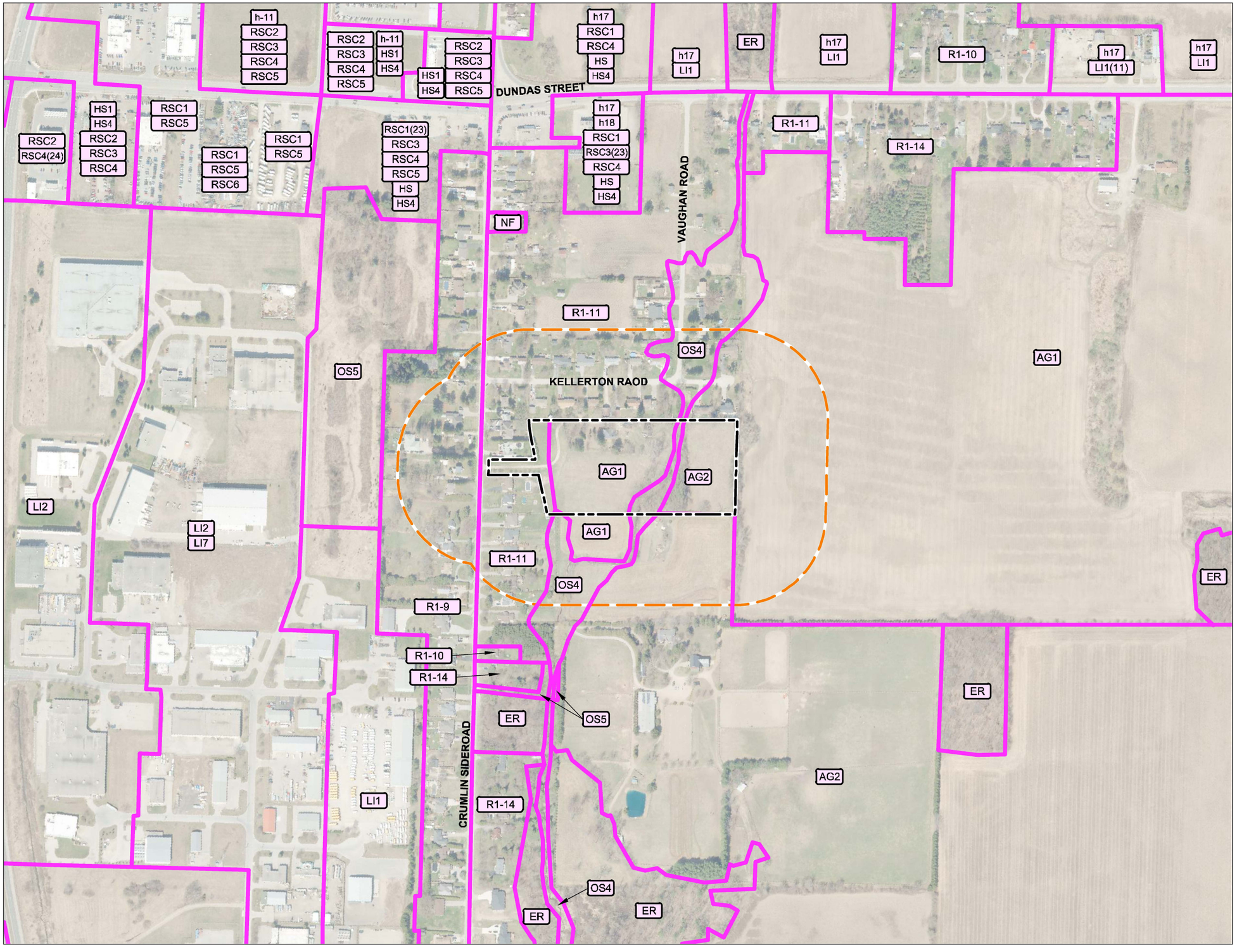

N

LEGEND

- SITE BOUNDARY
- STUDY AREA (120m Buffer from Subject Site)

- AG AGRICULTURAL ZONE
- ER ENVIRONMENTAL REVIEW ZONE
- h HOLDING ZONE PROVISION
- HS HIGHWAY SERVICE COMMERCIAL ZONE
- LI LIGHT INDUSTRIAL ZONE
- OS OPEN SPACE ZONE
- R RESIDENTIAL ZONE
- RO RESTRICTED OFFICE ZONE
- RSC RESTRICTED SERVICE COMMERCIAL ZONE

REFERENCES

CITY OF LONDON OPEN DATA SET, 2021; AND CITY OF LONDON, MAP 5 - NATURAL HERITAGE, MAY 28 - 2021.

NOTES

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SCALE IN METRES
0 100 200m
1:5,000

MTE
Engineers, Scientists, Surveyors

PROJECT
ENVIRONMENTAL IMPACT STUDY
1176 CRUMLIN SIDEROAD
LONDON, ONTARIO

TITLE
ZONING

Drawn DCH	Scale AS SHOWN
Checked	Project No. 51594-100
Date Jan 12/23	Rev No. 0

FIGURE 4

Figure 5: UTRCA Regulated Areas (UTRCA, 2022)

Regulated Areas

Regulation under s.28 of the *Conservation Authorities Act*

Development, interference with wetlands, and alterations to shorelines and watercourses. O.Reg 157/06, 97/04.

Legend

- UTRCA Jurisdiction Watershed
- UTRCA Watershed (2017 LiDAR)
- Assessment Parcel (MPAC)
- Watercourse (UTRCA)
  - Open
  - Tiled
- Middlesex NHSS Woodland (2014)
  - Candidate for Ecologically Important
  - Ecologically Important
  - Significant Ecologically Important
- Wetlands (MNRF)
  - Evaluated-Provincial
  - Evaluated-Other
  - Not Evaluated
- Regulated Wetland
- Flooding Hazard Limit
- Erosion Hazard Limit
- Regulation Limit 2021

The mapping is for information screening purposes only, and shows the approximate regulation limits. The text of Ontario Regulation 157/06 supersedes the mapping as represented by this data layer. This mapping is subject to change. A site specific determination may be made by the UTRCA.

This layer is the approximate limit for areas regulated under Ontario Regulation 157/06 - Upper Thames River Conservation Authority: Development, Interference with Wetlands and Alterations to Shorelines and Watercourses, which came into effect May 4, 2006.

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The UTRCA assumes no liability for any errors, omissions or inaccuracies in the information provided herein and further assumes no liability for any decisions made or actions taken or not taken by any person in reliance upon the information and data furnished hereunder.

This map is not a substitute for professional advice. Please contact UTRCA staff for any changes, updates and amendments to the information provided.

This document is not a Plan of Survey.

Sources: Base data, Aerial Photography used under licence with the Ontario Ministry of Northern Development, Mines, Natural Resources and Forestry Copyright © Queen's Printer for Ontario; City of London.

UPPER THAMES RIVER CONSERVATION AUTHORITY

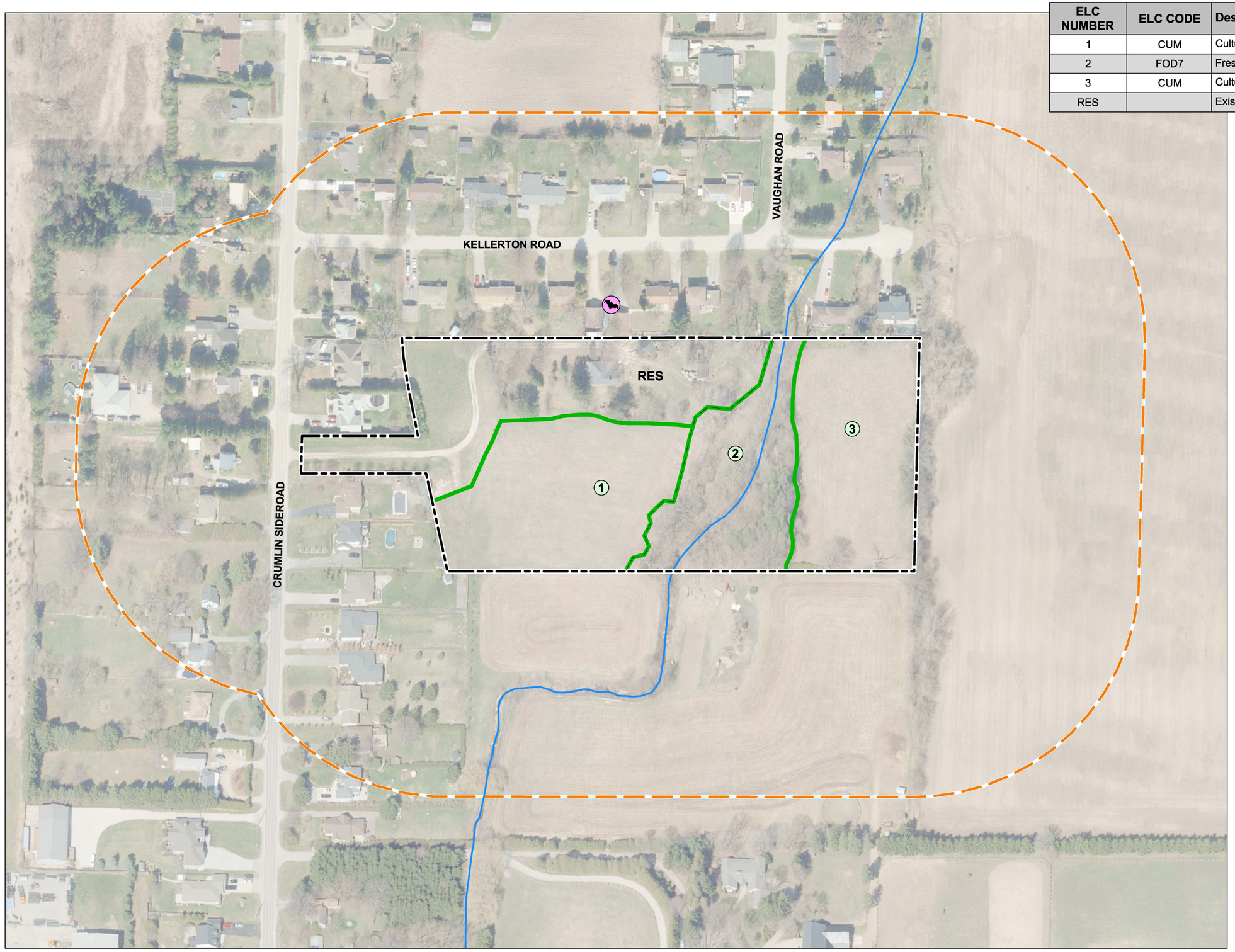
Notes:
1176 Crumlin Sideroad, London (2022)

Created By: MS August 22, 2022

* Please note: Any reference to scale on this map is only appropriate when it is printed landscape on legal-sized (8.5" x 14") paper.

0 35 70 140
metres
1:1,750

N



ELC NUMBER	ELC CODE	Description
1	CUM	Cultural Meadow (0.88ha)
2	FOD7	Fresh-Moist Lowland Deciduous Forest Ecosite (0.65ha)
3	CUM	Cultural Meadow (0.78ha)
RES		Existing Residential

N

LEGEND

- SITE BOUNDARY
- STUDY AREA (120m Buffer from Subject Site)
- WATERCOURSE (UTRCA)
- WOODLAND DRIPLINE (AGM Survey)
- (1) VEGETATION COMMUNITY
- CANDIDATE MATERNITY ROOST TREE

REFERENCES

CITY OF LONDON OPEN DATA SET, 2021;
UPPER THAMES RIVER CONSERVATION AUTHORITY (UTRCA), WATERCOURSE NETWORK; AND
AGM PLAN OF SURVEY, FILE No. DORN-218-2h, PLAN No. L-5857, NOVEMBER 4 - 2022.

NOTES

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ALL LOCATIONS ARE APPROXIMATE.

SCALE IN METRES
0 40 80m
1:2,000

MTE
Engineers, Scientists, Surveyors

PROJECT
ENVIRONMENTAL IMPACT STUDY
1176 CRUMLIN SIDEROAD
LONDON, ONTARIO

TITLE
VEGETATION COMMUNITIES

Drawn	DCH	Scale	AS SHOWN
Checked		Project No.	51594-100
Date	Jan 12/23	Rev No.	0

FIGURE 6

Figure 7: Site Severance Plan (February 8, 2023)

ZONING DATA CHART

RETAINED LAND (PARCEL 1)

SITE AREA: 10,314.9 m²
DEVELOPABLE AREA: 10,314.9 m²
BUILDING AREA: 343.4 m²
GRAVEL AREA: 701.4 m²
LANDSCAPED AREA: 9,270.1 m²

ITEM	R1–14	REQUIRED	PROPOSED
1	LOT AREA (m^2) MIN	2,000.0	10,314.9
2	LOT FRONTAGE (m) MIN	30.0	10.0*
3	FRONT YARD AND EXTERIOR SIDE YARD SETBACK (m) MIN	8.0 8.0	153.58 N/A
4	REAR YARD DEPTH (m) MIN	57.9	45.95
5	INTERIOR SIDE YARD SETBACK (m) MIN	8.0	12.0
6	LANDSCAPED OPEN SPACE (%) MIN	50	89.9
7	LOT COVERAGE (%) MAX	50	3.3
8	HEIGHT (m) MAX	12	<12.0
9	PARKING AREA COVERAGE (%) MAX	25	6.8
10	NUMBER OF SINGLE DETACHED DWELLINGS	1	1

*SPECIAL PROVISION REQUIRED

ZONING DATA CHART

SEVERED LAND (PARCEL 2)

SITE AREA: 7,387.1 m²
DEVELOPABLE AREA: 7,387.1 m²
BUILDING AREA: N/A
GRAVEL AREA: 145.2 m²
LANDSCAPED AREA: 7,241.9 m²

ITEM	R1–14	REQUIRED	PROPOSED
1	LOT AREA (m^2) MIN	2,000.0	7,387.1
2	LOT FRONTAGE (m) MIN	30.0	10.0*
3	FRONT YARD AND EXTERIOR SIDE YARD SETBACK (m) MIN	8.0 8.0	N/A N/A
4	REAR YARD DEPTH (m) MIN	47.1	N/A
5	INTERIOR SIDE YARD SETBACK (m) MIN	8.0	N/A
6	LANDSCAPED OPEN SPACE (%) MIN	50	98.0
7	LOT COVERAGE (%) MAX	50	N/A
8	HEIGHT (m) MAX	12	N/A
9	PARKING AREA COVERAGE (%) MAX	25	2.0
10	NUMBER OF SINGLE DETACHED DWELLINGS	1	1

*SPECIAL PROVISION REQUIRED

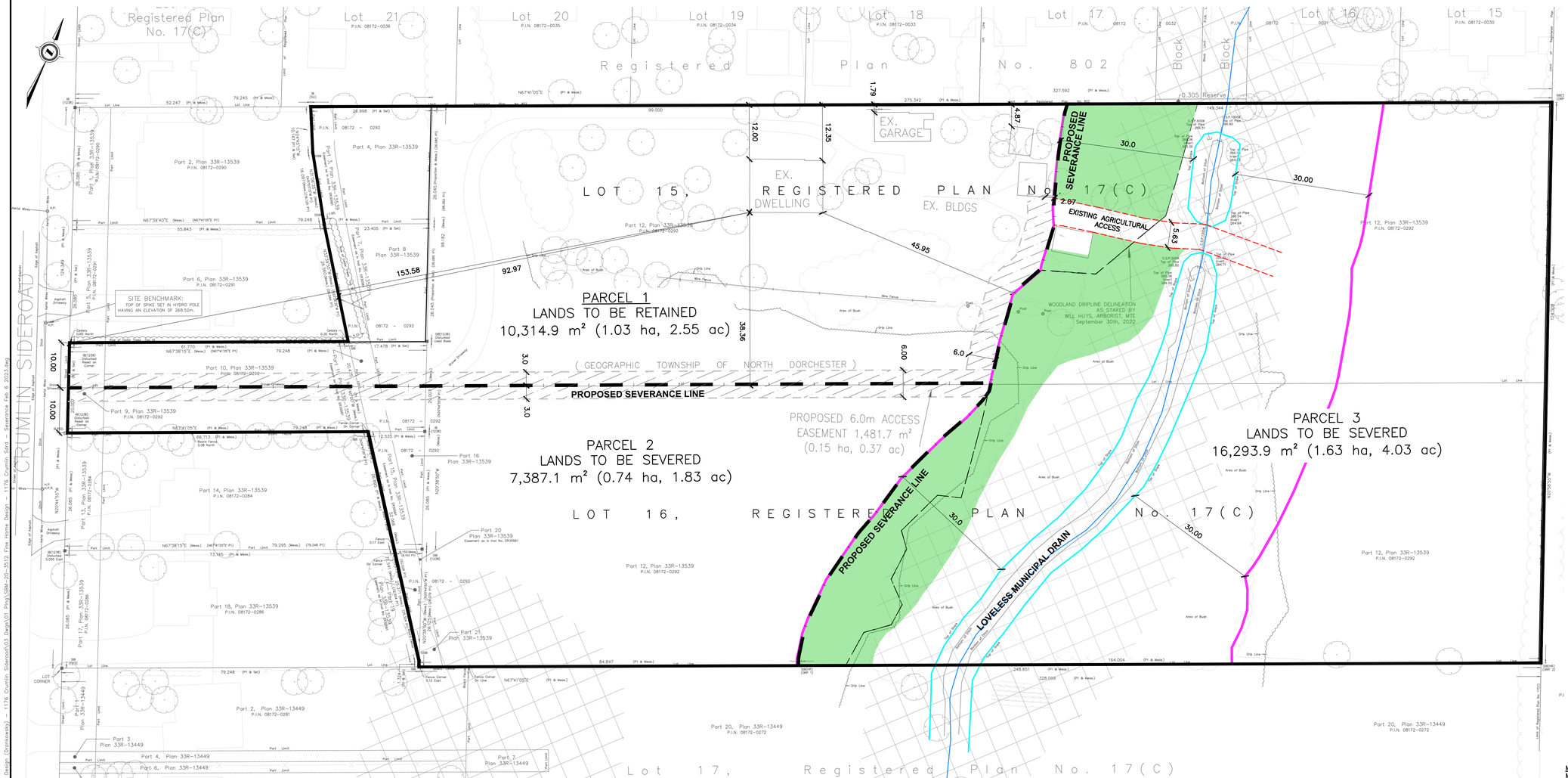
ZONING DATA CHART

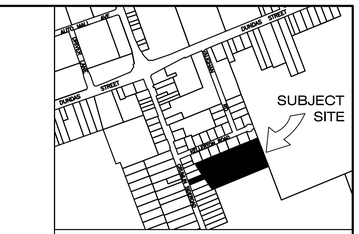
SEVERED LAND (PARCEL 3)

GROSS SITE AREA: 16,293.9 m²
AREA ZONED OS: 10,072.8 m²
AREA ZONED AG1: 6,221.1m²
BUILDING AREA: 46.5 (SHED)
GRAVEL AREA: N/A
LANDSCAPED AREA: N/A

ITEM	OS4 & AG1	OS4		AG1	
		REQUIRED	PROPOSED	REQUIRED	PROPOSED
1	LOT AREA (m^2) MIN	4,000	10,072.8	40 (ha)	6,221.1m²*
2	LOT FRONTAGE (m) MIN	15.0	0.0*	200.0	0.0*
3	FRONT YARD AND EXTERIOR SIDE YARD DEPTH (m) MIN	8.0 8.0	N/A N/A	15.0	N/A
4	REAR YARD DEPTH (m) MIN	7.0	N/A	15.0	N/A
5	INTERIOR SIDE YARD DEPTH (m) MIN	6.0	N/A	15.0	N/A
6	LANDSCAPED OPEN SPACE (%) MIN	20.0	100	N/A	N/A
7	LOT COVERAGE (%) MAX	10.0	N/A	20.0	N/A
8	HEIGHT (m) MAX	12.0	N/A	12.0 (RES) 15.0 (OTHERS)	N/A N/A

*SPECIAL PROVISION REQUIRED





KEY PLAN

N.T.S.

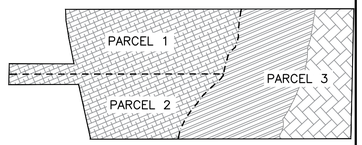
LEGAL INFORMATION

PART OF
PLAN 17 PT LOTS 15 & 16
RP 33R13539 PARTS 3,4,7-12, 15, 16, 19-21
IN THE
CITY OF LONDON
COUNTY OF MIDDLESEX

LEGEND

- SITE BOUNDARY
- WATERCOURSE (UTRCA)
- HIGH WATER MARK (AGM Survey)
- WOODLAND DRIPLINE (AGM Survey)
- LIMIT OF NATURAL HERITAGE BUFFER (OS4 ZONE)
- NATURALIZATION AREA
- UTRCA REGULATED AREA
- PARCEL SEVERANCE LINE
- EXISTING AGRICULTURAL ACCESS
- PROPOSED EASEMENTS

PROPOSED ZONING MAP



- PROPOSED R1–14(X) ZONE
- PROPOSED OS4(X) ZONE
- PROPOSED AG1(X) ZONE
- PROPOSED SEVERANCE LINE

REFERENCE DOCUMENTS:

1. Plan of Survey LOTS 15 AND 16, REGISTERED PLAN NO 17(C), AGM, L–587. DORN–218–2 FEB2, 2023.
2. MTE Environmental Impact Study – Additional Mitigation Measures Figure 8. 51594–100–R02008 – EIS report CAD drawing.dwg
3. City of London Open Source Data

METRIC – DISTANCES AND COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

AS CONSTRUCTED SERVICES	COMPLETION

DESIGN	SC
DRAWN	SC
CHECKED	SR
APPROVED	SR/KAM
DATE	08/02/2023
CAD	20–3512

No.	REVISIONS	D/M/Y	BY
1	INITIAL DESIGN	23/03/22	JR
2	REVISED BASED ON SURVEY AAND EIS INFO	04/01/23	SC
3	REVISED BASED ON LEGAL SURVEY FROM AGM	08/02/23	SC

CONSULTANT

STRIK BALDINELLI MONIZ
PLANNING • CIVIL • STRUCTURAL • MECHANICAL • ELECTRICAL
1599 Adelaide St. N, Unit 301, London, Ontario, N5X 4E8
Tel: (519) 471-6667 Fax: (519) 471-0034
Email: sbm@sbmltd.ca

ENGINEER'S STAMP

PRELIMINARY NOT FOR CONSTRUCTION

ENGINEER'S STAMP

CLIENT

FINE HOME DESIGN
1885 WHITNEY STREET
LONDON, ON
N5W 2W6

SCALE

SCALE – 1:500
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TITLE

CONCEPT SEVERANCE SKETCH

SEVERANCE
1176 CRUMLIN ROAD
LONDON, ON.

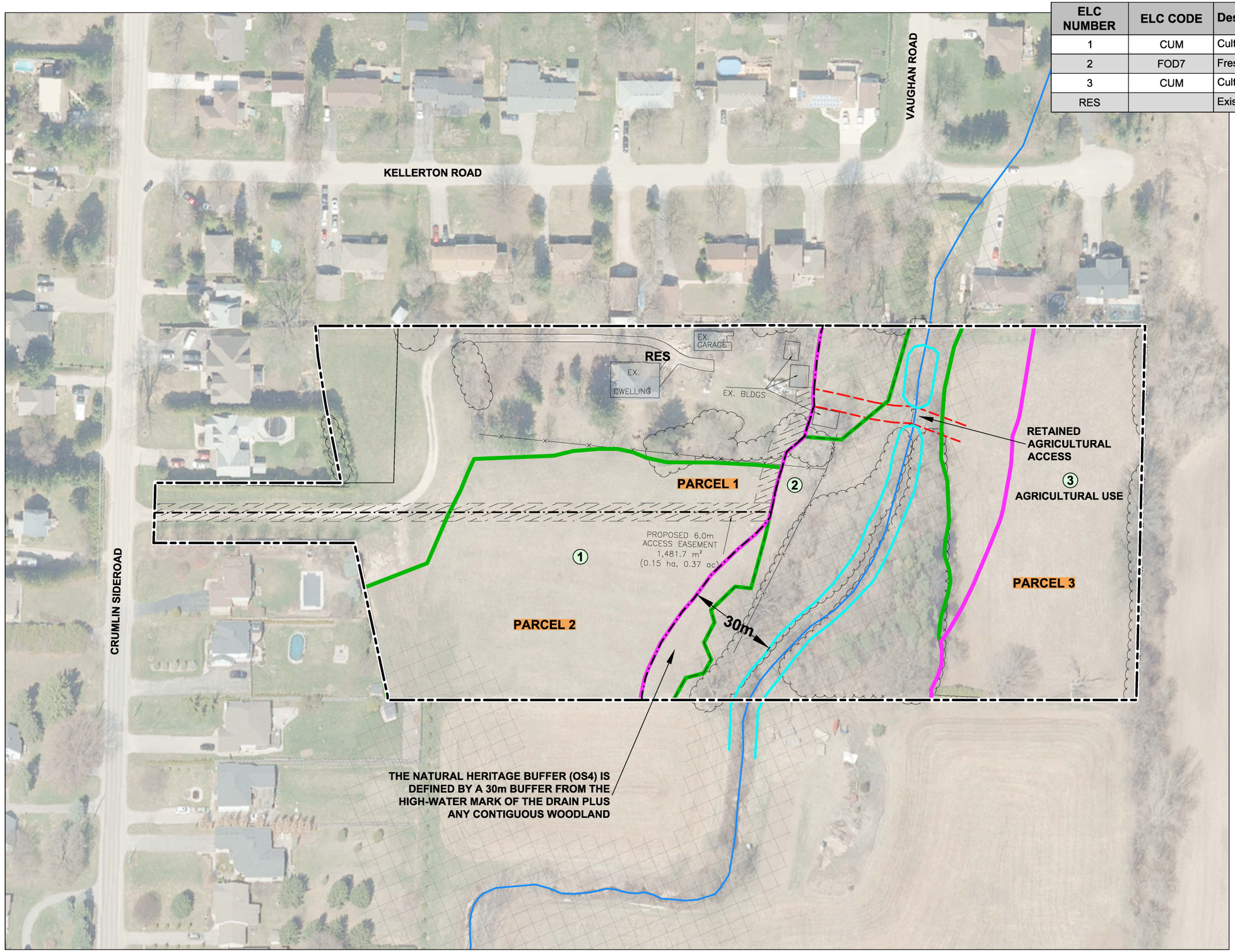
PROJECT No. SBM–20–3512

SHEET No. CP1

PLAN FILE No. –

S:\2020\20-3512\SBM-20-3512 Fine Home Design (Brentwood) - 1176 Crumlin Sideroad\03 Drwg\01 Plan\SBM-20-3512 Fine Home Design - 1176 Crumlin Sideroad - Severance Feb 8 2023.dwg

ELC NUMBER	ELC CODE	Description
1	CUM	Cultural Meadow (0.88ha)
2	FOD7	Fresh-Moist Lowland Deciduous Forest Ecosite (0.65ha)
3	CUM	Cultural Meadow (0.78ha)
RES		Existing Residential



N

LEGEND

- SITE BOUNDARY
- WATERCOURSE (UTRCA)
- WOODLAND DRIPLINE (AGM Survey)
- HIGH WATER MARK (AGM Survey)
- UTRCA REGULATED AREA
- (1) VEGETATION COMMUNITY
- NATURAL HERITAGE BUFFER (OS4 ZONE)
- PARCEL SEVERANCE LINE

REFERENCES

CITY OF LONDON OPEN DATA SET, 2021;
UPPER THAMES RIVER CONSERVATION AUTHORITY (UTRCA), WATERCOURSE NETWORK;
AGM PLAN OF SURVEY, FILE No. DORN-218-2h, PLAN No. L-5857, NOVEMBER 4 - 2022; AND
STRIK BALDINELLI MONIZ, SEVERANCE PLAN, PROJECT No. SBM-20-3512, SHEET No. CP1, FEBRUARY 8 - 2023.

NOTES

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

ALL LOCATIONS ARE APPROXIMATE.

SCALE IN METRES
0 25 50m
1:1,250

MTE
Engineers, Scientists, Surveyors

PROJECT
ENVIRONMENTAL IMPACT STUDY
1176 CRUMLIN SIDEROAD
LONDON, ONTARIO

TITLE
SITE SEVERANCE PLAN OVERLAY

Drawn: DCH	Scale: AS SHOWN
Checked:	Project No.: 51594-100
Date: Feb 8/23	Rev No.: 0

FIGURE 8

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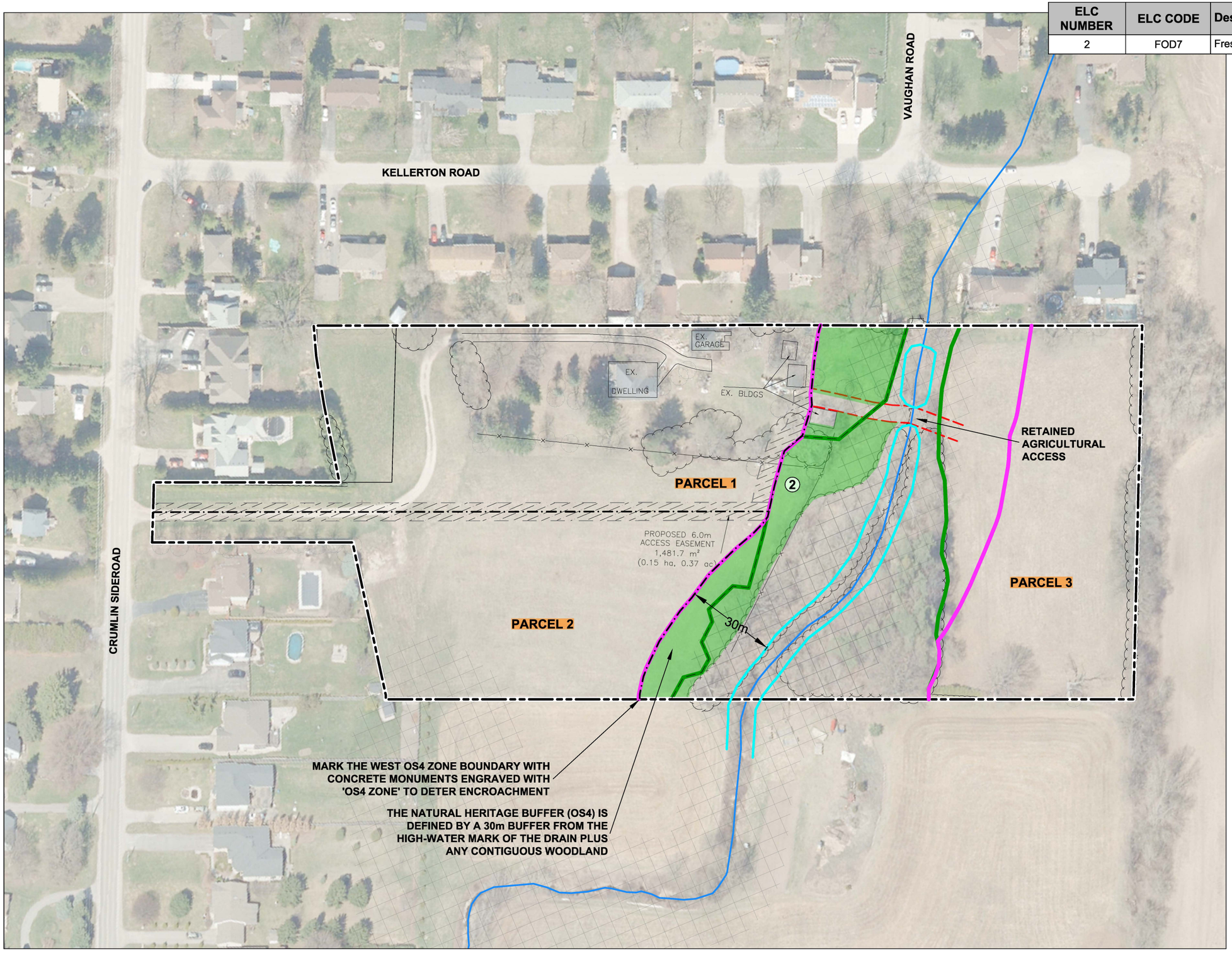
25mm 0 Original Format in Tabloid (279mm x 432mm; 11" x 17")

ELC NUMBER	ELC CODE	Description
2	FOD7	Fresh-Moist Lowland Deciduous Forest Ecosite (0.65ha)



N

LEGEND

- SITE BOUNDARY
- WATERCOURSE (UTRCA)
- WOODLAND DRIPLINE (AGM Survey)
- HIGH WATER MARK (AGM Survey)
- UTRCA REGULATED AREA
- (1) VEGETATION COMMUNITY
- NATURAL HERITAGE BUFFER (OS4 ZONE)
- NATURALIZATION AREA
- PARCEL SEVERANCE LINE

REFERENCES

CITY OF LONDON OPEN DATA SET, 2021; UPPER THAMES RIVER CONSERVATION AUTHORITY (UTRCA), WATERCOURSE NETWORK;
AGM PLAN OF SURVEY, FILE No. DORN-218-2h, PLAN No. L-5857, NOVEMBER 4 - 2022; AND STRIK BALDINELLI MONIZ, SEVERANCE PLAN, PROJECT No. SBM-20-3512, SHEET No. CP1, FEBRUARY 8 - 2023.

NOTES

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

ALL LOCATIONS ARE APPROXIMATE.

SCALE IN METRES
0 25 50m
1:1,250

MTE
Engineers, Scientists, Surveyors

PROJECT
ENVIRONMENTAL IMPACT STUDY
1176 CRUMLIN SIDEROAD
LONDON, ONTARIO

TITLE
ADDITIONAL MITIGATION MEASURES

Drawn: DCH	Scale: AS SHOWN
Checked:	Project No.: 51594-100
Date: Jan 13/23	Rev No.: 0

FIGURE 9

Client: Fine Home Design
Plot Date: 8 February 2023 Time: 15:30:16
CAD: P:\51594\100\2_PROD\51594-100-R02 ENVIRONMENTAL IMPACT STUDY\51594-100-R02009.DWG
25mm Original Format in Tabloid (279mm x 432mm; 11" x 17")
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Appendix A

Record of Pre-Application Consultation

RECORD OF PRE-APPLICATION CONSULTATION

The following form is to be completed and signed off at/following the Pre-application Consultation Meeting (PACM).

Date: January 18, 2022

TO: Simona Rasanu, SBM

FROM: Nancy Pasato

RE: 1176 Crumlin Sideroad

ATTENDEES: Nancy Pasato, Senior Planner – Planning Implementation, Planning and Development, City of London
Simona Rasanu, SBM, Agent
Laverne Kirkness, SBM, Agent
Shane Butari, Long Range Planning, Research & Ecology
Emily Williamson, Long Range Planning, Research & Ecology

PLANNING APPLICATION TEAM: Nancy Pasato, Senior Planner (npasato@london.ca); Amanda Lockwood, Urban Designer (alockwood@london.ca); Brent Lambert, Senior Engineering Technologist (blambert@london.ca ; Laura Dent, Heritage Planner (ldent@london.ca), Shane Butari, Ecologist (sbutnari@london.ca), Craig Smith, Senior Planner, Parks Planning and Design (crsmith@london.ca), Lisa McNiven, Landscape Architect (lmcniven@london.ca), Stefanie Pratt, UTRCA (pratts@thamesriver.on.ca)

City staff reviewed your Proposal Summary submitted December 23, 2021 at an Internal Review Meeting on January 13, 2022. The following form summarizes a preliminary list of issues to be considered during the processing of your application. We have also identified the initial material submissions (Studies, Reports, Background or Information) that must be submitted along with the completed application form, required fees and this Record of Pre-Application Consultation Form before your application will be accepted as complete for opening and processing.

Proposed Development

- Proposal: The Subject Site is proposed to be divided into three parcels and, with the construction of two single family detached dwellings on two of the three parcels.
- Parcel 1 would have a net area of 1.39 ha and a potential developable area (i.e., excluding the UTRCA regulated lands) of 1.13 ha; parcel 2 would have a net area of 1.18 ha and a potential developable area (i.e., excluding UTRCA regulated lands) of 0.77 ha; and parcel 3 would have a net area of 0.83 ha. The total potential developable area of parcel 1 and 2 lands (i.e., excluding UTRCA lands) would be 1.9 ha.
- Access to the two proposed houses from Crumlin Sideroad is proposed via separate driveways, approx. 10m wide, and a shared 3m wide easement. The shared easement would also provide access to the proposed parcel 3 lands at the rear of the Subject Site.
- The existing buildings/structures on the Subject Site would be demolished.
- London Plan Place Type: Rural Neighbourhood, Greenspace, Farmland Place Type on a Rural Connector
- London Plan Map 5 Natural Heritage: Significant Valleyland
- 1989 Official Plan Designation: Agriculture, Rural Settlement, and Open Space
- Current Zoning: R1-11, AG1, OS4 Zone

Major Issues Identified

- Official Plan amendment required to 1989 Official Plan for area designated as Agriculture that is within the Rural Neighbourhood Place – City initiated
- Rezoning required for Parcels 1 and 2. Zone should reflect size of lot(s) and size of private servicing entirely on parcel. Zone will need to include special provisions for lot frontage – EIS will also determine extent of R1 Zone vs. OS4 Zone
- Rezoning will also be required for agricultural parcel 3 (lands outside of urban growth area and open space) – special provision to remove ability to build house/structures on this parcel
- Fragmenting Open Space area not supported; any severance would need to maintain feature as a whole with one of the parcels – see UTRCA comments
- Existing access to rear agricultural lands is provided towards north end of the watercourse and is proposed to be relocated. UTRCA is encouraging applicant to keep access in same location – further discussion necessary
- MDS consideration – equestrian facility located (Eastern Equestrian) to the south in the Agriculture designation/Farmland Place Type – required as part of complete application, impact on development
- Scoped EIS will be required to determine appropriate buffer/setbacks for development – this will be reflected in zoning applied for development.
- Engineering suitability study to determine appropriateness/size/location of proposed private servicing/hydrogeological conditions
- Archaeological assessment required
- Tree preservation plan required – see landscape architect comments
- Vacant Land Condominium would permit more lots

Internal and External Comments

Urban Design:

- Consider retaining the parcel for future use that encompasses a more comprehensive and fulsome development for the site.

Engineering:

The following are required as part of a complete application:

- The Owner's Engineer will be required to submit a suitability study of the hydrogeological conditions that includes an assessment of sewage disposal system impacts. The assessment shall demonstrate that the site can adequately meet the requirements of MECP Procedure D-5-4.

The following items are to be considered during a future development application stage:

Transportation:

- A right-of-way dedication of 10.75 m from the centre line will be required along Crumlin Sideroad.
- Detailed comments regarding access design and location will be made through the Site Plan Application process.

Water:

- There is a 300 mm diameter municipal watermain located along Crumlin Sideroad.
- Each of the severed developable parcels will require an individual water service. A meter pit and check valve at property line will probably required due to the distance from the road back to the proposed dwellings.

Wastewater:

- The subject lands are located outside of the Urban Growth Boundary for the City of London. There is no municipal sanitary sewer fronting or near the subject lands to service the subject lands.
- The applicant is to clarify whether the proposed lot sizes and proposed servicing are in keeping with the London Plan.

- The size and location of the septic systems and all required separation distances shall be to the satisfaction of the Building Control Division and in accordance with the Ontario Building Code (OBC).

Stormwater:

- The site is located within the UTRCA regulated area and therefore UTRCA approval/permits may be required, including confirmation as to required setbacks.
- There are no storm sewers currently established for the proposed site on Crumlin Sideroad. As per the Drainage By-Law, section 5.2, where no storm sewer is accessible the applicant shall provide a dry well or storm water retention system to meet water quality and quantity control which is certified by a Professional Engineer to the satisfaction of the City Engineer.
- Please note that any future development applications within subject lands that are not serviced by municipal water or wastewater systems may be subject to a suitability study of the hydrogeological conditions that includes an assessment of water supply and sewage disposal system impacts from the proposed development(s) associated with the site. If required, the hydrogeological assessment shall be prepared by a qualified professional and demonstrate, to the satisfaction of the City, that private water well(s) and private sewage disposal system(s) can be established that meet the appropriate standards and will not impact adjacent properties and/or natural heritage features.
- The open channel should be verified and the report/drawings are to demonstrate capacity, velocity, ponding limits and erosion thresholds of the channel, ensuring the safe conveyance of flows.
- The Developer shall be required to provide a Storm/Drainage Servicing Report demonstrating that the proper SWM practices will be applied to ensure on-site controls are designed to reduce/match existing peak flows from the 2 through 100 year return period storms and demonstrate safe conveyance of the 250-year event.
- Any proposed LID solutions should be supported by a Geotechnical Report and/or a Hydrogeological Assessment report prepared with a focus on the type(s) of soil present at the Site, measured infiltration rate, hydraulic conductivity (under field saturated conditions), and seasonal high ground water elevation. Please note that the installation of monitoring wells may be required to properly evaluate seasonal groundwater fluctuations. The report(s) should include geotechnical and hydrogeological recommendations of any preferred/suitable LID solution. All LID proposals are to be in accordance with Section 6 Stormwater Management of the Design Specifications & Requirements manual.
- The proposed land use of a medium/high density residential will trigger(s) the application of design requirements of Permanent Private Storm System (PPS) as approved by Council resolution on January 18, 2010.
- Comments provided as part of the parallel IPR submission that may impact the rezoning will also be required to be addressed.
- The subject lands are located in the Waubuno Subwatershed and is tributary to the Crumlin Drain. The Owner shall provide a Storm/Drainage Servicing Report demonstrating compliance with the SWM criteria and environmental targets identified in the Pottersburg Subwatershed Study that may include but not be limited to, quantity/quality control (80% TSS), erosion, stream morphology, etc.
- The Owner agrees to promote the implementation of SWM Best Management Practices (BMP's) within the plan, including Low Impact Development (LID) where possible, to the satisfaction of the City Engineer.
- The owner is required to provide a lot grading plan for stormwater flows and major overland flows on site and ensure that stormwater flows are self-contained on site, up to the 100 year event and safely conveys up to the 250 year storm event, all to be designed by a Professional Engineer for review.
- The Owner shall allow for conveyance of overland flows from external drainage areas that naturally drain by topography through the subject lands.
- Stormwater run-off from the subject lands shall not cause any adverse effects to adjacent or downstream lands.
- An erosion/sediment control plan that will identify all erosion and sediment control measures for the subject site and that will be in accordance with City of London

and MECP standards and requirements, all to the specification and satisfaction of the City Engineer. This plan is to include measures to be used during all phases of construction. These measures shall be identified in the Storm/Drainage Servicing Report.

- Additional SWM related comments will be provided upon future review of this site.

Heritage:
Note: This e-mail is to re-confirm that there is archaeological potential on the property at 1176 Crumlin Side Road. Previous comments remain from the Initial Proposal Review Meeting (January 20, 2021) regarding heritage requirement conditions of an application. See Proposal Review Meeting Summary and Record of Consultation (pp2-3).

Major issues identified

- Archaeological potential at 1176 Crumlin Side Road is identified on the City's 2018
- Archaeological Mapping, and soil disturbance is reasonably anticipated due to
- proposed development.
- Heritage planning – complete application requirements
- Archaeological Assessment Stage 1-2 – entire property considered, w/possible scoping

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.

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 Stage 1-2 archaeological assessment on the property at 1176 Crumlin Side Road, and follow through with recommendations to mitigate, through preservation or resource removal and documentation, adverse impacts to any significant archaeological resources found (Stages 3-4).
- The consultant archaeologist is to consider the entire property, but may propose possible scoping which will be determined through consult with the heritage planner and approval from the Ontario Ministry of Heritage, Sport, Tourism, Culture Industries.
- 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 Development Services.
- 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.

Parks Planning and Design:

- Parkland dedication is required in the form of cash in lieu, pursuant to By-law CP-9 and will be finalized at the time of consent.
- Required Parkland Dedication of Natural Heritage Feature maybe if deemed desirable and would be taken at a reduced rate pursuant to By-law CP-9

Long Range Planning – Ecology:
Major issues identified

- Natural Heritage Features on, and/or adjacent to the site have been identified on Map 5 of the London Plan or based on current aerial photo interpretation, including, but not limited to, Significant Valleylands, Fish Habitat and Other Vegetation Patches Larger Than 0.5 Hectares.
- The site falls within the Upper Thames Conservation Authority Regulation Limit and is subject to the *Conservation Authorities Act.* The proponent is encouraged to reach out to UTRCA to determine if permits are required.

Complete application requirements

- Focused EIS – entire property
    - Requirements for a full SLSR may be waived (i.e., waiving field study requirements) if the proponent is committed to providing a buffer that meets or exceeds the minimum ecological buffer distance required for the associated Natural Heritage Feature(s) in conjunction with other mitigation measures to protect all significant features associated with the subject lands. In this case, a buffer of 30m on each side of the high-water mark would be required surrounding the water feature associated with the Significant Valleylands feature contained within the subject land. Further information on the Focused EIS process can be found in Section 2.6.3 of the Environmental Management Guidelines (2021).
    - The severance lines currently proposed intersect and sever the natural heritage feature. In order for the natural heritage feature to remain consolidated, the severance line shall be revised to follow the Natural Heritage Feature buffer delineation on the west edge of the feature.
    - The proponent shall retain a consultant ecologist to carry out the Focused EIS assessment on the entire property at 1176 Crumlin Sdrd.
    - The Focused EIS must be completed in accordance with provincial guidelines and standards, including the Provincial Policy Statement, Natural Heritage Reference Manual, the London Plan and the Environmental Management Guidelines (2021).

or

- SLSR – entire property, demonstrating that the 30 m buffer is unnecessary due to feature absence or lack of feature sensitivity. Note that feature delineation and assessment could result in additional features or functions not currently included on Map 5 to be identified. In that case, the proponent shall follow through on recommendations to mitigate adverse impacts to any significant environmental features and functions that are found, demonstrating that no negative impacts to the natural heritage system will result from the proposed severance.

Notes
If a Focused EIS is pursued:

- The proponent must flag the desire to submit a Focused EIS as early in the process as possible, typically at the pre-consultation stage and obtain initial in principle agreement from the City.

- A Focused EIS scoping meeting shall be held between the proponent and a City Ecologist to review and confirm the Focused EIS plan and associated mapping prior to waiving the requirements of the full-EIS and associated studies. Other agencies may be included as appropriate. A site visit to stake feature line delineation and ensure that appropriate minimum buffer requirements have been satisfied is a requirement.
- No disturbance arising from demolition, construction, or any other activity shall take place on the property prior to Planning & Development Services receiving and approving the Focused EIS to ensure that all technical requirements have been satisfied.
- It is an offence under Section 10(1) of the *Endangered Species Act* to damage or destroy the habitat of a species that is listed on the Species at Risk in Ontario list as an Endangered or Threatened species.

or

If an SLSR is pursued:

- A scoping meeting shall be held between the proponent and a City Ecologist to review and confirm the study scope. A site visit may be requested in support of application review.
- The proponent and/or their consultant is required to complete the Environmental Impact Study Issues Scoping Checklist as a draft for submission to the City in advance of the scoping meeting. Once all comments regarding the draft Checklist have been received and finalized the City of London will send a written approval e-mail.
- No disturbance arising from demolition, construction, or any other activity shall take place on the property prior to Planning and Development Services receiving and approving the EIS to ensure that all technical requirements have been satisfied.
- It is an offence under Section 10(1) of the *Endangered Species Act* to damage or destroy the habitat of a species that is listed on the Species at Risk in Ontario list as an Endangered or Threatened species.
- Avoid tree removal within the active bat roosting period (April 30 – September 1) to reduce potential interactions with Endangered bat species, to avoid contravention of the *Endangered Species Act.*
- Avoid vegetation removal within the active breeding bird period (April 1 – August 1) to avoid disturbing nesting birds and contravening the *Migratory Bird Convention Act.*

Landscape Architecture:

- A tree preservation plan is required as part of a complete application to:
    - establish the ownership of trees growing along property lines, including the identification of boundary trees that are protected by the province's Forestry Act 1998, c. 18, Sched. I, s. 21.
    - Identify rare or endangered species that are protected by the province's Endangered Species Act, 2007, S.O., C.6
    - Identify canopy spread of existing trees within or offsite, tree symbols to reflect canopy widths
    - Identify Tree Protection Areas
    - Identify City Owned trees and shrubs that require consent to injure or remove.
    - Detail tree removals, tree retention, tree fence alignment

The tree preservation plan and tree protection measures must include**:**

- inventory of existing vegetation-species, size, location, health, age, rare or threatened species. Include trees ≥10cm dbh and shrubs 1.5m high;
- opinion of the significance of the vegetation.

UTRCA:

- Regulated due to the presence of riverine flooding and erosion hazards through rear-central portion of lands, and a small area at the southwest corner
- Comments previously provided through Proposal Review process (Feb 18, 2021)
- Proposal has since changed to a consent application resulting in three lots, and associated ZBA

- Provided email comments to agent (Laverne Kirkness) in 2021 on revised proposal
- UTRCA not supportive of fragmenting hazard lands
- Rear lot line should be located on western side of watercourse, and established by slope stability and scoped EIS
- Existing access to rear agricultural lands is provided towards north end of the watercourse and is proposed to be relocated. We are encouraging applicant to keep this in same location, however will engage in discussions to relocate should it be deemed necessary and can be supported by technical studies

Studies, Reports, Background or Information to be completed and submitted with the application form

- Zoning By-law Amendment Application and Fee
- Zoning Data Sheet (based on proposed zoning)
- Planning & Design Report
- MDS Calculation
- Archaeological Assessment Stage 1-2
- Focused EIS, scoped with appropriate City and UTRCA staff *see details in Ecology section
- Subject Land Status Report if development proposed within 30m of feature
- Servicing Suitability Study with hydrogeological conditions that includes an assessment of sewage disposal system impacts. The assessment shall demonstrate that the site can adequately meet the requirements of MECP Procedure D-5-4.
- Tree Preservation Plan with tree protection measures – scope with staff
- Image for use on sign/webpage
- Electronic copy of all submitted materials (USB) – AODA
- Additional studies may be required through the consent process

PRE-APPLICATION CONSULTATION HAS OCCURRED

☑ YES ☐ NO

PLANNER: Nancy Pasato

PROPONENT: Simona Rasanu

DATE: January 18, 2022

Disclaimer

The pre-application consultation process is intended to identify issues early in the process and to identify the reports, studies and information required to be submitted as part of a complete application. A complete application enables Council to make informed decisions within a reasonable period of time and ensures that the public and other stakeholders have access to the relevant information early in the process. While every effort has been made to identify information needs at this stage, additional issues and/or information needs may be identified through the application review process and may be requested at that time. Should a formal submission of an application not materialize within 9 months, a subsequent Pre-Application Consultation Meeting (PACM) will be required.

Council adopted *The London Plan*, the City's new Official Plan for the City, on June 23, 2016. It is not yet in force and effect, but should it come into force and effect before you submit your complete application, City staff may identify additional complete application requirements at the time of application submission in order to comply with *The London Plan* policies.

ZONING DATA SHEET – ZONING BY-LAW AMENDMENT

To be completed by Applicant as part of Complete Application

File No.

Description of Land		
Municipal street address**:**		
Legal Description**:**		
Street Frontage / Street Flankage (name):		
Existing Zone(s) in Z.-1 Zoning By-law:	**Proposed Zone(s) in Zoning By-law:**	
BY-LAW RESTRICTIONS	**REQUIRED (PROPOSED ZONE)**	**AS SHOWN ON PLAN**
(a) Use		
(b) Lot Area (m^2) Min		
(c) Lot Frontage (m) Min		
(d) Front Yard Depth (m) Main Building/ Garage (m) Min		
(e) Rear Yard Depth (m) Min		
(f) Interior Yard Depth (m) Min		
(g) Interior Yard Depth (m) Min		
(h) Exterior Yard Depth (m) Min		
(i) Lot Coverage (%) Max		
(j) Landscaped Open Space (% Min)		
(k) Height (m) Max		
(l) Off-street Parking Min (rate/number)		
(m) Bicycle Parking Min (rate/number)		
(n) Parking Area Coverage (%) Max		
(o) Parking Set Back Min		
(p) Gross Floor Area (m^2) Max		
(q) Gross Floor Area For Specific Uses (m^2) Max		
(r) Yard Encroachments (if applicable)		
(s) Density Max (rate/number) (see Section 3.4 1) for mixed-use)		
(t) Special Provisions		
(u) Other By-law Regulations		

COMMENTS

NOTE:

- **Please be sure to carefully review and include data / details related to:**
  - **General Provisions (Section 4) of the Zoning By-law**
  - **Zones and Zone Symbols (Section 3) of the Zoning By-law**
  - **Regulations Section and Table for Proposed Zone**
  - **Zoning By-law Definitions**
- **The Applicant is responsible for submitting complete & accurate information on the Zoning Data Sheet and associated plans.**
- **Failure to provide complete & accurate information on the Zoning Data Sheet and associated plans will result in processing delays, and may require the submission of a revised Zoning By-law amendment application.**

Appendix B

EIS Scoping Checklist

APPENDIX B - Environmental Study Scoping Checklist

Application/Project Name: 1176 Crumlin Sideroad Focused EIS (51594-100)

Proponent: Fine Home Design (Peter Drankowsky) **Date:** August 19, 2022

Proposed Project Works: Severing the lot to create 3 parcels, construct 1 home

Study Type: Focused EIS

Lead Consultant: SBM Ltd.

Key Contact: Simona Rasanu

Subconsultants: MTE Consultants (Main Contact: Allie Leadbetter)

Technical Review Team:

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

☐ Planner for the File: _____ ☐ Province - Other: _____

☑ Conservation Authority: UTRCA Contact: Mike Serra

☑ EEPAC: Sandy Levin, Kiana Lee ☐ Other: _____

☐ Project Manager, Environmental Assessment: _____

☐ First Nation(s): _____

Subject Lands and Study Area:

Location/Address and Size (ha) of Subject Lands:
1176 Crumlin Sideroad (3.28 ha)

Study Area Size (approximate ha): ~18ha ■ Map (attached): _____

Position of Site in Subwatershed: Waubuno Creek (Map 5)/Crumlin Drain (Map 6)

Tributary Fact Sheet: *Get for Waubuno Creek (2017 Watershed Report Card)

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*

Map 1 Place Types:

☑ Green Space ☐ Environmental Review

Other Place Types: Farmland, Rural Neighbourhood, Neighbourhoods (adj.)

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. _____

** 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

Required Field Investigations:

Aquatic:

☐ Aquatic Habitat Assessment: _____

☐ Fish Community (Collection): _____

☐ Spawning Surveys: _____

☐ Benthic Invertebrate Survey: _____

☐ Mussels: _____

☐ Other: _____

Wetlands:

☐ Wetland Delineation: _____

☐ Wetland Evaluation (OWES): _____

☐ Other: _____

Terrestrial (Wetland, Upland and Lowland):

☐ Vegetation Communities (ELC): _____

☐ Botanical Inventories ☐ Winter ☐ Spring ☐ Summer ☐ Fall

☐ Breeding Bird Surveys (type & frequency): _____

☐ Raptor Surveys: _____ ☐ Shoreline Birds: _____

☐ Crepuscular Surveys: _____ ☐ Grassland Surveys: _____

☐ Amphibian Surveys (type & frequency): _____

☐ Reptile Surveys:

- ☐ Turtle (type & frequency): _____
- ☐ Snake (type & frequency): _____
- ☐ Other (type & frequency): _____

☐ Bat Habitat, Cavity & Acoustic Surveys: _____

☐ Mammal Surveys: _____

- ☐ Winter Wildlife Surveys: _____

☐ Butterflies (Lepidoptera): _____

☐ Dragonflies / Damselflies (Odonata): _____

☑ Species at Risk Specific Surveys: Included in tree surveys

☐ Species of Conservation Concern Surveys: _____

☐ Significant Wildlife Habitat Surveys: General habitat assessment

☐ Other field investigations: _____

Supporting Concurrent Studies/Investigations:

☐ Hydrogeological/Groundwater: _____

☐ Surface Water/Hydrology: _____

☐ Water Balance: _____

☐ Fluvial Geomorphological: _____

☐ Geotechnical: _____

☑ Tree Inventory: Trees (>10cm) tagged along the property line + within 3 m on Adj. Lands

☐ Other: Tagged trees and woodland boundary to be surveyed by OLS

Evaluation of Significance:

Federal:

☑ Fish Habitat ☐ Other Federal: _____

☐ Species at Risk (*SARA*)

Provincial:

- ☐ Provincially Significant Wetlands
- ☐ Significant Woodlands
- ☑ Significant Valleylands
- ☑ Significant Wildlife Habitat Ecoregion 7E
- ☐ Areas of Natural & Scientific Interest
- ☑ Fish Habitat
- ☐ Water Resource Systems
- ☑ Species at Risk (*ESA*): Included in tree survey

Municipal/London:

- ☐ Environmentally Significant Areas (ESAs), Potential ESAs
- ☐ Significant Woodlands, Woodlands
- ☑ Significant Valleylands, Valleylands
- ☐ Wetlands, Unevaluated Wetlands
- ☑ Significant Wildlife Habitat
- ☐ Unevaluated Vegetation Patches
- ☐ Other Vegetation Patches >0.5 ha
- ☐ Potential Naturalization Area
- ☐ Other: _____

Impact Assessment:

- ☑ Impact Assessment Required
- ☑ Net Effects Table Required

Environmental Management Recommendations:

- ☑ Environmental Management Plan: Focus on buffer and construction - can be included
- ☐ Specifications & Conditions of Approval: _____
- ☐ Other: _____

Environmental Monitoring:

- ☑ Baseline Monitoring: Tree inventory, SAR survey
- ☑ Construction Monitoring: _____
- ☑ Post-Construction Monitoring: Consider success rate (%) and adaptive management

Additional Requirements and Notes:

-In the Record of Pre-Application Consultation (January 18, 2022), the City states "In this case, a buffer of 30m on each side of the high-water mark would be required surrounding the water feature associated with the Significant Valleylands feature contained within the subject land." This would be rezoned as an Open Space buffer, and then a full EIS is not required ("Focused EIS" instead)
-Woodland edge to be staked and then checked during a field visit with the City of London (extend invitation to Stefanie Pratt, Mike Serra, Peter)
-UTRCA will send a regulation map for the site
-Mike will speak to Stefanie about getting high water mark/floodline mapping
-Recommendations for Landscape Plan can be put in Focused EIS, can also submit it at this stage
-Agricultural access to east field is intended to be maintained and will be discussed in the Focused EIS
-City would like to see monuments along buffer delineation (physical marker) to address encroachment concerns

Appendix C

Species at Risk Screening Table

Table A: Species Occurrence Data Review (Potential Within 10 km of the Subject Lands)

Species	SARO Status	Source(s)	Habitat Description	Habitat Suitability in the Subject Lands and 120 m Adjacent Lands	Probability of Occurrence on the Subject Lands
American Badger (*Taxidea taxus jacksoni*)	END	Added due to under-representation in species records	Typical habitat includes natural/undisturbed grasslands, old fields or pastures, agricultural field edges, scrubland, wooded ravines, and woodlots (Ontario American Badger Recovery Team, 2010).	The Subject Lands do contain Cultural Meadows bordered by a woodlot, however the fields are cultural and the surrounding area is largely residential and agricultural. In addition, no potential American Badger burrows were located during site visits.	Absent
Butternut (*Juglans cinerea*)	END	Added due to under-representation in species records	Butternut trees are found in deciduous or mixed forests with a preference for stream banks or well-drained soils. This species also prefers open habitat such as in canopy openings or near the forest edge (Environment Canada, 2010).	The wooded community along the watercourse may be suitable for Butternut [END]. A targeted search for Protected floral species on August 4, 2022, did not find any Butternut within the Subject Lands.	Absent
Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*), Tri-coloured Bat (*Perimyotis subflavus*)	END	Added due to under-representation in species records	These three bat species require habitat for overwintering (hibernacula in caves, mines, wells), roost habitat in the summer (trees with loose bark, cracks, holes, dead foliage), and foraging habitat. Little Brown Myotis is frequently found roosting in anthropogenic structures such as houses, barns, bat boxes, and bridges (Environment Canada, 2015).	A few snags were noted in Community 2, but no targeted bat habitat surveys have been completed. Adjacent lands to the west contain wooded areas that may provide suitable maternity roost trees. No potential hibernaculum feature is present within the Subject Lands.	Moderate
Queensnake (*Regina septemvittata*)	END	Ontario Nature, 2019	Queensnakes are a primarily aquatic species that inhabits rocky or gravel bottomed streams and rivers (MECP, 2022) and are usually within 3 m of the shoreline (COSEWIC, 2010). Queensnakes rely on crayfish as their main prey (COSEWIC, 2010).	The watercourse passing through the Subject Lands is unlikely to contain Queensnake as it is a very narrow drain with no suitable rocky riverine habitat.	Absent
Red-headed Woodpecker (*Melanerpes erythrocephalus*)	END	Birds Canada, 2005	Red-headed Woodpecker breeding habitat ranges from open deciduous forests or woodlots to woodland edges to urban treed areas (orchards, cemeteries, golf courses, roadsides, pastures with scattered trees, etc.) (COSEWIC, 2018a). This species requires an open understorey and a high density of dead trees.	Community 2 (FOD7) is wooded, however it is quite small and the understorey is relatively dense. A high density of dead trees was not observed. No Red-headed Woodpeckers have been observed, but no targeted surveys were completed.	Low

Species	SARO Status	Source(s)	Habitat Description	Habitat Suitability in the Subject Lands and 120 m Adjacent Lands	Probability of Occurrence on the Subject Lands
Bank Swallow (*Riparia riparia*)	THR	Birds Canada, 2005	Bank Swallow foraging habitat includes open terrestrial and aquatic areas with abundant insect prey, such as wetlands, open water, grasslands, and agricultural lands (Falconer et al., 2016). Nests are burrowed into vertical or near-vertical banks of silt or sand. Roosting habitat where large numbers of Bank Swallows congregate at night are usually located in large wetlands, reed/cane beds, or in other dense vegetation over water (Falconer et al., 2016).	The Subject Lands may contain suitable foraging habitat over the agricultural fields, but no nesting or roosting habitat is present. No Bank Swallows were observed on site.	Low
Barn Swallow (*Hirundo rustica*)	THR	Birds Canada, 2005	Foraging habitat include areas with abundant insects such as grasslands, farmland, open wetlands, open water, savannah, cleared right-of-ways, and even highways and residential areas (Brown & Brown, 1999). Nesting habitat includes buildings, barns, bridges, wharves, and culverts. Nocturnal roost sites are often associated with marshes or shrub thickets near water (Heagy et al., 2014).	There is no suitable nesting habitat within the Subject Lands. The agricultural fields may be suitable foraging habitat. No Barn Swallows were incidentally observed on site during field investigations.	Low
Black Redhorse (*Moxostoma duquesnei*)	THR	DFO, 2022	Black Redhorse is found in moderate to fast-flowing regions of medium-sized warmwater streams and rivers with substrates of rubble, gravel, sand, boulders, and silt (COSEWIC, 2005).	DFO identifies the Loveless Municipal Drain within the Subject Lands as potential habitat for this species, likely due to critical habitat identified in Waubuno Creek approximately 2.9 km downstream. The habitat zone for this species includes the area from the mid-channel to bankfull width on both sides of the watercourse where Black Redhorse is present (DFO, 2021). The Loveless Municipal Drain is a Class F drain, indicating it is intermittent. It is very unlikely to be suitable habitat for Black Redhorse.	Low (critical habitat located ~2.9 km downstream in Waubuno Creek)
Bobolink (*Dolichonyx oryzivorus*)	THR	Birds Canada, 2005	This species use grassland habitat including hayfields, pastures, old/abandoned fields, remnant prairies,	The Subject Lands only include relatively small (<1.0 ha) Cultural	Low

Species	SARO Status	Source(s)	Habitat Description	Habitat Suitability in the Subject Lands and 120 m Adjacent Lands	Probability of Occurrence on the Subject Lands
			savannahs, and alvar grasslands (McCraken et al., 2013).	Meadows. No targeted surveys were completed.	
Chimney Swift (*Chaetura pelagica*)	THR	Birds Canada, 2005	Chimney Swifts typically nest and roost in chimneys or other human structures. This species often forages at high altitudes away from nesting sites (COSEWIC, 2007).	No suitable hollow trees or anthropogenic structures were observed within or adjacent to the Subject Lands to provide nesting habitat for this species. No individuals were incidentally identified within the Subject Lands during site investigations.	Low
Eastern Hog-nosed Snake (*Heterodon platirhinos*)	THR	Ontario Nature, 2019	Eastern Hog-nosed Snakes are found in areas with well-drained loose or sandy soils, open vegetative cover, close proximity to water, and climatic conditions typical of the eastern deciduous forest biome (Seburn, 2009; COSEWIC, 2021). Areas such as beaches and dune habitat are often used for nesting, and this species hibernates in sandy excavated burrows (Kraus, 2011).	Eastern Hog-nosed Snakes are not typically found in the London area, and no recent records are available. The Subject Lands and adjacent lands are largely cultural, agricultural, or residential and are unlikely to be used for critical life processes for this species.	Low
Eastern Meadowlark (*Sturnella Magna*)	THR	NHIC, 2022; Birds Canada, 2005	Suitable habitat includes pastures, hayfields, old/abandoned fields, and native prairies or savannahs (McCraken et al., 2013).	There is no suitable nesting habitat (tall grass meadows and fallowed hay fields) for this species within the Subject Lands. Communities 1 and 3 are relatively small (<1.0 ha) Cultural Meadows. No targeted surveys were completed.	Low

Table B: SOCC Identified During the Species Records Review

Species	S-Rank & SARO	Source(s)	Key Habitats Used by Species	Habitat Suitability in the Subject Lands and 120 m Adjacent Lands	Probability of Occurrence on the Subject Lands
Bald Eagle (*Haliaeetus leucocephalus*)	SC S4	Birds Canada, 2005	Bald Eagles typically nest in mature forests with super-canopy trees next to large waterbodies where they forage (Armstrong, 2014).	The Subject Lands only include a narrow watercourse with a small woodlot and are not capable of supporting Bald Eagle habitat.	Low
Common Nighthawk (*Chordeiles minor*)	SC S4B	Birds Canada, 2005	Common Nighthawk nesting habitat is located in open habitat such as forest openings, prairies, bogs, rocky/sandy habitat, and disturbed areas (COSEWIC, 2018b). In urban areas, they may use flat graveled roofs.	The Subject Lands are unlikely to contain suitable open natural habitat for this species, and no flat graveled roofs are present.	Low
Eastern Wood-pewee (*Contopus virens*)	SC S4B	Birds Canada, 2005	Eastern Wood-pewee nest in mature and intermediate-age deciduous or mixed forests with open understoreys (COSEWIC, 2012a). Eastern Wood-pewee can be found along forest edges and do not require interior habitat. Various forested community types are used during migration, and this species overwinters in northern South America.	The Subject Lands do include deciduous forested habitat in Community 2, and therefore may support breeding habitat for Eastern Wood-pewee. This species can be found in woodlots in rural areas. No Eastern Wood-pewee were observed or heard on site on August 4, 2022. This visit was during the breeding season for this species (June 3 – August 16 in this Ecodistrict), although a targeted breeding bird survey was not conducted.	Moderate
Grasshopper Sparrow (*Ammodramus savannarum*)	SC S4B	Birds Canada, 2005	Grasshopper Sparrow nesting habitat is located in large human-created grasslands (>5 ha) and natural prairies (COSEWIC, 2013).	No suitable large grassland habitat is present within the Subject Lands to support breeding of Grasshopper Sparrow.	Low
Northern Brook Lamprey (*Ichthyomyzon fossor*)	SC S3	NHIC, 2022	Northern Brook Lamprey is generally found in clear water streams (COSEWIC, 2017). They burrow in silt/sand substrate as larvae and require coarse gravel substrates and fast currents for spawning.	The watercourse within the Subject Lands was not investigated in detail, but it is a relatively narrow drain without clear waters or gravel substrates. It is unlikely to contain Northern Brook Lamprey habitat.	Low

Species	S-Rank & SARO	Source(s)	Key Habitats Used by Species	Habitat Suitability in the Subject Lands and 120 m Adjacent Lands	Probability of Occurrence on the Subject Lands
Northern Map Turtle (*Graptemys geographica*)	SC S3	Ontario Nature, 2019	Northern Map Turtles live in rivers and lakeshores with basking sites (ex: rocks, deadheads), slow currents, plentiful aquatic vegetation, and abundant mollusk prey species (Roche, 2002). Northern Map Turtles rarely leave the water except to bask or lay eggs. They hibernate on the bottom of deep slow-flowing rivers with patches of sand/gravel (Roche, 2002).	No suitable aquatic habitat exists within or adjacent to the Subject Lands. The watercourse is not large or deep enough to support this species. No suitable habitat is located upstream based on aerial photo interpretation, so movement habitat is unlikely to be present as well.	Low
Snapping Turtle (Chelydra serpentina)	SC S4	Ontario Nature, 2019	Snapping Turtles are typically found in slow-moving water with soft mud substrate and dense aquatic vegetation (COSEWIC, 2008). This species uses areas of gravel or sand adjacent to water for nesting sites.	No suitable aquatic critical habitat exists within or adjacent to the Subject Lands for Snapping Turtle. No suitable habitat is located upstream based on aerial photo interpretation, so movement habitat is unlikely to be present as well.	Low
Wood Thrush (*Hylocichla mustelina*)	SC S4B	Birds Canada, 2005	Wood Thrush typically nests in second growth and mature deciduous or mixed forests with well-developed understories. This species prefers large forest mosaics (COSEWIC, 2012b).	The Subject Lands only contain a small area of woodland surrounding a drain. Wood Thrush is unlikely to be breeding within the Subject Lands.	Low

Appendix D

Significant Wildlife Habitat Assessment Table

ELCs: CUM, FOD7

Seasonal Concentration of Animals

Wildlife Habitat	ELC Codes Triggers	Additional Habitat Criteria	Candidate SWH	SWH Defining Criteria	Confirmed SWH
Waterfowl Stopover and Staging Areas (Terrestrial)	CUM	- Large fields with abundant sheet water in spring not available.	No	Studies carried out and verified presence of an annual concentration of any listed species, evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • Any mixed species aggregations of 100 or more individuals required. • The flooded field ecosite habitat plus a 100-300m radius, dependent on local site conditions and adjacent land use is the significant wildlife habitat. • Annual use of habitat is documented from information sources or field studies (annual use can be based on studies or determined by past surveys with species numbers and dates).	No
Waterfowl Stopover and Staging Areas (Aquatic)	-	- No aquatic ELCs present.	No	Studies carried out and verified presence of: • Aggregations of 100 or more of listed species for 7 days, results in >700 waterfowl use days. • Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWH • The combined area of the ELC ecosites and a 100m radius area is SWH • Wetland area and shorelines associated with sites identified within the SWHTG are significant wildlife habitat. • Annual Use of Habitat is Documented from Information Sources or Field Studies (Annual can be based on completed studies or determined from past surveys with species numbers and dates recorded).	No
Shorebird Migratory Stopover Area	-	- No beach areas, bars, seasonally flooded, muddy and un-vegetated shoreline habitat available within the Subject Lands.	No	Studies confirming: • Presence of 3 or more of listed species and >1000 shorebird use days during spring or fall migration period (shorebird use days are the accumulated number of shorebirds counted per day over the course of the fall or spring migration period). • Whimbrel stop briefly (<24hrs) during spring migration, any site with >100 Whimbrel used for 3 years or more is significant. • The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100m radius area. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”.	No

Wildlife Habitat	ELC Codes Triggers	Additional Habitat Criteria	Candidate SWH	SWH Defining Criteria	Confirmed SWH
Raptor Wintering Area	CUM, FOD7	- No combination of forest and fields >20 ha present. Woodland is very small (<1.0 ha) and surrounding area is largely agricultural and residential.	No	Studies confirm the use of these habitats by: • One or more Short-eared Owls or; One of more Bald Eagles or; At least 10 individuals and two of the listed hawk/owl species. • To be significant a site must be used regularly (3 in 5 years) for a minimum of 20 days by the above number of birds. • The habitat area for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”.	No
Bat Hibernacula	-	- No suitable features present.	No	• All sites with confirmed hibernating bats are SWH. • The area includes 200m radius around the entrance of the hibernaculum for most development types and 1000m for wind farms • Studies are to be conducted during the peak swarming period (Aug–Sept). Surveys should be conducted following methods outlined in the “Bats and Bat Habitats: Guidelines for Wind Power Projects”	No
Bat Maternity Colonies	FOD7	- No targeted surveys completed. Potential for bat maternity habitat in woodland (Community 2).	Yes (Community 2 – FOD7)	Maternity Colonies with confirmed use by; • >10 Big Brown Bats • >5 Adult Female Silver-haired Bats • The area of the habitat includes the entire woodland or a forest stand ELC Ecosite or an Ecoelement containing the maternity colonies. • Evaluation methods for maternity colonies should be conducted following methods outlined in the “Bats and Bat Habitats: Guidelines for Wind Power Projects”	Unconfirmed (Community 2 – FOD7)
Turtle Wintering Areas	-	- Over-wintering sites are permanent water bodies, large wetlands, and bogs and fens with adequate dissolved oxygen. No suitable features present.	No	Presence of 5 over-wintering Midland Painted Turtles is significant. • One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significant. • The mapped ELC Ecosite area with the over wintering turtles is the SWH. If the hibernation site is within a stream or river, the deepwater pool where the turtles are over wintering is the SWH. • Over wintering areas may be identified by searching for congregations (Basking Areas) of turtles on warm, sunny days during the fall (Sept-Oct) or spring (Mar-May). • Congregation of turtles is more common where wintering areas are limited and therefore significant.	No

Wildlife Habitat	ELC Codes Triggers	Additional Habitat Criteria	Candidate SWH	SWH Defining Criteria	Confirmed SWH
Reptile Hibernaculum	All other than really wet	- No features indicative of hibernation sites (bedrock fissures, rock piles, burrows) present within the Subject Lands.	No	Studies confirming: • Presence of snake hibernacula used by a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. • Congregations of a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. Near potential hibernacula (eg. foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct). • Note: If there are Special Concern Species present, then site is SWH. • The feature in which the hibernacula is located plus a 30 m radius area is SWH.	No
Colonially-Nesting Bird Breeding Habitat (Bank/Cliff)	CUM	- No exposed soil banks, cliff faces, sandy hills, borrow pits, steep slopes, or other suitable habitat present.	No	Studies confirming: • Presence of 1 or more nesting sites with 8cxlix or more cliff swallow pairs and/or rough-winged swallow pairs during the breeding season. • A colony identified as SWH will include a 50m radius habitat area from the peripheral nests. • Field surveys to observe and count swallow nests are to be completed during the breeding season. Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”.	No
Colonially-Nesting Bird Breeding Habitat (Trees/Shrubs)	-	- No suitable wetland habitat is present. - No heron nesting sites/colonies present based on LIO mapping (wildlife values area map).	No	Studies confirming: • Presence of 2 or more active nests of Great Blue Heron or other listed species. • The habitat extends from the edge of the colony and a minimum 300m radius or extent of the Forest Ecosite containing the colony or any island <15.0ha with a colony is the SWH. • Confirmation of active heronries are to be achieved through site visits conducted during the nesting season (April-August) or by evidence such as the presence of fresh guano, dead young and/or eggshells.	No
Colonially-Nesting Bird Breeding Habitat (Ground)	CUM	- No islands, peninsulas, or low bushes and open fields directly next to streams/ditches are present. - No nesting sites for Ring-billed Gull or Herring Gull identified in the area by LIO wildlife values area mapping.	No	Studies confirming: • Presence of > 25 active nests for Herring Gulls or Ring-billed Gulls, >5 active nests for Common Tern or >2 active nests for Caspian Tern. • Presence of 5 or more pairs for Brewer’s Blackbird. • Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant. • The edge of the colony and a minimum 150m radius area of habitat, or the extent of the ELC ecosites containing the colony or any island <3.0ha with a colony is the SWH. • Studies would be done during May/June when actively nesting. Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”.	No

Wildlife Habitat	ELC Codes Triggers	Additional Habitat Criteria	Candidate SWH	SWH Defining Criteria	Confirmed SWH
Migratory Butterfly Stopover Areas	CUM	- A butterfly stopover area will be >10 ha in size with a combination of forest (FOD) and field (CUM/CUT), and be located within 5 km of Lake Erie or Lake Ontario. Criteria not met due to the lack of suitable habitat and the large distance from both Lake Erie and Lake Ontario.	No	Studies confirm: • The presence of Monarch Use Days (MUD) during fall migration (Aug/Oct). MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/day, significant variation can occur between years and multiple years of sampling should occur. • Observational studies are to be completed and need to be done frequently during the migration period to estimate MUD. • MUD of >5000 or >3000 with the presence of Painted Ladies or Red Admiral's is to be considered significant.	No
Land Bird Migratory Stopover Areas	FOD7	- No woodlots >5 ha in size that are within 5 km of Lake Ontario and Lake Erie. Criteria not met.	No	Studies confirm: • Use of the habitat by >200 birds/day and with >35 spp. with at least 10 bird spp. recorded on at least 5 different survey dates. This abundance and diversity of migrant bird species is considered above average and significant. • Studies should be completed during spring (Mar to May) and fall (Aug-Oct) migration using standardized assessment techniques. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"	No
Deer Winter Congregation Areas	FOD7	- No woodlots >100 ha in size. - No White-tailed Deer wintering areas identified in the area by LIO wildlife values area mapping.	No	Studies confirm: • Deer management is an MNRF responsibility, deer winter congregation areas considered significant will be mapped by MNRF. • Use of the woodlot by whitetailed deer will be determined by MNRF, all woodlots exceeding the area criteria are significant, unless determined not to be significant by MNRF. • Studies should be completed during winter (Jan/Feb) when >20cm of snow is on the ground using aerial survey techniques, ground or road surveys. or a pellet count deer density survey.	No

Rare Vegetation Communities

Wildlife Habitat	ELC Codes Triggers	Additional Habitat Criteria	Candidate SWH	SWH Defining Criteria	Confirmed SWH
Cliffs and Talus Slopes	-	Not present.	No	• Confirm any ELC Vegetation Type for Cliffs or Talus Slopes.	No
Sand Barren	-	Not present.	No	• Confirm any ELC Vegetation Type for Sand Barrens. • Site must not be dominated by exotic/introduced species (<50% vegetative cover exotic sp.).	No
Alvar	-	Not present.	No	• Field studies that identify 4 of the 5 Alvar Indicator Species at a Candidate Alvar site is significant. • Site must not be dominated by exotic/introduced species (<50% vegetative cover exotic sp.). • The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses.	No
Old Growth Forest	FOD7	Not present. No woodlands >0.5 ha.	No	Field Studies will determine: • If dominant trees species are >140 years old, then the area containing these trees is SWH. • The forested area containing the old growth characteristics will have experienced no recognizable forestry activities (cut stumps will not be present) • The area of forest ecosites combined or an eco-element within an ecosite that contain the old growth characteristics is the SWH. • Determine ELC vegetation types for the forest area containing the old growth characteristics.	No
Savannah	-	Not present.	No	• Field studies confirm one or more of the Savannah indicator species listed in Appendix N should be present. Note: Savannah plant spp. list from Ecoregion 7E should be used. • Area of the ELC Ecosite is the SWH. • Site must not be dominated by exotic/introduced species (<50% vegetative cover exotic sp.).	No
Tallgrass Prairie	-	Not present.	No	• Field studies confirm one or more of the Prairie indicator species listed in Appendix N should be present. Note: Prairie plant spp. list from Ecoregion 7E should be used. • Area of the ELC Ecosite is the SWH. • Site must not be dominated by exotic/introduced species (<50% vegetative cover exotic sp.).	No
Other Rare Vegetation	-	Not present.	No	•Field studies should confirm if an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of SWHTG. • Area of the ELC Vegetation Type polygon is the SWH.	No

Specialized Habitats of Wildlife considered SWH

Wildlife Habitat	ELC Codes Triggers	Additional Habitat Criteria	Candidate SWH	SWH Defining Criteria	Confirmed SWH
Waterfowl Nesting Area	-	- Wetland habitat is not present.	No	Studies confirmed: • Presence of 3 or more nesting pairs for listed species excluding Mallards, or; • Presence of 10 or more nesting pairs for listed species including Mallards. • Any active nesting site of an American Black Duck is considered significant. • Nesting studies should be completed during the spring breeding season (April-June). Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • A field study confirming waterfowl nesting habitat will determine the boundary of the waterfowl nesting habitat for the SWH, this may be greater or less than 120 m from the wetland and will provide enough habitat for waterfowl to successfully nest.	No
Bald Eagle and Osprey Nesting, Foraging, Perching	FOD7	- No stick nests observed on site. - Small watercourse on site is not suitable for typical Osprey or Bald Eagle nesting or foraging habitat. - No Osprey feeding or resting areas identified in the area of the Subject Lands on LIO wildlife values mapping.	No	Studies confirm the use of these nests by: • One or more active Osprey or Bald Eagle nests in an area. • Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the SWH. • For an Osprey, the active nest and a 300 m radius around the nest or the contiguous woodland stand is the SWH, maintaining undisturbed shorelines with large trees within this area is important. • For a Bald Eagle the active nest and a 400-800 m radius around the nest is the SWH. Area of the habitat from 400-800m is dependent on site lines from the nest to the development and inclusion of perching and foraging habitat. • To be significant a site must be used annually. When found inactive, the site must be known to be inactive for >3 years or suspected of not being used for >5 years before being considered not significant. • Observational studies to determine nest site use, perching sites and foraging areas need to be done from early March to mid-August. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”.	No
Woodland Raptor Nesting Habitat	FOD7	- No natural or conifer plantation woodlands/forest stands >30ha with >4ha of interior habitat. Criteria not met.	No	Studies confirm: • Presence of 1 or more active nests from species list is considered significant. • Red-shouldered Hawk and Northern Goshawk – A 400m radius around the nest or 28 ha area of habitat is the SWH. (the 28 ha habitat area would be applied where optimal habitat is irregularly shaped around the nest) • Barred Owl – A 200m radius around the nest is the SWH. • Broad-winged Hawk and Coopers Hawk,– A 100m radius around the nest is SWH. • Sharp-Shinned Hawk – A 50m radius around the nest is the SWH. • Conduct field investigations from early March to end of May. The use of call broadcasts can help in locating territorial (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search area.	No

Wildlife Habitat	ELC Codes Triggers	Additional Habitat Criteria	Candidate SWH	SWH Defining Criteria	Confirmed SWH
Turtle Nesting Areas	-	- No areas with exposed mineral soils adjacent to suitable aquatic habitat.	No	Studies confirm: • Presence of 5 or more nesting Midland Painted Turtles. • One or more Northern Map Turtle or Snapping Turtle nesting is a SWH. • The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100m around the nesting area dependent on slope, riparian vegetation and adjacent land use is the SWH. • Travel routes from wetland to nesting area are to be considered within the SWH as part of the 30-100m area of habitat. • Field investigations should be conducted in prime nesting season typically late spring to early summer. Observational studies observing the turtles nesting is a recommended method.	No
Springs and Seeps	FOD7	- No seeps or springs observed within the Subject Lands. - Not located in a headwater area.	No	Field Studies confirm: • Presence of a site with 2 or more seeps/springs should be considered SWH. • The area of a ELC forest ecosite or an ecoelement within ecosite containing the seeps/springs is the SWH. The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation of the habitat.	No
Amphibian Breeding Habitat (Woodland)	FOD7	- No breeding pools available within or adjacent to the woodland.	No	Studies confirm; • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog species with Call Level Code 3. • A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the woodland/wetlands. • The habitat is the wetland area plus a 230m radius of woodland area. If a wetland area is adjacent to a woodland, a travel corridor connecting the wetland to the woodland is to be included in the habitat	No
Amphibian Breeding Habitat (Wetlands)	-	- No wetlands located >120m from woodland ecosites are present within or directly adjacent to the Subject Lands.	No	Studies confirm: • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog/toad species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog/toad species with Call Level Codes of 3. or; Wetland with confirmed breeding Bullfrogs are significant. • The ELC ecosite wetland area and the shoreline are the SWH. • A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the wetlands.	No
Woodland Area-Sensitive Bird Breeding	FOD7	- No large mature (>60yrs old) forest stands or woodlots >30 ha are present within or adjacent to	No	Studies confirm: • Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. • Note: any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH.	No

Wildlife Habitat	ELC Codes Triggers	Additional Habitat Criteria	Candidate SWH	SWH Defining Criteria	Confirmed SWH
Habitat		the Subject Lands.		• Conduct field investigations in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”.	

Habitats of Species of Conservation Concern considered SWH

Wildlife Habitat	ELC Codes Triggers	Candidate Habitat Criteria	Candidate SWH	SWH Defining Criteria	Confirmed SWH
Marsh Breeding Bird Habitat	CUM	- No wetland communities present to support marsh breeding birds.	No	Studies confirm: • Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or breeding by any combination of 4 or more of the listed species. • Note: any wetland with breeding of 1 or more Black Terns, Trumpeter Swan, Green Heron or Yellow Rail is SWH. • Area of the ELC ecosite is the SWH. • Breeding surveys should be done in May/June when these species are actively nesting in wetland habitats. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”.	No
Open Country Bird Breeding Habitat	CUM	- Natural and cultural fields >30 ha are not present.	No	Field studies confirm: • Presence of nesting or breeding of 2 or more of the listed species. • A field with 1 or more breeding Short-eared Owls is to be considered SWH. • The area of SWH is the contiguous ELC ecosite field areas. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”.	No
Shrub/Early Successional Bird Breeding Habitat	-	- No large fields succeeding to shrub and thicket habitats >10 ha in size are present.	No	Field Studies confirm: • Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species. • A habitat with breeding Yellow-breasted Chat or Golden-winged Warbler is to be considered SWH. • The area of the SWH is the contiguous ELC Ecosite field/thicket area. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their	No

Wildlife Habitat	ELC Codes Triggers	Candidate Habitat Criteria	Candidate SWH	SWH Defining Criteria	Confirmed SWH
				territories • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”.	
Terrestrial Crayfish	-	- No suitable habitat present. - No chimneys or individuals observed within the Subject Lands.	No	Studies Confirm: • Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable meadow marsh, swamp or moist terrestrial sites. • Area of ELC ecosite or an eco-element area of meadow marsh or swamp within the larger ecosite area is the SWH. • Surveys should be done April to August in temporary or permanent water. Note the presence of burrows or chimneys are often the only indicator of presence, observance or collection of individuals is very difficult.	No
Special Concern and Rare Wildlife Species (NHIC and MNRF pre-consultation)	-	- NHIC and The 2001-2005 OBBA database identified several Special Concern or rare species as potentially present within the area of the Subject Lands. These include Bald Eagle [SC], Common Nighthawk [SC], Eastern Wood-pewee [SC], Grasshopper Sparrow [SC], Northern Brook Lamprey [SC], Northern Map Turtle [SC], Snapping Turtle [SC], and Wood Thrush [SC]. - The adjacent lands outside the property boundary were not investigated for potential Special Concern or rare wildlife. - Based on the habitat assessment [Appendix B], the only SOCC that may be likely to be present is Eastern Wood-pewee [SC].	Yes	Studies Confirm: • Assessment/inventory of the site for the identified special concern or rare species needs to be completed during the time of year when the species is present or easily identifiable. • The area of the habitat to the finest ELC scale that protects the habitat form and function is the SWH, this must be delineated through detailed field studies. The habitat needs be easily mapped and cover an important life stage component for a species e.g. specific nesting habitat or foraging habitat.	Unconfirmed (Potential for Eastern Wood-pewee in Community 2)

Animal Movement Corridors

Wildlife Habitat	ELC Codes Triggers*	Additional Habitat Criteria	Candidate SWH	SWH Defining Criteria	Confirmed SWH
Amphibian Movement Corridors	-	- Movement corridors are determined when there is confirmed amphibian breeding habitat in wetlands. Only woodland amphibian breeding SWH has been identified.	No	• Field Studies must be conducted at the time of year when species are expected to be migrating or entering breeding sites. • Corridors should consist of native vegetation, with several layers of vegetation. Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant. • Corridors should have at least 15m of vegetation on both sides of waterway or be up to 200m wide of woodland habitat and with gaps <20m. • Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat.	No

SWH exceptions

Wildlife Habitat	Ecosites	Habitat Criteria and Information	Candidate SWH	SWH Defining Criteria	Confirmed SWH
Bat Migratory Stopover Area	No triggers	- The site is not near Long Point.	No	• The confirmation criteria and habitat areas for this SWH are still being determined.	No

Appendix E

MTE Field Sheets

MTE NATURAL ENVIRONMENT FIELD SHEET

Project #:	51594-100	Description:	1176 CRUMLIN SDRD.
Date:	4-Aug-22	Staff:	WH, SW
Start Time:	8:00	End Time:	10:00
Temp:	22C	Cloud %:	100
Wind:	2	Direction:	W

Total Time: 4hrs
Precipitation: 0
Yesterday: RAIN

BEAUFORT WIND SCALE:
0 Calm, 1 Smoke Drifts, 2 Wind Felt on Face, 3 Leaves in Constant Motion,
4 Wind Raises Paper, 5 SmallTrees Sway, 6 Large Limbs Sway

DATA FOCUS

Amphibians:	1	2	3	Aqua Hab.:		Dripline:	X	Invertebrates:		Wetland:	
Birds:	M	1	2	Bats:		ELC's:		Reptiles:		Other:	TREES
Floral:	v	s	a	BHA:		Habitat:		SAR Target:			

NATURAL FEATURES			Mapped (see GPS)	Follow-up Req'd		
YES	NO			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				
		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:		None observed							
		Pond (woods)	emergents		sumergents		logs		temp.
		Pond (open)	emergents		sumergents		logs		temp.
		Water in woodland	flowing		dry		pools		
		Nat. Stream	flowing		dry		pools		
		Swale	flowing		dry		pools		
		Open Drain	flowing		dry		pools		
		Seeps	flowing		dry		pools		
		River							

Incidental Observations/Notes:

NO SAR OBSERVED.
BOUNDARY TREES TAGGED AND FEATURE DRIPLINE FLAGGED WITH GREEN

GENERAL SITE INFORMATION FIELD SHEET

Project: 51594-100 (1176 Crumlin Sideroad)
Date: 31-Aug-22 Project Manager: AL/MC
Collector(s): AL Visit #: 2
Time started: 1:00 PM Time finished: ~2:30 Combined collectors' hours:_____
☐ NHIC List ☐ MNR EO's ☐ one ☐ ot provided to collector

WEATHER CONDITIONS				
Temp.	Wind:		Cloud Cover (%)	Precipitation
	Direction:		Sunny	Today: No Yesterday:

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
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**						
☐	x	Barns/Footings/Wells/other(list)					
☐	x	Rock Piles					
x	☐	Garbage					
Natural Vegetation:			☐ None observed				
☐	x	Fallen Logs outside woods (#'s)					
☐	☐	Brush Piles					
☐	x	Snags (raptor perch)					
☐	x	Tree Cavities (nesting)					
☐	x	Sentinel Trees					
☐	x	Butternut Identified					
☐	x	Mast Trees (6E) ☐ Berry Shrubs (6E)					
Wildlife Features:			☐ None observed				
☐	x	Waterfowl nesting (large #'s, # of species)					
☐	x	Exposed Banks (nesting swallows)					
☐	x	Stick Nests					
☐	x	Animal Burrows (>10cm)					
☐	x	Heronry					
☐	x	Crayfish mounds					
☐	x	Sand/gravel on site					
x	☐	Marsh/**open country**/shrub					
☐	x	Winter Deer yards					
☐	x	Corridor from pond to woods (ampibian movement)					
☐	x	Bat corridor (shorelines, escarpments)					
☐	x	Bat hibernacula (caves, mines, crevices, etc.)					
Aquatic Features:							
☐	☐	Perm. pond in woodland ☐ emergents/submergents/logs ☐ mp.					
☐	☐	Perm. pond in open ☐ emergents/submergents/logs ☐ mp.					
☐	☐	Water in woodland ☐ pools ☐ flowing ☐ dry					
■	☐	Waterways flowing dry pools					
	☐	natural stream ☐ ☐ ☐					
	☐	swale ☐ ☐ ☐ ☐ None observed					
	☐	open drain ■ ☐ ☐					
	☐	Seeps/Springs ☐ ☐ ☐					

Incidental Observations/Notes:

City meeting to go over the site, buffers, and the woodland dripline

Two Monarchs seen flying through Community 1 field

Tree of Heaven and residenital disturbance at north area (sheds, drain clean-out)

Shane Butnari says top of bank looks like the high water mark of the watercourse and should be good to use for buffer measurements

Graphic ☐ Attached or Name Checked by Project Manager ☐ Date:_____

Appendix F

MTE Staff CVs

Allie has over two years of experience completing terrestrial and aquatic field surveys, as well as with analyzing and summarizing field data for technical reports. In her current role at MTE, she assists with data collection and reporting to support environmental planning, monitoring and approvals in compliance with provincial natural heritage policies including Ontario Planning Act, Endangered Species Act, Aggregate Resources Act and Environmental Assessment Act.

Allie Leadbetter, B.Sc.

Title: Biologist

Professional Experience

Education

Bachelor of Science, Environmental Science (Ecology Specialization) | University of Waterloo | 2020

Tenure with MTE

Since 2020

Professional Development

WHMIS

Work History

Biologist | MTE Consultants | 2020-Present

Aquatic Field Biologist | Natural Resource Solutions | 2020

Season Assistant Ecologist | Savanta | 2019

Wetlands Soils Research Assistant | Wetland Soils & Greenhouse Gas Exchange Lab (University of Waterloo) | 2018

Toxicology Research Technician | Canada Centre for Inland Waters (Environment Canada) | 2017

Greenhouse Crops Research Assistant | Agriculture and Agri-Food Canada | 2017

Awards

President's Research Award | University of Waterloo | 2019

NSERC Undergraduate Student Research Award | 2019

McEwen Clean Water Prize | Grand River Conservation Authority | 2017

Melissa has over 16 years of professional experience and has been involved in a wide range of projects including natural heritage assessments, environmental impact studies, constraint analyses, restoration plans and natural heritage components of Environmental Assessments. This work involves the implementation of natural heritage policies under the Planning Act / Provincial Policy Statement, the Renewable Energy Act, the Aggregate Resources Act, the Places to Grow Act / Growth Plan for the Greater Golden Horseshoe, and municipal policy documents. She is very knowledgeable with many Species at Risk and their potential interaction with proposed projects as it relates to the Endangered Species Act and the Species at Risk Act.

Melissa Cameron, M.Sc., M.LA., OALA

Title: Manager, Ecology

Professional Experience

Education

Master of Landscape Architecture | University of Guelph | 2007

Master of Zoology | University of Guelph | 2005

Bachelor of Science, Ecology | University of Guelph | 2001

Tenure with MTE

Since 2021

Memberships

Member, Canadian Society of Landscape Architects

Member, Ontario Association of Landscape Architects

Work History

Manager, Ecology; Senior Biologist | MTE Consultants | 2021-Present

Ecologist | Stantec Consulting Ltd. | 2012-2021

Conservation Biologist | ExxonMobil Biomedical Sciences Inc. | 2009-2010; 2010-2012 (contractor)

Landscape Architect | MMM Group Ltd. | 2009

Landscape Architect, Associate | Stantec Consulting Ltd. | 2006-2009

Township of Woolwich
Breslau Wet Well Upgrades Class Environmental Assessment (EA), Breslau
Role: Lead Ecologist

MTE is managing the completion of a Schedule 'B' Class EA for upgrades to the Breslau Wet Well on behalf of the Township. Following the identification of significant cost and technical challenges associated with the planned expansion of the existing Breslau Wet Well, the Township decided to explore a new location for the pumping station and thus a Class EA was required. The sanitary servicing encompasses three main components: collection system, pumping station, and forcemain. MTE will evaluate all three of these components in the Class EA to ensure a thorough and practical servicing alternative is identified. The presence of existing infrastructure (trunk gravity sewer) under the Grand River presents challenges to the potential design. Given the proximity to the Grand River, MTE will also coordinate engagement and consultation with the First Nations. Melissa is leading the completion of the Natural Heritage Screening Study, species at risk screening (SAR), and Significant Wildlife Habitat (SWH) screening in support of the Class EA and conceptual design.

City of London
Meadowlily Road Area Class Environmental Assessment (EA), London
Role: Lead Ecologist

The City has retained MTE to undertake a Schedule 'B' Class EA Study for a new municipal pumping station and servicing study to address servicing future developments within the Meadowlily Road area. This study will identify and evaluate alternative solutions, and select the preferred servicing strategy for the study area. Melissa is leading the completion of an Environmental Impact Study (EIS) in support of the Class EA. A species at risk (SAR) screening and Significant Wildlife Habitat (SWH) screening are being completed as part of the environmental scope of work.

Civil & Municipal Infastructure

City of London
Huron Street Watermain Removal
Role: Lead Ecologist
2020

Melissa was part of a team tasked to develop a preferred solution for the removal of the Huron Street watermain below the Thames River. She was responsible for the coordination of field studies, determination of impacts, agency consultation and assistance with permit applications for species at risk.

City of London
Mornington Stormwater Management Facility Expansion and McCormick Reservoir Removal
Role: Lead Ecologist
2020-2021

As lead ecologist on the project, Melissa was responsible for designing an ecological study and assessing the impacts of the expansion of the Mornington Stormwater Management Facility and demolition/removal of the McCormick Reservoir. The EIS incorporated measures to enhance vegetation and habitat for wildlife, and control invasive plant species.

City of London
Dingman Creek Tributary 12 - EIS for Creek Realignment
Role: Project Manager / Lead Ecologist
2020-2021

Melissa oversaw the Environmental Impact Study of the proposed realignment of Tributary 12 of Dingman Creek south of Colonel Talbot Rd. This project was part of a larger, multidisciplinary study to design a complete riparian corridor for the tributary, incorporating enhancements to fish and wildlife habitat.

Town of Amherstburg
Edgewater Sewage Lagoon Decommissioning and Wetland Conversion
Role: Project Manager / Consulting Ecologist / Landscape Architect
2020-2021

Melissa served as project manager, consulting ecologist and landscape architect for the decommissioning of Edgewater Sewage Lagoons in Amherstburg, Ontario, and their conversion to naturalized wetlands and recreational open space

City of Kitchener
Huron Village Central Stormwater Management Facility Clean-out Wildlife Mitigation Plan
Role: Ecologist
2014

Melissa developed a mitigation plan for Blanding's Turtle and other wildlife for the scheduled sediment clean-out of a residential storm-water management (SWM) facility. She conducted pre-construction surveys, corresponded with MNRF in order to identify measures to avoid harm to Blanding's Turtle and its habitat from construction, prepared mitigation plan and coordinated turtle "rescue" and relocation during the de-watering phase. As a follow-up activity, she was invited to speak with a grade 6 class from the adjacent public school on the topic of protecting biodiversity within the SWM pond.

Greater Toronto Area
Various Watermain Projects
2015

Melissa was responsible for coordinating terrestrial ecology, aquatic ecology and environmental permitting components of multiple watermain upgrade or new installation projects within the Greater Toronto Area. Specific tasks for terrestrial ecology components included a background review of potential rare species or Species at Risk, development of a field program, summary of results and correspondence with MNRF.

Transportation

County of Middlesex
Thorndale Bridge Replacement
Role: Lead Ecologist
2019-2020

As lead ecologist on the project, Melissa coordinated ecological field studies and prepared an EIS for a proposed bridge replacement over the Thames River.

City of Barrie
Essa Road Inspection Improvements
Role: Terrestrial Ecologist
2019-2020

Melissa coordinated ecological field investigations and prepared a Terrestrial Existing Conditions and Impact Assessment Report.

Municipality of Northern Bruce Peninsula, Tobermory
Large Value Retainer, Agreement 3017-E-0004 | Highway 6 Reconstruction and Highway 89 Primrose to Rosemount
Role: Terrestrial Ecologist
2019-2020

For these projects, Melissa coordinated ecological field investigations and input to design of four wildlife underpasses along Highway 6 (including two dry culverts for Eastern Massasauga) and prepared a migratory bird nest habitat impact assessment along Highway 89, Primrose to Rosemount.

Region of Waterloo
Scheifele Bridge Replacement
Municipal Class EA
Role: Lead Ecologist
2020-2021

Melissa was responsible for developing the ecological study design and assessing the impacts of the proposed Scheifele Bridge replacement over the Conestogo River.

City of London
Windermere Road EA
Role: Lead Ecologist
2020-2021

Melissa was responsible for coordinating ecological studies, assessing natural heritage significance, and determining potential impacts for proposed improvements to Windermere Road from Western Road to Doon Drive.

Milton and Halton Hills
Highway 401 North Halton
Commercial Vehicle Inspection
Facility Relocation
Role: Ecologist
2018

As part of the proposal to relocate two commercial vehicle inspection stations along Highway 401, Melissa prepared Terrestrial Ecosystems Existing Condition and Impact Assessment Reports for the Preliminary Design and Class Environmental Assessment.

Highway 401 Expansion Project,
London to Tilbury
Role: Terrestrial Ecologist
2020-2021

As part of the MTO Highway 401 Expansion Project within the City of London, Melissa authored the Terrestrial Existing Conditions and Impact Assessment reports for the Dingman Drive interchange improvements.

City of Pickering
Seaton Lands - Whitevale Bypass
Role: Lead Ecologist
2017

Melissa prepared the Environmental Impact Report for Terrestrial Ecosystems and provided input to post-construction landscape restoration plans.

City of Pickering
Seaton Spine Servicing
Assignment #6
Role: Lead Ecologist
2018-2019

In addition to preparing the Environmental Impact Report, Melissa conducted and coordinated field surveys, coordinated with other project team members (internal and external), attended project team meetings, and developed restoration plans for the project footprint.

City of Mississauga
Meadowvale and Milton GO
Station Improvements
Role: Terrestrial Ecologist
2018

Related to a preliminary natural heritage study of two existing GO Stations and one maintenance/office complex where upgrades were proposed, Melissa coordinated the field program and provided senior review of the summary report.

Highway 401 Planning Study,
Cobourg to Colborne
Role: Terrestrial Ecologist
2020

Melissa coordinated ecological field investigations and prepared a Terrestrial Existing Conditions and Impact Assessment Report.

Cement & Aggregates

Hardrock Project, Geraldton
Role: Project Lead
2016-2020

Melissa coordinated the Aggregate Resources Act (ARA) permit applications for three aggregate sources proposed to support the Hardrock Mine development. She prepared the Level I/II Natural Environment Reports and developed the Site Plan drawings for each pit (two below water, one above water), including design of the pit rehabilitation, with support from project team members and in collaboration with another consulting firm.

Ottawa Airport Pit, Ottawa
Role: Project Lead, Ecologist
2019-2020

For this project, Melissa coordinated ecological field investigations, prepared a Natural Environment Technical Report and Environmental Impact Assessment, and permit for Species at Risk under SARA.

Walker Edgar Pit Expansion, Orillia
Role: Project Lead, Ecologist
2019

The Walker Edgar Pit Expansion project required ecological field studies and summary reports as part of a preliminary constraints analysis. Melissa coordinated the studies and prepared the report.

Upper's Lane Quarry, Niagara Falls
Role: Lead Ecologist
2019-2020

Melissa coordinated ecological field investigations, prepared a Natural Environment Technical Report and Environmental Impact Study, and authorized Species at Risk under the ESA in support of an application for an ARA license.

OSSGA Rehabilitated Wetlands Study, Toronto
Role: Project Lead
2018

In addition to coordinating a study of wetlands and ponds on rehabilitated aggregate extraction sites for the Ontario Stone Sand and Gravel Association (OSSGA), Melissa managed the field program, assisted with data analysis, developed the final report, and presented findings to the OSSGA rehabilitation committee.

Duntroon Quarry Proposed Expansion Ecological Reforestation and Monitoring Plan, Duntroon
Role: Restoration Ecologist, Project Lead
2007-2020

The purpose of this project was to develop an ecologically-based reforestation plan for 50+ hectares of land adjacent to a proposed limestone quarry, as part of a compensation and mitigation program for a quarry license application. A series of experimental plots were installed on a 1.5 hectare parcel in 2007, involving pit and mound site preparation, wildlife habitat features and varied woody plant species composition. A monitoring protocol was developed for the site in order to guide the reforestation on the remaining land parcels. Melissa is currently responsible for implementing ecological monitoring and mitigation measures as documented in the Adaptive Management Plan.

Simpson Lake Quarry, Denbigh
Role: Landscape Architect
2013

Melissa prepared a full set of Site Plan drawings for submission as part of the ARA Application package to MNR.

CBM Bromberg Pit, Ayr
Role: Landscape Architect
2007-2013

Under the direction of a senior terrestrial ecologist, Melissa developed a reforestation plan as part of the ARA Application and provided technical support during an OMB hearing.

Biesenthal Pit Site Plan Updates, Ottawa
Role: Landscape Architect
2015

As part of the ARA application package to MNRF, Melissa prepared a complete updated set of Site Plan drawings for submission. Updates included incorporation of habitat enhancements for Whip-poor-will, a provincial Species at Risk, as required by authorization under the Endangered Species Act.

Olszowka Pit Blanding's Turtle Permitting, Brantford
Role: Ecologist
2013-2017

Part of a team developing an Overall Benefit plan to protect Blanding's Turtle and its habitat within the project area, Melissa participated in surveys for Blanding's Turtle, developed mitigation measures during and after construction, prepared habitat restoration plans, as well as ongoing consultation with MNRF.

McLaren Gravel Pit Ecological Restoration, Highgate
Role: Ecologist and Landscape Designer
2006-2007

The goal of this project was to use an abandoned gravel pit upstream of the provincially significant Clear Creek Forest to store and slowly release peak storm flows from two tributaries of Clear Creek, in order to prevent further channel down-cutting and floodplain disassociation which were occurring downstream. A secondary goal was to restore the quarry to a swamp condition, as well as to provide an interpretive trail loop for visitors. Melissa served as ecologist and landscape designer, as part of a team including a landscape architect and water resources engineer.

Acton Quarry Rehabilitation and Enhancement Plan, Acton
Role: Ecologist and Landscape Designer
2007-2008

As part of a limestone quarry license application within the significant Niagara Escarpment region, Melissa assisted in the preparation of a rehabilitation plan, for lands within the extraction area, and an enhancement plan for lands adjacent to the extraction area. The goal of these plans was to restore and improve ecological connectivity across the broader landscape by careful and sensitive restoration of woodland and wetland ecosystems. Another component of this project was the detailed design of amphibian breeding ponds for a federal and provincial Species at Risk. Melissa served as an ecologist and landscape designer, as part of a team of terrestrial and aquatic ecologists.

Land Development

City of London
Hyde Park Road
Role: Lead Ecologist
2020

Related to a Site Plan application for a future residential development. Melissa developed the study design and prepared a Subject Lands Status Report and mitigation plan to protect a significant natural heritage feature.

City of London
Commissioners Road
Role: Lead Ecologist
2020

On a parcel of land situated adjacent to the Meadowlily Woods, Melissa developed the study design and prepared a natural heritage constraints analysis for an ESA.

Town of Lakeshore
Lighthouse Cove Secondary Plan - Natural Heritage Study
Role: Lead Ecologist
2018

As Project Lead for the Secondary Plan for Lighthouse Cove, Melissa coordinated natural heritage field investigations and prepared a Natural Heritage Study.

City of Markham
Elgin Mills Road - Church of God Development
Role: Lead Ecologist
2015

Melissa updated the Greenbelt Conformity Plan in support of a site development permit for the Church of God in the Rouge River valley. She provided input to the project Landscape Architect on restoration of buffer zones around the development to protect key natural heritage features on adjacent lands.

City of Burlington
King Road EIA
Role: Lead Ecologist
2016-2017

Melissa prepared a Woodland Assessment Report (scoped EIA) in support of a site plan application for a commercial development in Burlington.

Renewable Energy

Nigig Power / Henvey Inlet Wind Project | Henvey Inlet
Role: Co-lead / Retile Species at Risk expert
2013-2014

In the role of Co-lead and Reptile Species at Risk expert, Melissa supported the terrestrial ecology component of the Environmental Assessment for the proposed Henvey Inlet Wind Project.

White Pines Wind Project, Prince Edward County,
Role: Reptile Species at Risk Expert
2014

Under the direction of a senior terrestrial ecologist, Melissa prepared a Reptile Mitigation Plan which included mitigation for potential effects during construction and operations, monitoring and potential habitat restoration.

Ostrander Point Wind Project, Prince Edward County
Role: Reptile Species at Risk Expert
2013

Melissa was part of the team that developed an Alvar Management Plan and Species at Risk Mitigation Plan for the Ostrander Point Wind Project, specifically providing expertise on terrestrial ecosystem restoration and mitigation/monitoring for turtle Species at Risk.

Bow Lake Wind Project, Montreal River Harbour, Ontario
Role: Ecologist
2012-2013

A Natural Heritage Assessment was required for the Bow Lake Wind Project. Melissa assisted with preparing the assessment, including coordinating the 2013 field program and providing technical expertise on wildlife data analysis.

Oil & Gas

Union Gas Windsor Pipeline Replacement
Role: Lead Ecologist
2018-2019

Melissa was tasked with preparing support materials for an OEB application to replace and existing residential distribution gas pipeline. She coordinated ecological field investigations, prepared the terrestrial component of an Environmental Report, and prepared a Natural Heritage Report.

Union Gas Parkway West Wildlife Habitat Enhancement
Role: Ecologist / Landscape Architect
2013

The purpose of this project was to provide habitat for Species at Risk on the site, increase habitat diversity, and restore connectivity between natural areas within the local landscape. Melissa was part of the team that developed a conceptual wildlife habitat enhancement plan for additional lands surrounding a proposed compressor station.

Brantford-Kirkwall Pipeline Fill Area Restoration
Role: Ecologist / Landscape Architect
2015

As part of the Brantford-Kirkwall pipeline construction project, ecological restoration plans were needed for the infill of a pond and low-lying areas on the grounds of the African Lion Safari. In addition to addressing the areas of concern, Melissa's plan provided increased area for public and wildlife use and featured a combination of native herbaceous and woody species in 5m buffers along existing wetland/area edges to protect these sensitive features. Plant selection was based on existing vegetation and typical wetland communities in the project area.

Enbridge GTA Pipeline
Role: Ecologist / Landscape Architect
2015-2016

Melissa developed post-construction pipeline corridor restoration plans to replace natural vegetation cover and enhance wildlife habitat function within the corridor (ie. pollinators), and assisted with vegetative stabilization methods for work within stream channels. The restoration plan used Ecological Land Classification (ELC) vegetation units to characterize all areas proposed for removal. Vegetation replacement was then calculated by estimating the average cover or density of vegetation expected for a typical ELC unit. Multiple stakeholders (Infrastructure Ontario, Hydro One Networks Inc., and local conservation authorities) were involved during development of the plan in order to ensure all corridor uses and safety concerns were considered and incorporated as necessary.

GTA Parkway Loop Wildlife Monitoring
Role: Ecologist
2013-2015

Melissa coordinated field surveys of restored grassland bird habitat and an existing Great Blue Heron rookery, and reviewed summary deliverables, as part of the client's environmental commitments under the Ontario Energy Board Approval.

US Wildlife Habitat Council
Wildlife at Work Certifications
Role: Ecologist / Landscape Architect
2010-2012

Wildlife Habitat Council is a non-profit organization dedicated to enhancing and restoring wildlife habitat on corporate lands, and which provides certifications to companies managing land for wildlife. Melissa assisted with site-specific wildlife habitat enhancement projects and the certification of individual sites, including preparation of the Wildlife Habitat Management Plan. She was also involved in the development of a corporate-wide WHC certification strategy for ExxonMobil.

Louisiana Wetlands Mitigation Bank
Role: Ecologist / Landscape Architect
2011-2012

This pilot project with Natural Land Management Inc. was designed to evaluate and develop a conservation-based end-use strategy for a 4,500 acre property in southern Louisiana owned by Shell Oil Company. Melissa provided a GIS-based evaluation of the property's ecological attributes and developed several general end-use scenarios. She coordinated with wetland mitigation experts to develop a wetland mitigation banking strategy for the property.

Surplus Property Restoration and Disposition
Blacksburg, South Carolina
Role: Ecologist / Landscape Architect
2009-2012

Melissa assisted a remediation consultant with the design of a conceptual restoration plan and provided peer-review of detailed design and construction documentation prior to construction. As part of the disposition process, the team assisted the client with preparing a detailed disposition strategy, selecting a suitable land trust to hold a conservation easement on the property, facilitating meetings between the selected land trust and project team, drafting terms of the conservation easement, and developing documents for client internal management reviews.

Tools for Evaluating Conservation End-use Potential of Former Industrial Properties
Role: Ecologist / Landscape Architect
2009-present

Melissa was responsible for developing tools to screen the client's portfolio of surplus properties as well as to evaluate individual sites for conservation end-use potential. In 2011 the screening tool was applied to all surplus properties in the U.S., identifying approximately 10% of properties as candidates for further evaluation. The framework developed for evaluating properties utilizes GIS data to quantitatively and qualitatively evaluate a property's potential for a conservation end-use using metrics grouped in the following categories: ecosystem services, biodiversity, and community services. This framework has been used to evaluate more than a dozen surplus properties in North America and Europe. Many of these sites are being progressed toward a conservation-based disposition as a result of these evaluations.

Mining

Hardrock Project Biodiversity Mitigation and Management Plan, Geraldton
Role: Lead Ecologist
2018-2021

Melissa developed and implemented a Biodiversity Mitigation and Management Plan for use during operation of a gold mine.

Tomclid Open Pit Mine, Ompah
Role: Ecologist
2013

Melissa prepared an evaluation of natural heritage constraints for expansion of the Tomclid Open Pit Mine, with support from a Senior Ecologist. She assisted in preparation of the Information Gathering Form for submission to MNR with respect to Species at Risk concerns on the subject property.

Agrium Kapuskasing Reclamation Monitoring Plan, Kapuskasing
Role: Ecologist / Landscape Architect
2014

Melissa co-wrote a terrestrial ecosystems monitoring plan for implementation during closure of a phosphate mine in northern Ontario. The monitoring plan will provide the client with specific criteria for monitoring, evaluating and reporting on the status of revegetation at the mine site. Implementation of the plan will provide the information required to demonstrate revegetation success through the establishment of self-sustaining ecosystems or identify problems for mitigation through adaptive management.

Bicycle & Pedestrian Studies

Under the direction of a Senior Landscape Architect and a Transportation Engineer, Melissa coordinated the network evaluation and planning component of these projects. Her tasks involved updating and revising the on-road bicycle route GIS database, preparing display panels for public consultation, participating in client and steering committee meetings, and participating in public open houses.

Role: GIS Lead and Landscape Architect (Intern)

- City of Burlington | Cycling Master Plan | 2008-2009
- City of Ottawa | Cycling Plan | 2007-2009
- City of Waterloo | Transportation Master Plan | 2009
- City of Ottawa | Pedestrian Plan | 2008-2009
- City of Milton | Jaycee Park Trail Study and Open Space Master Plan | 2007
- City of London | Cycling Master Plan Feasibility Study | 2007
- Municipality of Cape Breton | Regional Active Transportation Plan | 2007-2008
- City of Cambridge | Bikeway Network Plan | 2008-2009
- Municipality of Chatham-Kent | Trail Master Plan | 2008-2009
- Haldimand County | Trail Master Plan | 2008-2009

Landscape & Trail Design

Role: Landscape Architect

- Maitland Park and Loafer's Lake, Brampton | Trail Realignment | 2009
- City of St. John's, Newfoundland | Grand Concourse Walkway | 2009
- City of Woodstock | Thames Trail Plan | 2007
- City of London | Medway Valley Trail Plan | 2007
- City of St. John's, Newfoundland | Grand Concourse Walkway | 2009
- City of Brampton | Goreway Meter Station and Woodlot Compensation | 2007
- City of Guelph | Pine Meadows Community Stormwater Management and Natural Areas Buffer Planting Design | 2007
- City of Guelph | Gordon-Norfolk Streetscape Design | 2007
- City of Guelph | Oren Reid Park Open Space and Wildlife Corridor | 2005
- City of Kitchener | Victoria Place Retirement Residence Landscape Design | 2005

Publications

Congdon, J., **M. Cameron**, W. Hollet, N. Dickson, J. Austin and R. Brooks. Manuscript under review (2020). Eggs to hatchlings, the components of reproduction of Sonoran Mud Turtles (Kinosternon sonoriense) in southeastern Arizona.

Cameron, M. and R. St. Clair. COSEWIC status report on the Pacific pond turtle, Clemmys marmorata, in COSEWIC assessment and status report on the Pacific pond turtle, Clemmys marmorata, in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa, Ontario, 2002.

Cameron, M. and R. St. Clair. COSEWIC status report on the rubber boa, Charina bottae, in COSEWIC assessment and status report on the rubber boa, Charina bottae, in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa, Ontario, 2003.

Cameron, M. COSEWIC status report on the snapping turtle, Chelydra serpentina, in COSEWIC assessment and status report on the snapping turtle, Chelydra serpentina, in Canada. Committee on the Status of Endangered Wildlife in Canada, Ottawa, Ontario, 2007.

Cameron, M., R. Brooks, N. Goodenough, K. McNichols and P. Wesley. Demography, Home Range and Habitat Utilization of Wood Turtles (Clemmys insculpta) in the Algoma District. Unpublished project report to the Ontario Ministry of Natural Resources (MNR), 2002.

Cameron, M. and R. Brown. A Metapopulation Approach to Endangered Species Recovery Using Rehabilitated Aggregate Extraction Sites. Annual meeting of the US Chapter of the International Association of Landscape Ecology, Tucson, Arizona, 2007.

Cameron, M. and R. Brooks. Maitland River Wood Turtle Population Analysis. Annual meeting of the Canadian Amphibian and Reptile Conservation Network, Pelee Island, Ontario, 2003.

Cameron, M. and R.J. Brooks. Maitland river valley wood turtle population analysis. Unpublished report to the Ontario Ministry of Natural Resources (MNR), 2002.

Cameron, M. Short chapters on Pacific Gopher Snake and Bullsnake. Ecology, Conservation and Status of Reptiles in Canada. Editors: Carolyn Seburn and Christine Bishop, 2007.

Presentations

Oral Presentation: **Cameron, M.**, R. Brooks and J. Congdon. Adaptive significance of diapause in the turtle family Kinosternidae. Ontario Ecology and Ethology Colloquium, University of Toronto, Ontario, Canada, 2004.

Poster Presentation: **Cameron, M.** and R. Brooks. Application of life history theory and population modeling to the conservation of a southern Ontario population of wood turtles. Canadian Society of Zoologists, Wilfred Laurier University, Ontario, Canada, 2003.

Will's main responsibilities include life science data collection to support Environmental Impact Studies and Environmental Assessments. This involves completion of three-season plant inventories, vegetation classification according to Ecological Land Classification for southern Ontario and wetland evaluations according to Ontario Wetland Evaluation System. He is also qualified to prepare tree risk assessment surveys, tree preservation reports, and tree identification / health assessments. Will also is responsible for design, tendering, site supervision and post-construction inspection habitat enhancement and / or creation. He has participated in various fish sampling and salvage projects and has developed an expertise in bird identification by sight and song to conduct breeding bird inventory surveys. Other duties include the design and production of report graphics, maps and digital drawings.

Will Huys

Title: Plant and Wildlife Technician

Professional Experience

Education

Basic Surveying | Fanshawe College | 2012

Landscape Design | Fanshawe College | 2000

Professional Designations

ISA Certified Arborist #ON-1183A | International Society of Arboriculture

Tenure with MTE

Since 2005

Professional Development

ISA TRAQ

Ontario Wetland Evaluation

Butternut Health Assessor

Electro-fishing Class 2

Ecological Land Classification

Standard First Aid & CPR

WHIMIS

Memberships

Field Botanists of Ontario

Ontario Field Ornithologists

Work History

Plant and Wildlife Technician | MTE Consultants | 2005-Present

Adelaide Street North Apartments, London
Tree Assessment
Role: Arborist

MTE was retained to prepare a Tree Preservation Report and plan for existing trees prior to construction of a nine-unit residential building on the property. Will was the Arborist responsible for the onsite assessment and preparation of the report. His report outlined the number, type and location of the trees, as well as tree protection measures.

Summerside Residential Subdivision, London
Tree Assessment
Role: Arborist

Will was responsible for carrying out an assessment of trees prior to construction of an outlet structure. The outlet was designed to provide water to a swamp within a development project. He also outlined tree protection measures for the contractor.

Comfort Lands Residential Subdivision, London
Tree Assessment
Role: Arborist

This project involves the development and construction of a residential subdivision with internal roads and infrastructure. The client required a Tree Preservation Report to satisfy a Draft Plan Condition. Will carried out the assessment and summarized his findings in a report. A total of 610 trees were studied as part of the report, of which 305 will be preserved and new trees will be planted as part of the development.

Winston Churchill Boulevard Industrial Development, Oakville
Woodland Assessment
Role: Arborist

Will was a member of the project team responsible for assessing an existing woodland to determine if the site contained a Significant Woodland. This was required by the client as part of the approval process for development. The team visited the site on several occasions as part of the assessment. Their findings were captured in a report for the client that included observations and recommendations.

Aggregate Act Level 1 & 2 Natural Environment Field Work
Role: Plant and Wildlife Technician

Johnston Bros. Ltd. | Erwin Pit #2, Putnam
McCann Redi-Mix Inc. | Millian Pit, Auburn
AAROC Aggregates Ltd., | Hamilton Road Pit, Putnam
Thames Valley Aggregates Inc. | Clendinning Pit, Banner
Johnston Brothers | Erwin Pit, Putnam
Johnston Brothers | Tote Road Pit, London
Jennison Construction Ltd. | JCL Staff 2 Pit, Staffa

Natural Heritage Studies Field Work
Role: Plant and Wildlife Technician

Southside Group | Topping Lands, London
London Properties | Caledon Mt. Road, Caledon
Drewlo Holdings | South Ross Lands, London
Azar | Tilbury Development
Storey Samways | Lot Development, Lighthouse Cove
Quagiatto Developments | Martin Lane, Amherstburg
York Developments | W3 Farms, London

Tree Preservation / Appraisal
Role: Arborist

Drewlo Holdings | Pond Mills Subdivision, London
Glenn Powell | Storey Drive Single Lot Development, St. Marys
Terracorp | Apartment Complex Re-landscaping, London
Co-operators | Post Impact Tree Appraisal, Mt. Brydges

Renewable Energy
Role: Plant and Wildlife Technician

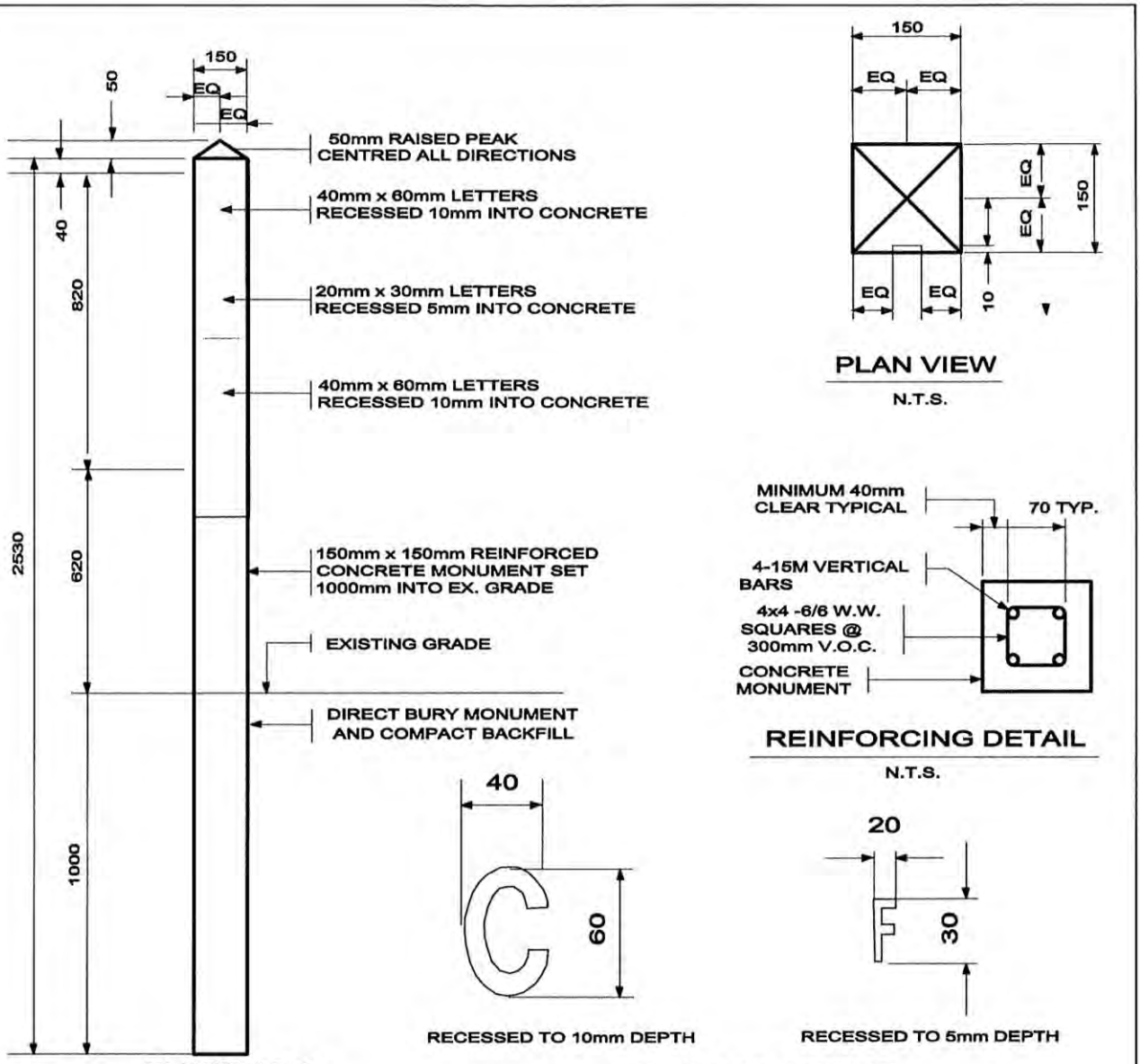
Kent Breeze Suncor | Post Construction Monitoring
Petewawa Renewable Energy

Electro-fishing
Role: Plant and Wildlife Technician

Fekete Drain, London
Detroit River International Crossing, Windsor
Grand Marais Drain, Windsor

Appendix G

City Monument Design Example



NOTES:

1. ALL EXPOSED CONCRETE TO HAVE SMOOTH FINISH
2. REINFORCING STEEL TO MEET INDUSTRY STANDARDS FOR TYPE, QUALITY AND PLACEMENT.
3. MINIMIZE DISTURBANCE TO SITE AND RESTORE VEGETATION AROUND MONUMENT.
4. ALL DIMENSIONS IN MILLIMETRES.
5. SUPPLIER ED'S CONCRETE. 519-271-6590; Info@edsconcrete.com

CITY OF LONDON STANDARD DRAWING		
PROPERTY BOUNDARY MONUMENT DETAIL		
DWG SPO – 4.7	DATE 2019 07 15	APPROVED BY PARKS PLANNING & DESIGN

Appendix H

“Living with Natural Areas” Homeowner 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.

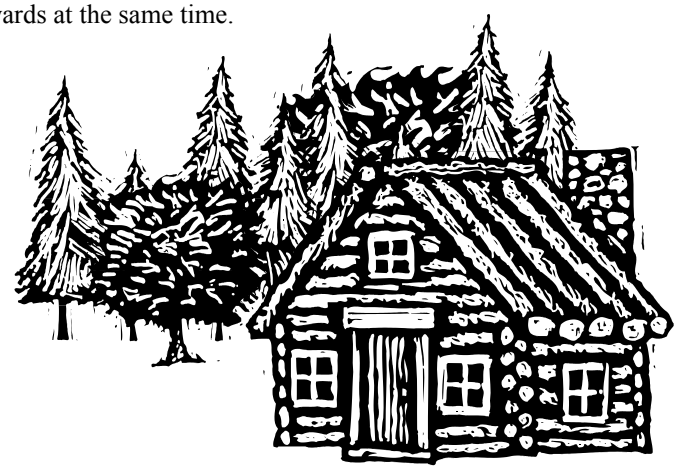
Some natural areas contain rare plants, wildlife or landforms, or have features characteristic of the region before European settlement, or are especially large or diverse in habitat. Many natural areas are considered environmentally significant on a local, regional, provincial or even national scale.

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.

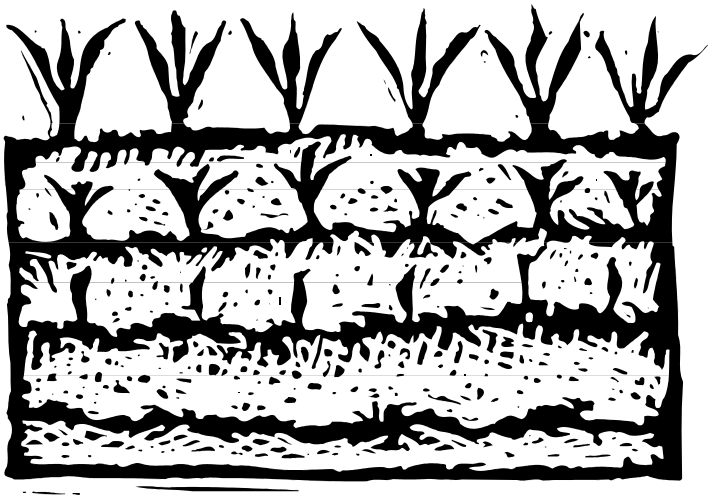
Because urban development sits on the doorstep of many natural areas, what is done in neighbouring yards is critical to their health. Here are some ideas to help home owners to ensure that their activities can help neighbouring natural areas and enhance their yards at the same time.



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.

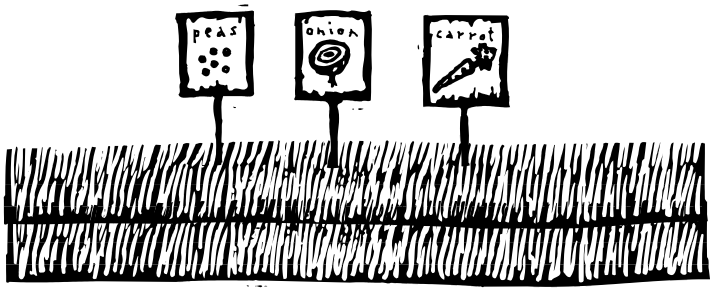
Encroaching past private lot lines into municipal parkland or open space is not permitted and may result in legal proceedings. Call your municipality for more information.



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.

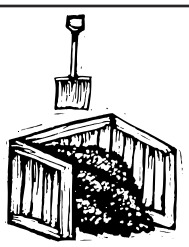


What should I do with yard & garden waste?

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:

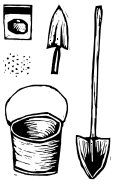
- Add compost to your lawn to fertilize it.
- Use a mulching lawnmower to return nutrients to your lawn.
- Cut your lawn at a high setting to reduce weed growth and retain moisture.
- Water grass early in the morning and allow it to dry out between waterings.
- Use alternative native ground covers in 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.

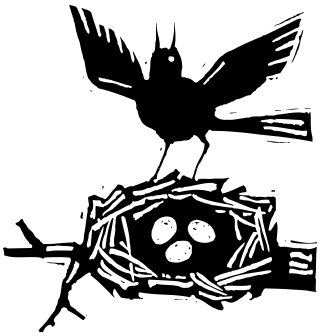
Can I attract wildlife to my yard?

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.

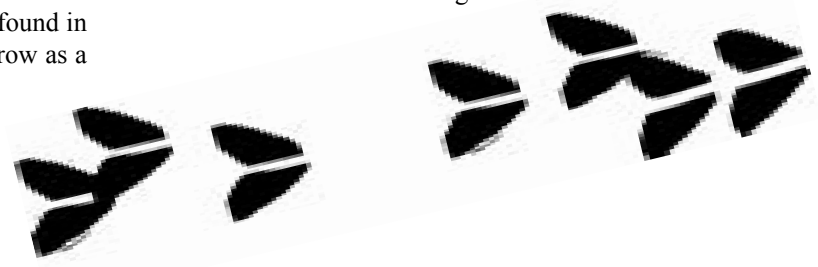
Make the fringes unpalatable - Surround your property with unpalatable and repellent native plants, and the deer may decide to forage elsewhere. Cedar and yew are delicacies for deer and should be avoided. White spruce, tamarack and juniper are good substitutes as deer will avoid them.

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 I

Environmental Management Plan (EMP)

MTE Consultants
123 St. George St., London, Ontario N6A 3A1

February 9, 2023
MTE File No.: 51594-100

Fine Home Design
367 Edgeworth Avenue
London, ON N5W 5C3
finehomedesign@rogers.com

To whom it may concern,

RE: Environmental Management Plan (EMP) for 1176 Crumlin Sideroad, London, ON

Fine Home Design (the 'Proponent') has initiated the Draft Plan Approval and Zoning By-Law Amendment approval process for the severance of a lot into three parcels (the 'Project') on a property located at 1176 Crumlin Sideroad, south of Dundas Street, in the City of London (the 'Subject Lands'). MTE Consultants has been retained to prepare a Focused Environmental Impact Study (EIS), including an Environmental Management Plan (EMP), for the proposed development. The EIS (MTE, 2022) provides recommendations for avoidance and mitigation measures to protect adjacent significant natural heritage features. This EMP has been prepared to complement the Focused EIS and provide the mitigation and monitoring recommendations from the Focused EIS (MTE, 2022) in the order to be completed.

Based on the analysis of the Subject Lands in the Focused EIS (MTE, 2022), the significant features identified on or adjacent to the Subject Lands are:

- Significant Woodland (Community 2)
- Significant Valleyland
- Candidate Significant Wildlife Habitat
- Fish Habitat
- Potential Habitat of Threatened and Endangered Species
- Water Resource Systems

1.0 Pre-Construction

Pre-construction planning includes defining the project, 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 Severance Plan will provide an OS4 zone that builds upon the existing Open Space area to incorporate buffers to the natural heritage features surrounding the Loveless Municipal Drain within the Subject Lands [Figure 8; MTE, 2022] in accordance with the London Environmental Management Guidelines (2021). This OS4 zone, as agreed upon with the City of London, is defined as 30 m from the high-water mark of the drain plus contiguous woodland vegetation. This buffer is shown on Figure 8 of the EIS and protects the Significant Woodland, Candidate SWH for bat roosting and Eastern Wood-pewee, possible fish habitat, and potential habitat for endangered bat species inside the OS4 zone. The west side of the buffer will be naturalized where woodland vegetation does not already exist, and the east side will continue to be used for agricultural activities. Naturalization activities are described in more detail in the Focused EIS and under Section 3.0 Post-Construction of this EMP.

Other Design and Pre-Construction Considerations

Recommendation 1:
A point of access to the existing agricultural access over the Loveless Municipal Drain should be established to retain agricultural access to Parcel 3 from both Parcels 1 and 2, while avoiding the OS4 zone. The proposed shared access alignment is shown on the Severance Plan on Figures 7 and 8 of the EIS.

Recommendation 2:
Prior to construction works on site, sediment and erosion control fencing should be installed around the ground disturbance limits of the construction area. The fence will act as a barrier to keep construction equipment and spoil away from the vegetation to remain and prevent erosion and sedimentation of the adjacent natural heritage features. Sediment and erosion control fencing is to be installed according to the City of London Design Specifications and Requirements Manual specifications (2019b) and The Erosion and Sediment Control Guide for Urban Construction (TRCA, 2019).

Recommendation 3:
Sediment and erosion control fencing should be inspected prior to construction to ensure it was installed correctly.

Recommendation 4:
Refer to the Tree Preservation Plan (MTE, 2022) for recommendations regarding tree protection and recommended removals within the Subject Lands.

Recommendation 5:
Soil stockpiles should be established in locations where natural drainage is away from the OS4 zone. If this is not possible and there is a possibility of any stockpile slumping and moving toward the edge of natural heritage features, the stockpiles should be protected with robust sediment and erosion controls.

Recommendation 6:
Contractors working at the site should ensure that construction equipment is in good working order. Equipment operators should have spill-prevention kits, where appropriate.

Recommendation 7:
Make workers aware of potential incidental encounters with wildlife. Refer to Recommendation 16 of this EMP.

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 8:
Avoid vegetation clearing during the migratory bird breeding season (April 1 to August 31) to ensure that no active nests are removed or disturbed. 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 9:
Access to stockpiles should be confined to the up-gradient side.

Recommendation 10:
Use Best Management Practices (BMPs) for fuel handling, storage, and onsite equipment maintenance activities to minimize the risk of contaminant release as a result of the proposed construction activities.

Recommendation 11:
During construction, the lands between the sediment and erosion control fencing should be maintained.

Recommendation 12:
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 13:
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 14:
Sedimentation controls during site grading work must help control and reduce the turbidity of runoff that could flow to the Loveless Municipal Drain.

Recommendation 15:
Noise disturbance during construction should be limited to allowable hours per City of London By-law.

Recommendation 16:
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.

Recommendation 17:
Bank Swallow [THR] have not been identified within the Subject Lands, but the 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 home construction until construction is complete and grounds adjacent to natural features are vegetated and stabilized. Reports should be made available to the UTRCA and City of London Planning and Economic Development Staff.

Recommendation 18:
Sediment and erosion control fencing should be inspected prior to rain events during construction to ensure that the fencing is being maintained and functioning properly. Any issues that are identified are resolved as quickly as possible, ideally the same day.

Recommendation 19:
Monitor for tree damage during construction of the single-family home. Consult a certified arborist if damage has occurred.

3.0 Post-Construction

These recommendations are to be carried out following construction until the end of the Assumption of Development Stage.

Recommendation 20:
Sediment and erosion control fencing should not be removed until adequate re-vegetation and site stabilization has occurred. 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. 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 21:
Homeowners should be provided the “Living with Natural Areas” brochure published by UTRCA (2005) based on the *Living with Natural Areas - A Guide for Citizens of London* document. This brochure [Appendix H] outlines the impacts of various encroachment activities (ex: use of fertilizers, creation of trails, disposal of yard waste, introduction of invasive species, etc.) and ways homeowners can reduce their impacts on adjacent natural areas.

Recommendation 22:
Limit the use of commercial fertilizers, salts/ice melting additives, and other chemical applications within the Subject Lands, especially in areas that border the OS4 zone. Consideration may be given to using grass varieties which are hardier and require less extensive watering or fertilizers.

Naturalization

This section provides recommendations for the proposed naturalized buffer as delineated by the 30 m buffer from the high-water mark of the Loveless Municipal Drain and the woodland dripline.

Recommendation 23:
Naturalize the west OS4 buffer with native species wherever woodland vegetation is not present and provided agricultural access is not inhibited [Figure 9]. An Upland Woodland Edge seed mix suitable for site conditions should be used, as outlined in the Standard Contract Documents for Municipal Construction Projects 2020 Edition (City of London, 2020). 80% coverage is recommended. The contractor should follow the supplier’s recommendations for overseeding.

Recommendation 24:
If the removal of a tree is required for the shared access path, and the DBH is greater than 50 cm, a Private Tree Permit Application should be completed, and the appropriate number of replacement trees (as per Schedule A of the Tree Protection By-Law) should be planted on site. Replacement trees should be native to Ecoregion 7E.

Recommendation 25:
No mowing or encroachment should occur within the Naturalization Area. Small concrete monuments engraved with “OS4 Zone” should be installed along the west boundary of the Naturalization Area to clearly mark the permissible limits of mowing and maintenance. An example of City-designed monuments is provided in Appendix G of this EIS. The conceptual location of the monuments is shown on Figure 8.

Monitoring Phase 2 – Post-Construction

Long-term post-construction monitoring shall evaluate the success of the proposed active naturalization efforts. This plan should include remedial actions that are triggered if effects exceed pre-determined thresholds (e.g. supplemental plantings if survival rates are low). Recommendations for monitoring include, but are not limited to:

- Vegetation monitoring in the naturalized OS4 buffer should be completed for two years after planting to document compliance with the plans (e.g., the correct seed mix was used), and establishment of planted material. Implementation of adaptive management to correct deficiencies.
- Adaptive management strategies such as supplemental plantings, and/or control of non-native invasive species. Adaptive management may be triggered by poor survival/germination of seed mix (80% natural groundcover is target) and the presence of unacceptable non-native and invasive species.
- Check for tree damage post-construction of the single-family home. Consult a certified arborist if damage has occurred.

4.0 Conclusion

This Environmental Management Plan has provided recommendations to protect the adjacent 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,

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