



92 & 96 Tallwood Circle

Environmental Impact Study (EIS)

Project Location:

92 and 96 Tallwood Circle
Lot 15, Concession 4
London, ON

Prepared for:

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1.0 Introduction

Mclver Developments Inc. (the 'Proponent') is seeking a building permit for the development of two single family homes (the 'Project') on two existing residential lots located at 92 and 96 Tallwood Circle in the City of London (the 'Subject Lands'). The combined properties are approximately 0.26 ha and is located on Lot 15, Concession 4, also identified as Lots 2 and 3, Plan 33M99.

The Legal Parcels are referred to as the Subject Lands throughout this report, and this was the focus of field studies for the Environmental Impact Study (EIS). A desktop review was also completed in the Study Area, defined as the Subject Lands and 120 m Adjacent Lands. Life science data collection within the Subject Lands has been ongoing by MTE from February 2022 to June 2022. This report compiles the data collection results for this time period.

1.1 Report Objective

This report is an Environmental Impact Study (EIS), with the first sections meeting the requirements of a Subject Lands Status Report (SLSR) to identify natural heritage features in the Study Area. An EIS was requested by the City of London in pre-consultation and has been scoped and completed.

The objective of the SLSR component of the report is to describe the natural heritage features, based on field surveys and background information, and to identify functions to be protected or replicated on the Subject Lands. The EIS component evaluates the potential for impacts to natural heritage features and functions to result from the Project, and provides recommendations for avoidance or mitigation of impacts, potential restoration and enhancement measures, and a monitoring program to protect significant natural heritage features and functions.

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

1.2 Format

Natural heritage features and functions identified in this EIS are evaluated through a review of the Natural Heritage Reference Manual (NHRM, 2010) for policy 2.1 of the Provincial Policy Statement (MMAH, 2020), and Section 6 (Environmental Policies) of The London Plan (May 2021a).

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

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

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

1.3 Background Documents

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

- Slope Stability Assessment (EXP, 2022)
- Upper Thames River Source Protection Area Assessment Report (Thames-Sydenham and Region Source Protection Committee, 2015)

1.4 Pre-Consultation and Site History

An EIS was requested as part of the application process by Leif Maitland (City of London planner). The City requested this EIS as it is their view a Site Plan is required due to intensification of existing conditions (one house to two houses on two lots). An EIS Scoping Meeting was subsequently held on May 18, 2022 with Shane Butnari (City of London Ecologist), the proponent (Jim McIver), and MTE staff (Allie Leadbetter, Melissa Cameron). UTRCA was invited to the meeting, however declined to attend and stated they would review the checklist after the meeting instead. After the City approved the finalized checklist on May 30, 2022, it was provided to UTRCA staff for review. No UTRCA comments have been received. The Scoping Checklist is provided in Appendix A.

A follow-up site visit was completed with City Ecologist Shane Butnari, Jim McIver, and MTE Staff (Will Huys and Allie Leadbetter) on June 6, 2022. The dripline of the woodland at the back of the lots was reviewed, and opportunities for naturalization and non-native species removal were discussed. The meeting minutes are provided in Appendix B.

2.0 Land Use Setting and Policy Overview

The Subject Lands are comprised of an existing residential home on two lots, with associated yard trees, gardens, and maintained lawn. The residential lots back onto a woodland community and ravine to the east.

The surrounding area is primarily residential, along with a retirement home to the south and Western University to the southwest across Windermere Road. The natural area (woodland and ravine) along the east edge of the Subject Lands is relatively narrow (50-115 m wide) and extends to the north and southeast.

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

2.1 The London Plan

The London Plan (2021a) 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 2021a). Development and site alteration is not permitted within or adjacent to Unevaluated Wetlands, Provincially Significant Wetlands, Significant Valleys and Woodlands, Habitat of Endangered or Threatened Species, Areas of Natural and Scientific Interest, and Environmentally Significant Areas unless evaluated by a professional and proven to have no negative impacts on the features or ecological functions.

2.1.1 Environmental Classifications

Map 5 of the London Plan (2021a) does not identify any significant natural heritage features within or adjacent to the Subject Lands [Figure 2]. Masonville Creek is shown to the east of the Subject Lands.

2.1.2 Place Type Designations

The Subject Lands are designated as Neighbourhoods on Map 1 of the London Plan (2021a), with the ravine to the east identified as Green Space [Figure 3]. The surrounding area is primarily Neighbourhoods with Urban Corridor and Institutional areas to the south.

2.2 City of London Zoning Bylaws

The Subject Lands are entirely zoned as Residential 1-8 (R1-8) [Figure 4]. The R1 zone provides for and regulates single detached dwellings (City of London Zoning By-Law Z.1, 2011). No zoning amendment will be required for this development.

The east ravine, beyond the Legal Parcels, is zoned as Open Space 4. OS4 is one of the more restrictive open space zone variations and is applied to lands that have physical and/or

environmental constraints to development (City of London Zoning By-Law Z.1, 2011). OS4 is specifically applied to hazard lands and therefore restricts development in the ravine area due to steep slopes.

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 fall across the east half of the Subject Lands [Figure 5]. Based on our interpretation of Map 6, the regulated area is associated with the erosion hazard of the adjacent ravine.

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 (as defined in the PPS) 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.

Not all features and functions of provincial interest noted above are provided on provincial maps. 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 Ontario Regulation 242/08.

Through a background review and confirmatory field investigations, it was determined no contraventions of the *ESAct* were anticipated and therefore no MECP approval was required. The background screening report has been submitted to MECP, and it is not expected that there will be any *ESAct* concerns. The full Species at Risk Screening review is provided in Appendix C for the Subject Lands.

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).

Although there is no fish habitat within the Subject Lands, the adjacent Masonville Creek may contain fish habitat. Indirect impacts to this potential habitat will need to be considered in this EIS.

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 (MNR). Deliberate capture of wildlife or fish for the purpose of salvage and relocation is regulated under the FWCA.

3.0 Triggers for EIS

The City of London requires an EIS to be completed where development or site alteration (as defined by the PPS) is proposed within or adjacent to the Natural Heritage System. While this proposed Project does not trigger an EIS through typical means, the City has identified that the residential land use is proposed to be intensified. An EIS has been requested and completed.

The proponent is proposing the demolition of a house within the Subject Lands and the construction of two single family homes on the existing lots (92 and 96 Tallwood Circle). Based on the London Plan Maps 1, 5, and 6 (2021) and the presence of unmapped natural areas addressed by London Plan policy, the features in adjacent lands include:

- Proposed development within 120 m of potential Fish Habitat
- Proposed development within 30 m of a Significant Groundwater Recharge Area and a Highly Vulnerable Aquifer
- Proposed development within 30 m of a vegetation patch that may qualify as a Woodland (not on Map 5)

This EIS is also intended to address the application for a permit under the UTRCA Ontario Regulation 157/06 which 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 (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. Field investigations were focused on the Subject Lands.

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 (MNDMNRF, 2017). Bedrock is not exposed in the area of the Subject Lands.

Physiographic regional mapping indicates that the Subject Lands are situated within a Spillway (MNDMNRF, 2017). This is defined as a narrow winding mass of outwash (Karrow, 1968).

4.1.2 Soils

The Subject Lands are located in an area of coarse-textured glaciolacustrine deposits based on OGSEarth surficial geology mapping from the Ministry of Northern Development, Mines, Natural Resources and Forestry (MNDMNRF, 2017). These deposits include sand, gravel, minor silt and clay. The ravine also includes modern alluvial deposits with clay, silt, sand, gravel and possibly organic remains. Adjacent Lands to the north have glaciofluvial deposits that include river deposits and delta topset facies (MNDMNRF, 2017).

4.1.3 Topography

The topography of the Subject Lands is largely flat with a slight incline to the east and a steep slope near the east property boundary. A slope stability assessment has been completed by EXP (2022). This slope is regulated as a hazard area by UTRCA [Figure 5]. The current home sits immediately adjacent to the stable top of slope.

4.1.4 Surface Water Features

The Subject Lands are located within the south of the Masonville Creek Subwatershed (City of London, 2021a). There are no surface water features within the Subject Lands, but Masonville Creek is located at the bottom of the ravine to the east.

4.1.5 Hydrogeology

The Subject Lands are located in the Upper Thames River Source Protection Area. According to the Thames-Sydenham Source Protection Plan (TSSPP), the Subject Lands are located in a Significant Groundwater Recharge Area (SGRA) and a Highly Vulnerable Aquifer (HVA) (TSRSPC, 2015). The Subject Lands and surrounding residential lands are identified as a moderate and low threat policy area.

4.2 Biological Setting

Life science data was collected within the Subject Lands in 2022 between February and June. This section summarizes the background review of the Subject Lands and 120 m Adjacent Lands, data collection methods, and the results of field investigations. The Subject Lands were the focus of field investigations.

4.2.1 Records Review

4.2.1.1 Designated Natural Heritage Features

The Land Information Ontario (LIO) mapping (MNRF, 2021), 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 shows that there are no Areas of Natural and Scientific Interest (ANSI) or Wetlands are located within 120 m of the Subject Lands (MNRF, 2021). No Wildlife Value Areas were identified on LIO mapping. A Woodland is identified on LIO mapping directly east of the Subject Lands, but this feature is not shown on Map 5 of the London Plan (2021).

4.2.1.2 Protected Species and Species of Conservation Concern 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 publically-available species records in the NHIC, Ontario Breeding Bird Atlas (OBBA), Ontario Reptile and Amphibian Atlas databases, and Citizen Science sources (iNaturalist and eBird), identified several Protected Species and SOCC as potentially present in the general area of the Subject Lands. Protected Species are listed in Table 1, below. Many of these sources display data for a broad area (e.g. by upper-tier municipality, per 10 km atlas square) and therefore provide only a general potential for species presence on or near the Subject Lands. It should be noted that OBBA occurrence data are from 2001-2005, and the dates of NHIC records are unknown. The remainder of the records are from within the past 10 years.

In addition to the list in Table 1, 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, and American Chestnut [END]. A full review of potential habitat for Protected Species within and adjacent to the Subject Lands is provided in Appendix C.

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

Common Name	Scientific Name	SARO Status	Most Recent Known Observation Date	Source
Butternut	<i>Juglans cinerea</i>	END	-	NHIC, 2022
Eastern Flowering Dogwood	<i>Cornus florida</i>	END	May 28, 2021	iNaturalist, 2022
Northern Bobwhite	<i>Colinus virginianus</i>	END	2001-2005	Birds Canada, 2005
Queensnake	<i>Regina septemvittata</i>	END	-	NHIC, 2022
Spiny Softshell	<i>Apalone spinifera</i>	END	April 2021	NHIC, 2022; iNaturalist, 2022
Bank Swallow	<i>Riparia riparia</i>	THR	May 25, 2020	eBird, 2022
Bobolink	<i>Dolichonyx oryzivorus</i>	THR	2001-2005	NHIC, 2022; Birds Canada, 2005
Chimney Swift	<i>Chaetura pelagica</i>	THR	2001-2005	NHIC, 2022; Birds Canada, 2005
Eastern False Rue-anenome	<i>Enemion biternatum</i>	THR	-	NHIC, 2022
Eastern Meadowlark	<i>Sturnella magna</i>	THR	2001-2005	Birds Canada, 2005
Kentucky Coffee-tree	<i>Gymnocladus dioicus</i>	THR	August 11, 2021	iNaturalist, 2022
Yellow-breasted Chat	<i>Icteria virens</i>	THR	2001-2005	Birds Canada, 2005

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	Status	Most Recent Known Observation Date	Source
Bald Eagle	<i>Haliaeetus leucocephalus</i>	SC	May 7, 2022	eBird, 2022
Black Tern	<i>Chlidonias niger</i>	SC	2001-2005	Birds Canada, 2005
Canada Warbler	<i>Cardellina canadensis</i>	SC	June 3, 2021	eBird, 2022
Common Nighthawk	<i>Chordeiles minor</i>	SC	August 28, 2021	Birds Canada, 2005; eBird, 2022
Eastern Wood-pewee	<i>Contopus virens</i>	SC	July 19, 2021	Birds Canada, 2005; eBird, 2022
Lizard's-tail	<i>Saururus cernuus</i>	S3	-	NHIC, 2022
Northern Map Turtle	<i>Graptemys geographica</i>	SC	2019	NHIC, 2022; Ontario Nature, 2019
Snapping Turtle	<i>Chelydra serpentina</i>	SC	2019	NHIC, 2022; Ontario Nature, 2019
Wood Thrush	<i>Hylocichla mustelina</i>	SC	2001-2005	Birds Canada, 2005

An assessment of habitat for these Protected Species and SOCC, along with targeted surveys where suitable habitat was present, was conducted by MTE on the Subject Lands as part of the current EIS. Survey methods and results are discussed in Sections 4.3 and 4.4.

4.2.2 Ecological Land Classification

The vegetation communities within the Subject Lands and were assessed by MTE Plant and Wildlife Technician Will Huys, certified to conduct Ecological Land Classification (ELC) in Southern Ontario, on May 17, 2022 [Figure 6]. Detailed ELC investigations extended to the toe of slope of the east adjacent ravine. Protocols outlined in the ELC System for Southern Ontario were used (Lee et al., 1998). Provincial significance of vegetation communities is based on the rankings assigned by the NHIC (2020). The single vegetation community listed in Table 3 is secure in Ontario. Area measurements are based on interpretation of aerial photos.

Table 3: Ecological Land Classifications for the Subject Lands

Polygon	ELC Code	Description	S-rank	Area (ha)*
R	-	Residential	N/A	0.17
1	FOD6	Fresh-Moist Sugar Maple Deciduous Forest Ecosite	N/A	0.09

*Areas have only been measured within the Subject Lands.

The Subject Lands are currently two residential lots containing a single detached home with an associated half-circle driveway, ornamental gardens, and maintained lawn in the front and back yard. The properties contain several residential trees including Spruce species (White, Blue, Norway) and Fir trees. A Norway Maple, English Oak, Ginkgo, and Blue Spruce are located along the south property line. These residential properties back onto a steeply sloped woodland (Community 1) that is separated by a stone wall at the edge of the backyard.

Community 1 is classified as a Fresh-Moist Sugar Maple Deciduous Forest Ecosite (FOD6). This community is on a steep slope that descends towards Masonville Creek east of the Subject Lands. The dripline of Community 1 within the Subject Lands has been staked and finalized with the City of London. Detailed investigations in this community did not extend past the toe of slope.

According to Ron Koudys Landscape Architects Inc. at least part of Community 1 was planted as part of a storm sewer design project approximately 35 years ago (Ron Koudys, pers. comm., June 16, 2022). The canopy of Community 1 is dominated by Sugar Maple, and also includes occasional Common Hackberry, Basswood, Norway Maple, Bitternut Hickory, Black Walnut, and Norway Spruce. Ground cover along the inside edge of Community 1 includes a mix of non-native/ornamental species (ex: Lesser Periwinkle, Lily-of-the-Valley, Japanese Barberry, Greater Celandine) and common native groundcover species. The majority of the dripline has mowed grass lawn underneath of it, and an existing home is also under the dripline.

4.2.3 Significant Wildlife Habitat

MNRF Significant Wildlife Habitat (SWH) Criteria Schedules for Ecoregion 7E (January 2015) uses ELC ecosite codes and habitat criteria (e.g. size of ELC polygon, proximity to other natural features) to define candidate SWH. Additional candidate SWH types for the City of London were obtained from the London Plan (Policy 1354, 2021a). An assessment of candidate SWH was completed for the Subject Lands and 120 m Adjacent 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 1

Reptile Hibernaculum – Community 1

Candidate Habitats for Species of Conservation Concern Considered SWH

Special Concern and Rare Wildlife Species – Community 1

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

4.2.4 Floral Inventory

MTE Plant and Wildlife Technician Will Huys completed a tree inventory within the Subject Lands on February 16, 2022 and floral species were noted on May 17 and June 6, 2022. The adjacent Community 1 was only assessed for floral species to the toe of slope of the east ravine, with a focus on Protected Species and SOCC. A limited floral inventory list for Community 1 is provided in Appendix E. Floral species were not recorded on the residential property as only ornamentals were present in maintained gardens. No floral SOCC or Protected Species were identified during site investigations.

4.2.5 Bat Habitat Assessment

A bat habitat survey was conducted by MTE staff Allie Leadbetter and Will Huys on May 17, 2022 within and along the east boundary of the Subject Lands. The survey was guided by MECP protocols ("Treed Habitats – Maternity Roost Surveys", 2021) and MNR survey guidelines ("Survey Protocols for Species at Risk Bats within Treed Habitats", 2017). Three candidate maternity roost trees (containing cracks, cavities, or loose bark) were identified along the east Subject Lands boundary within Community 1 (FOD6). The locations of the candidate habitat trees are shown on Figure 7 and the data sheet is provided in Appendix F. All three trees were decay class 1 or 2, which is preferred for maternity roost habitat. Although Little Brown Myotis is known to prefer manmade structures for roosting (Gerson, 1984; Humphrey & Fotherby, 2019), these three trees may support maternity roosting of Little Brown Myotis [END], Northern Myotis [END], and Tri-Coloured Bat [END].

4.2.6 Mammal Burrows

Four mammal burrows were observed along the slope at the east boundary of the Subject Lands during field investigations. The burrow locations are shown on Figure 7 and photos are provided in Appendix G. Two holes were larger and look newer than two smaller older holes. Some small paw prints were observed outside of one hole [Photo 2 - Appendix G], but could not be identified to species. The burrows were determined to belong to Groundhogs based on the grouping of several entrances together and a lack of clear claw marks on the inside of the burrow walls. No American Badger [END] habitat was confirmed within or adjacent to the Subject Lands.

4.2.7 Aquatic Habitat

No aquatic habitat is present within the Subject Lands, but Masonville Creek is a narrow and shallow creek located approximately 15 m to the east of the Subject Lands. Masonville Creek may contain fish habitat and/or movement barriers, but these were not investigated for this EIS. Masonville Creek eventually flows to the Thames River approximately 300 m to the south.

A review of the Fisheries and Oceans Canada (DFO) Species at Risk mapping identified several aquatic species at risk and critical habitat for species at risk and SOCC in the Thames River within 1 km of the Subject Lands (DFO, 2020). Critical habitat for Silver Shiner [THR] and Black Redhorse [THR] is present in the Thames, as well as potential for Northern Sunfish [SC] and Wavy-rayed Lampmussel [SC]. DFO has not identified any of these species in Masonville Creek.

4.2.8 Incidental Observations

Several species were incidentally observed and recorded within and adjacent to the Subject Lands during field investigations. Incidental observations of mammals on the residential property were limited to Gray Squirrels and one White-tailed Deer in Community 1 (FOD6). Avian species observed on the residential property include Chipping Sparrow, American Robin, and Northern Cardinal. Birds heard within Community 1 on May 17, 2022 include Black-capped Chickadee, Tennessee Warbler, Northern Cardinal, and Eastern Wood-pewee [SC]. Eastern Wood-pewee [SC] was also heard in Community 1 on June 6, 2022.

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, 2021a),
- the City of London Environmental Management Guidelines (2021b),
- the UTRCA Regulations (*Conservation Authorities Act*, Section 28 – *Ontario Regulation 157/06*).
- the *Endangered Species Act, 2007*
- the *Migratory Birds Convention Act, 1994*

The policies above are applied to natural features and functions identified in Section 4.0 of this EIS in order to determine which components of the natural heritage system will require additional consideration. Provincial policy is reviewed first, followed by City of London and UTRCA policies.

5.1 Provincial Policy

5.1.1 Provincially Significant Wetlands

No Provincially Significant Wetlands are identified within or adjacent to the Subject Lands.

5.1.2 Provincially Significant Woodlands

No Significant Woodlands are identified within or adjacent to the Subject Lands on Map 5 of the London Plan (2021a). The adjacent woodland (Community 1) is discussed further under Municipal Policy (Section 5.2).

5.1.3 Provincially Significant Valleylands

No Significant Valleylands are identified within 120 m of the Subject Lands on Map 5 (London Plan, 2021a). However, the ravine east of the Subject Lands will be discussed further under Municipal Policy (Section 5.2).

5.1.4 Significant Wildlife Habitat

Candidate significant wildlife habitat (SWH) is based on ELC communities that were identified in Section 4.2.3. Confirmed significant wildlife habitat is determined through targeted 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 was listed in Section 4.2.3 and is assessed below. A full evaluation of SWH is provided in Appendix D.

Bat Maternity Colonies

Community 1 was confirmed to contain at three candidate bat maternity roost trees along the east edge of the Subject Lands [Figure 7]. The full extent of the woodland could not be assessed for potential bat habitat as it is outside the property boundary, however additional candidate bat maternity roost habitat is likely present. Community 1 will therefore be assumed to be bat maternity colony SWH in this EIS.

SWH – Assumed Significant in Community 1

Reptile Hibernaculum

Four mammal burrows were identified along the slope adjacent to the Subject Lands. A stone wall is also present along this boundary that separates the backyard from the adjacent woodland, although no cracks and direct entry points were observed. The slope is not south-facing as preferred for snake hibernaculum, but these features may provide access below the frostline. No snake emergence surveys were completed due to timing of the project, so it cannot be confirmed that these features are not being used as a hibernaculum.

Candidate SWH – Unconfirmed in Community 1 (Adjacent Lands)

Special Concern and Rare Wildlife Species

As discussed in Section 4.2.1, NHIC and citizen science background sources identified several Special Concern or provincially rare species as potentially being present within the Subject Lands or Adjacent Lands. The Subject Lands were searched and no SOCC or provincially rare species or were observed within the Subject Lands during site investigations.

The Adjacent Lands (Community 1) was searched only from the property boundary. No floral SOCC were observed. One male Eastern Wood-pewee [SC] was heard calling from within Community 1 on May 17 and June 6, 2022. The nesting period for Eastern Wood-pewee [SC] in the Southern Horseshoe Moraines Ecodistrict is from June 3 to August 16 (Birds Canada, 2022). Although a targeted breeding bird survey was not completed, this observation and the presence of suitable deciduous forest habitat with an open understory (COSEWIC, 2012) suggests this species is breeding in Community 1. Community 1 (within and adjacent to the Subject Lands) will be considered SWH for Eastern Wood-pewee [SC] in this EIS.

SWH – Significant for Eastern Wood-pewee in Community 1

Candidate SWH – Other species unconfirmed in Community 1 (Adjacent Lands)

5.1.5 Areas of Natural and Scientific Interest

There are no ANSIs within or adjacent to the Subject Lands.

5.1.6 Fish Habitat

Detailed scale Fish Habitat considers fish habitat directly within or adjacent to the Subject Lands. There is no suitable habitat for fish within the Subject Lands, but Masonville Creek approximately 15 m east of the Subject Lands may contain fish habitat. This was not investigated for this EIS, but potential fish habitat will need to be considered.

Broad scale fish habitat considers the contribution of surface water features on the Subject Lands to downstream fisheries. Masonville Creek flows towards the Thames River over 300 m to the south of the Subject Lands. No obstacles to fish movement are known to exist between Masonville Creek and the Thames River, but this was not investigated. Downstream fisheries in the Thames River will be considered further in this EIS.

5.1.7 Habitat of Endangered or Threatened Species

Two species protected under the *Endangered Species Act, 2007* were identified as present or potentially present in Community 1 (FOD6), primarily east of the Subject Lands.

As discussed in Section 4.2.5, three candidate bat maternity roost trees were identified along the boundary of Community 1 and the Subject Lands. It should be noted that Little Brown Myotis prefer buildings or building-associated features for maternity roosting rather than natural features (Gerson, 1984; Humphrey & Fotherby, 2019). However, these trees could potentially support maternity roosting of Little Brown Myotis [END], Northern Myotis [END], or Tri-colored Bat [END]. Additional candidate maternity roost trees are likely present in Community 1, but the Adjacent Lands were only investigated from the property boundary.

A single Butternut [END] tree was identified along the creek at the bottom of the ravine, approximately 17 m northeast of the Subject Lands (not accounting for the slope). This tree was not assessed for hybrid characteristics, however the crown was noted by Will Huys (certified arborist) to be 50% dead on June 6, 2022.

5.2 Municipal Policy

The municipal Natural Heritage policy considerations are based on the London Plan, May 28 2021, Chapter 6 - Environmental Policies. Many natural heritage policies in the London Plan protect features from the PPS (MMAH, 2021) and are discussed in Section 5.1, however the assessment of significance for these features will be repeated here for clarity. The relevant policy sections are included in brackets.

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

As discussed in Section 5.1.1, there are no Provincially Significant Wetlands identified within or adjacent to the Subject Lands on Map 5 of the London Plan (2021a). No Wetlands or Unevaluated Wetlands are shown within 120 m of the Subject Lands on Map 5 of the London Plan (2021a) and no wetland communities were observed within or directly adjacent to the Subject Lands during field investigations.

5.2.2 Significant Woodlands and Woodlands (1337-1343)

As discussed in Section 5.1.2, there are no Significant Woodlands or Woodlands within or adjacent to the Subject Lands identified on Map 5 of the London Plan (2021a). However, the adjacent woodland feature (Community 1) is discussed in the context of Unevaluated Vegetation Communities (Section 5.2.12).

5.2.3 Significant Valleylands and Valleylands (1344-1351)

As discussed in Section 5.1.3, no Significant Valleylands or Valleylands are identified on Map 5 within or adjacent to the Subject Lands (City of London, 2021a). However, the London Plan defines a Valleyland as a “a natural area that occurs in a valley or other landform depression that has water flowing through or standing for some period of the year, and includes rivers, streams, other watercourses and ravines” (City of London, 2021a). Therefore, the ravine east of the Subject Lands will be considered a Valleyland in this EIS and should be considered for inclusion on Map 5 of the London Plan.

Policies for the identification of Significant Valleylands are partially provided in the London Plan policies 1344-1351, and full recommended criteria for Significant Valleylands are provided in Table 8-1 of the Natural Heritage Reference Manual (OMNR, 2010). The east ravine is located outside the Subject Lands, so although native vegetation cover and linkage functions were noted, the ravine was not fully assessed for significance in this EIS.

5.2.4 Significant Wildlife Habitat (1352-1355)

An assessment of candidate and confirmed SWH as determined by the provincial Ecoregion 7E Criteria Schedule is provided in Section 5.1.4. Additional SWH defined in the London Plan are described below.

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). The NHRM Section 9.3 (Identification) notes that where other natural heritage features and areas have been identified, a proponent may not have to identify SWH provided the feature is already protected by Official Plan policies that ensure there will be no negative impacts on the feature and its ecological functions (including SWH functions).

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.

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

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

5.2.6 Fish Habitat (1323-1324)

As noted in Section 5.1.6 there is no suitable fish habitat within the Subject Lands, although Masonville Creek in the east ravine may contain fish habitat. The Thames River 300 m to the south also contains fish habitat, including habitat for species protected under the *ESAct, 2007*.

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

Refer to Section 5.1.7 for discussion of Endangered and Threatened Species Habitat. No species protected under the *Endangered Species Act, 2007* were observed within the Subject Lands, but one Butternut [END] and three candidate bat maternity roost trees for Little Brown Myotis [END], Northern Myotis [END], or Tri-colored Bat [END] are present in Community 1 (FOD6).

5.2.8 Water Resource Systems (1361-1366)

The Thames-Sydenham and Region Source Protection Committee (2015) and Map 6 of the London Plan (2021a) indicates the Subject Lands are within a Significant Groundwater Recharge Area (SGRA) and a Highly Vulnerable Aquifer (HVA).

Water inputs (quality and quantity) to groundwater and surface water features (Masonville Creek) need to be managed during and post-construction to protect wildlife habitat and London's hydrological resources. Management of water resources is discussed in Section 7.1 of this EIS report.

5.2.9 Environmentally Significant Areas (1367-1371)

There are no Environmentally Significant Areas (ESAs) within or adjacent to the Subject Lands.

5.2.10 Upland Corridors (1372-1377)

There are no Upland Corridors identified on Map 5 of the London Plan (2021a) within or adjacent to the Subject Lands.

5.2.11 Potential Naturalization Areas (1378-1381)

There are no Potential Naturalization Areas identified on Map 5 of the London Plan (2021a) within 120 m of the Subject Lands.

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

There are no Unevaluated Vegetation Patches identified within 120 m of the Subject Lands on Map 5 (City of London, 2021a).

Community 1 is not identified as a natural heritage feature on Map 5 of the London Plan (2021a), however it is a vegetation patch larger than 0.5 ha and therefore may qualify as a Woodland or Significant Woodland according to the London Environmental Management Guidelines (EMG, 2021b). A preliminary evaluation is provided in Table 4, below. It should be noted that this woodland patch could not be assessed in full as it is outside the Subject Lands and was not covered within the scope of this project, and therefore some criteria were estimated using air photos or could not be confirmed.

Table 4: City of London EMG (2021) Woodland Evaluation for Community 1 Patch

Evaluation Category	Woodland Characteristics	MTE Assessment (2021)
1.1 Site Protection	• Masonville Creek flows through the woodland (note this is a created stormwater drain) • Woodland is partially within an SGRA and HVA • Patch present on slope likely >25%	High
1.2 Landscape Integrity	• Estimated high landscape richness (>10% local vegetation cover within a 2 km radius from the patch centroid) • Medium landscape connectivity (watercourses connected by culverts; road splits from the Thames connection) • High patch distribution (connected across Windermere Road to the Thames and the connected natural areas; not part of a Big Picture Meta Corridor near the Subject Lands but connects along the Thames River)	High (estimated)
2.1 Age and Site Quality	• Community age not investigated in detail, but confirmed to not be Old Growth → Estimated Medium • Mean coefficient of conservatism not known	Unconfirmed
2.2 Size and Shape	• Patch size is high as the patch is approximately 4.4 ha (<4.0 ha of woodland) • Patch has no interior habitat and is quite skinny – estimate patch shape as low • Bird species not investigated in detail	High (estimated)
2.3 Diversity	• Not fully investigated, but estimated the patch has 1-2 ELC community series based on air photo interpretation (low community diversity) • Estimated low community and topographic diversity (all woodland based on air photos and MNRF mapping) • Habitat for amphibians not investigated • No conifer communities based on air photo interpretation (low) • Fish habitat may be available, but not confirmed	Unconfirmed
3.0 Threatened or Endangered Species/SAR	• One Butternut [END] observed (not assessed) • No other Threatened or Endangered species were observed within the patch, however targeted surveys were not completed • Candidate bat maternity roost trees present *NOTE: MECP generally accepts compensation for the removal of a small number of potential bat habitat trees or Butternut.	Unconfirmed
4.1 High Quality Communities	• No communities identified with S-rank higher than 5 • Possible bat maternity SWH but it could not be confirmed • Not fully searched for rare species • Estimated medium size/distribution of trees based on tree inventory at Community 1 edge	Unconfirmed
4.2 High Quality Landform	• Patch is located on the Spillway physiographic landform unit	Low
RESULT (High/Medium/Low)		HIGH

Based on the EMG woodland evaluation, the Community 1 patch has several “high” rated criteria. However, this evaluation of the woodland was only based on limited observations made at the edge of a small section of the wooded feature and interpretation of air photos. A full evaluation could not be completed and therefore it is recommended that additional studies are completed before designating this feature as a Significant Woodland. This feature will be referred to as a Woodland in this report.

5.2.13 Other Drainage Features (1387)

As mentioned, Masonville Creek is located approximately 15 m east of the Subject Lands flowing through Community 1 towards the Thames River to the south. This will be addressed under City of London Water Resources policy. No other drainage features are present.

5.3 Conservation Authority Regulations

The Upper Thames River Conservation Authority (UTRCA) regulations fall across the east half of the Subject Lands [Figure 5]. The regulated areas are associated with the erosion hazard of the adjacent ravine. Any development proposed within the regulated areas will require a Section 28 Permit Application from the UTRCA.

5.4 Summary of Identified Features and Functions

Table 5 presents a summary of features and functions of the Subject Lands and Adjacent Lands that have been identified through the policy review, above, as requiring further consideration in the EIS. Features considered under the PPS are not re-stated under the London Plan (2021a).

Table 5: Environmental Considerations for the Subject Lands

Policy Category	Environmental Consideration	Natural Heritage Feature
Provincial Policy Statement	Woodlands	Community 1 (FOD6)
	Significant Wildlife Habitat	<u>Unconfirmed SWH (Community 1)</u> - Reptile Hibernaculum - Special Concern and Rare Wildlife Species <u>Assumed SWH (Community 1)</u> - Bat Maternity Colonies - Eastern Wood-pewee [SC] Habitat
	Fish Habitat	- Potential in Masonville Creek (Adjacent Lands) - Downstream fisheries in the Thames River will be considered
	Habitat of Endangered or Threatened Species	- Three candidate bat maternity roost trees for Little Brown Myotis [END], Northern Myotis [END], or Tri-colored Bat [END] present at edge of Community 1 - Butternut [END] in Community 1
The London Plan (2021a)	Valleylands	East ravine associated with Masonville Creek
	Water Resources System	- Subject Lands are within a SGRA and HVA - Masonville Creek ~15 m to the east of Legal Parcel
UTRCA Regulations	Regulated Area	UTRCA regulations associated with the east ravine erosion hazard fall across the Subject Lands

5.5 Ecological Buffers and Pre-Development Considerations

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

The EMGs recommend a 10 m buffer from Woodlands, however the width of the buffer from the Woodland (FOD6) will be guided by the sensitivity and quality of the natural heritage features present as well as the context of the Subject Lands (e.g. zoning, surrounding land use, existing conditions). Enhancement of the buffer to maximize effectiveness will also be considered. Buffers will be further discussed in Section 7.0 in the context of impact avoidance and mitigation.

6.0 Description of the Development

The Proponent (McIver Developments Inc.) has proposed the demolition of a single family home on two existing residential lots and the creation of two separate residential homes. The new homes would be constructed outside the erosion hazard and access allowance, thereby pulling development further away from the slope.

Each new house is proposed to be one storey tall with an associated driveway, covered deck area, and landscaping. Site servicing will be municipal services currently available at the road. The Site Plan is shown on Figure 8 (MTE, 2022) and the development overlay is shown on Figure 9.

The existing stone wall will be preserved at the east edge of the property and Community 1 will be retained. Grading limits are shown on Figure 9 and do not surpass the stable slope setback (EXP, 2022).

7.0 Impacts and Mitigation

This section reviews the development proposal [Figure 8] and identifies potential direct and indirect impacts to the significant natural heritage features within and adjacent to the development footprint. Appropriate avoidance, protection and mitigation measures for the impacts are also presented. At the conclusion of the section, a net effects table is provided for the proposed development application summarizing potential impacts as well as proposed mitigation, compensation or enhancement measures [Table 6].

Based on the analysis in Section 5.0, the significant features identified are summarized in Table 5. Significant natural heritage features identified on or adjacent to the Subject Lands are:

- Woodlands (Community 1 – FOD6)
- Valleylands
- Significant Wildlife Habitat (confirmed Eastern Wood-pewee SWH, candidate reptile hibernaculum SWH, assumed bat maternity roost SWH)
- Fish Habitat
- Habitat of Endangered and Threatened Species
- Water Resources System

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

7.1 Direct Impacts and Mitigation

7.1.1 Vegetation Removal

Based on the development plan presented in Figure 9, the proposed development will require the removal of several residential and ornamental trees. A Tree Preservation Plan will be completed to determine which trees are required for removal and recommend tree protection measures for retained trees. Trees are proposed to be removed from the residential lot and along the neighbouring property boundaries, as outlined in the Tree Preservation Report (MTE, 2022). Many of the tree species proposed for removal are non-native. The trees to be removed include Blue Spruce, Fir, Norway Spruce, White Spruce, Norway Maple, White Cedar, European Birch, and Ginkgo. The removal of a Black Walnut from Community 1 is also proposed, and this will be discussed further in Section 7.1.2 in the context of the Woodland.

Recommendation 1:

The limits of clearing should be surveyed, staked, and fenced in the field to allow for the protection of off-site natural areas and vegetation.

Recommendation 2:

Refer to the Tree Preservation Report (MTE, August 2022) for tree protection measures (ex: tree removal protocol, protective fencing, pruning measures) to implement within the Subject Lands. Tree protection fencing be installed along the limits of grading as instructed in the Tree Preservation Report.

7.1.2 Woodlands

Based on the woodland evaluation in accordance with the London EMGs (2021b), Community 1 is considered a Woodland and possibly a Significant Woodland, although further study is required. No direct long-term impacts to this feature are anticipated as only two trees (one non-native Norway Maple growing into the stone wall and one Black Walnut) within the Woodland are proposed for removal. The Black Walnut is identified for removal in the Tree Preservation Report (MTE, August 2022) based on the sensitivity to damage during construction and concerns over future maintenance. Neither of the trees proposed for removal were identified as potential bat maternity roost trees, and both are directly along the edge proposed for naturalization.

The primary short term impact will be the potential for damage to tree limbs and roots during demolition and grading. These impacts will be mitigated through the implementation of tree protection measures, as provided in the Tree Preservation Plan (MTE, August 2022). If appropriate tree protection measures are implemented, no direct impacts on the Woodland are anticipated.

The 10 metre minimum buffer recommended in the EMGs for a Woodland (30 m for Significant Woodlands) is not considered necessary for the Subject Lands. The houses are proposed to be 3-26 m from the Woodland dripline, with grading 3-17 m from the woodland tree trunks. The Woodland is currently co-existing with the existing residential property, with the house extending well into the dripline, and the mowed lawn up to the trunks of the woodland trees. The proposed development will shift the houses out from under the dripline and up to 20 m farther away from the Woodland than the existing home. The property is also fully zoned Residential (R1-8) and the designated land use is Neighbourhoods on Map 1 of the London Plan (2021). A 30 m buffer would not allow residential development in the legal parcels. Finally, the proposed development provides a significantly increased buffer from the woodland in comparison to surrounding residential properties. The adjacent properties do not provide any buffer to the Woodland, with many houses extending under the dripline of the feature.

The Woodland will be provided with a net benefit through an increased woodland setback and buffer enhancement. As mentioned above, the proposed houses will be setback significantly farther from the Woodland than the existing home, with no buildings under the dripline. Additional compensation is to be provided through the creation of a Naturalization Area under the dripline of the Woodland and defined by the stable slope setback [Figure 10]. This area is currently mowed maintained lawn. The Naturalization Area is recommended to be seeded with a native herbaceous seed mix and supplemented with native shrub species that could provide flowers and berries for wildlife. Eight trees will also be planted to compensate for removal of the Black Walnut. The Naturalization Area will act as a natural woodland edge that provides less harsh edge habitat for wildlife and increases the spread of native plant cover. In addition to enhancing the woodland edge, the Naturalization Area will also help stabilize the slope for long-term erosion protection. This restoration plan is shown on the Landscape Plan (Ron Koudys Landscape Architects Inc., 2022) in Figure 11. An overall benefit for the Woodland is anticipated as the proposed homes will be farther from the dripline than the existing house and the edge will be naturalized instead of mowed lawn.

Management of escaped garden ornamental species is also proposed as additional benefit. The gradual invasion of non-native species into the Woodland is apparent at the edge, where species such as Lesser Periwinkle, Japanese Barberry, and Lily-of-the-Valley are beginning to colonize the valley slope. A Norway Maple is also growing into the stone wall. A full list of non-natives present is available in Appendix E. These species should be removed where possible and replaced with native shade-tolerant ground cover (Ron Koudys Landscape Architects Inc., 2022). This will prevent further invasion into the Woodland, as well as increase native ground cover on the slopes to discourage erosion.

Potential disruptions (i.e. light, equipment use, noise) to wildlife within the Woodlands will be temporary and mitigation measures for wildlife are provided in Section 7.1.8.

Recommendation 3:

As recommended in Recommendation 2, refer to the Tree Preservation Plan (MTE, August 2022) for protection measures (ex: tree removal protocol, fencing, pruning measures, etc.) to prevent damage to the adjacent Woodland.

Recommendation 4:

Remove non-native ornamental plants along the Woodland edge prior to seeding with native floral species.

Recommendation 5:

Refer to the Landscape Plan in Figure 11 (Ron Koudys Landscape Architects Inc., 2022) for creation of the Naturalization Area in the area of mowed lawn beyond the top of stable slope setback. The Naturalization Area incorporates a woodland herbaceous seed mix extending onto the valley slopes, with some native shrubs and trees to provide wildlife benefits (ex: nesting, pollination, forage) and compensate for tree removal.

Recommendation 6:

No mowing or encroachment should occur within the Naturalization Area. Monuments in the form of 3' tall, 10"x10" columns (refer to Landscape Plan) will be installed where the Naturalization Area crosses the side yard property lines to clearly mark the permissible limits of mowing and maintenance.

7.1.3 Significant Wildlife Habitat

Candidate and confirmed SWH exists in Community 1 (FOD6). Candidate SWH (bat maternity roosts, reptile hibernaculum, Special Concern or Rare species habitat) was not confirmed in the full Community 1 due to project timing and property boundary limitations.

Candidate bat maternity colony SWH will be assumed to be present as three potential roost trees were located along the woodland edge and more likely exist further into Community 1. No candidate bat trees are proposed for removal. One tree is proposed for removal within Community 1.

According to the Significant Wildlife Habitat Mitigation Support Tool, developments "which result in significant forest clearing will impact nursery colonies of those bats which nurse in forested areas" (OMNRF, 2014). The proposed development will only require the removal of a single Black Walnut tree at the edge of the community, so no significant impacts to bat maternity roost SWH are anticipated. Mitigation measures will include minimizing the habitat affected (single tree with no bat habitat features), limiting impacts to the edge of the community where bat activity is the lowest, and removing the tree outside bat active season (OMNRF, 2014). In addition, the naturalized buffer will shift human disturbance (i.e. light, noise) further from the SWH community and tree preservation measures to prevent accidental damage are proposed in the TPP (MTE, August 2022).

Four mammal burrows and a stone wall along the east edge of the Subject Lands may provide suitable conditions for snake hibernacula, but this was not confirmed through field investigations. The burrows and wall will both be retained, and the Naturalization Area discussed above will provide an improved habitat area between the development and the potential hibernaculum features. The proposed homes will be setback farther from the burrows and wall than the existing house, and the lawn areas directly adjacent to the wall will no longer be mowed. No significant impacts are anticipated on the unconfirmed snake hibernaculum SWH.

Eastern Wood-pewee [SC] breeding habitat is assumed present within Community 1 based on field observations of a calling male and the presence of suitable open deciduous forest habitat. One Black Walnut is proposed to be removed from Community 1. The removal of a single tree at the edge of the community will not alter the community's structure or ability to provide nesting habitat for Eastern Wood-pewee. The naturalized buffer will also provide a greater setback between the residential lands and the wooded area than currently exists, decreasing any potential impacts from human disturbance (e.g. light, noise) and increasing habitat area. Eastern Wood-pewee SWH will continue to exist in Community 1.

Adjacent candidate and assumed SWH is outside the development limit and no direct impacts are anticipated.

Recommendation 7:

Remove the Black Walnut tree from Community 1 outside the bat active season (active May 1 - September 1) to avoid disturbing potential nearby maternity roosts.

7.1.4 Fish Habitat

Masonville Creek may contain fish habitat and also contributes downstream flow to the Thames River. The EMG recommends watercourses be provided with 30 m buffers for coldwater fish habitat and 15 m for warmwater fish habitat. The development setback (including grading) is at least 30 m from Masonville Creek and therefore no long term impacts are anticipated. House demolition and naturalization will occur within 30 m of Masonville Creek, but sediment and erosion mitigations will be provided as discussed in Section 7.2. No significant impacts are anticipated for fish habitat in Masonville Creek or the Thames River downstream.

7.1.5 Habitat of Threatened or Endangered Species

No candidate bat maternity roost trees are proposed for removal, so no impacts to habitat for Little Brown Myotis [END], Northern Myotis [END], or Tri-colored Bat [END] are anticipated.

The Butternut [END] is located at the bottom of the valley slope, approximately 17 m northeast of the property boundary and 33 m or greater from the proposed regrading limit [Figure 10]. The proposed development is outside the 25 m habitat regulation area and therefore no direct impacts are anticipated. No other Protected Species or their habitat is present within or adjacent to the Subject Lands.

7.1.6 Valleylands

The east ravine should be considered a Valleyland under London Policy based on MTE field investigations, although it is not identified as such on Map 5 of the London Plan (2021b). The proposed homes will be setback farther from the ravine than the existing house. An erosion hazard limit will be respected, with the proposed houses a minimum of 9.5 m above the top of the existing slope and a minimum of 6 m above the stable slope setback as determined by EXP (2022) [Figure 9]. Demolition will need to occur slightly beyond the erosion hazard limit, but sediment and erosion fencing will mitigate short term impacts and re-grading will not extend past the stable slope setback [Figure 10]. In addition, the Naturalization Area proposed beyond the stable slope setback will increase native vegetation cover to further stabilize the ravine slope.

No direct impacts to the Valleyland feature are anticipated with the currently proposed development limits. Indirect impacts (i.e. erosion and sedimentation during construction) will be addressed in Section 7.2.

7.1.7 Water Resource Systems

The Subject Lands are within an SGRA and HVA (TSRSPC, 2015) and Masonville Creek is in the east adjacent ravine, approximately 15 m outside the Subject Lands. No land use changes are proposed, so no changes in impacts to groundwater resources are anticipated. Although a hydrological study has not been conducted, the area of permeable surfaces within the Subject Lands will remain approximately the same, allowing infiltration to continue. As discussed in Section 7.1.4, no direct impacts to Masonville Creek are expected and sediment and erosion control measures are provided in Section 7.2.

Recommendation 8:

A Best Management Practice (BMP) and spill contingency plan (including a spill action response plan) should be in place for fuel handling, storage and onsite equipment maintenance activities to minimize the risk of contaminant releases as a result of the proposed construction activities. 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 9:

Vegetative cover should be re-established in disturbed areas following construction to minimize runoff and erosion.

Recommendation 10:

Limit the use of chemical fertilizers within the Subject Lands as well as salts or other additives for ice and snow control on the roadways and parking areas. This should be communicated to the homeowners as discussed in 7.2.3.

7.1.8 Migratory Birds and Wildlife

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

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

Recommendation 11:

Avoid vegetation clearing and site disturbance during migratory bird breeding season to ensure that no active nests are removed or disturbed in accordance with the *Migratory Birds Convention Act* and/or Regulations under that Act. The active nesting season is defined as April 11 to August 15 for 95% of forest nesting birds in zone C2 (ECCC, 2018). 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 15 or until the nest has been confirmed inactive (e.g. young have fledged).

Recommendation 12:

Ensure workers are aware of potential incidental encounters with wildlife and the necessary protective measures that can be implemented. 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 13:

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

7.2.1 Sediment and Erosion Control Measures

A critical time for the protection of natural heritage features is during the construction phase. For all works and especially those within 30 m of adjacent natural heritage features, substantial sediment and erosion control measures will be required to ensure that indirect impacts to the adjacent Valleyland and its associated natural heritage features are avoided or mitigated.

Recommendation 14:

Prior to works on site, sediment and erosion control fencing should be installed along the stable slope setback [Figure 10]. This should include robust silt fencing as indicated on the Erosion Control Plan (MTE). The fence will act as a barrier to keep construction equipment and spoil away from the slopes and vegetation to remain, as well as prevent erosion and sedimentation of the adjacent natural heritage features. During construction, the lands between the sediment and erosion control fencing should be maintained.

Recommendation 15:

Sediment and erosion control fencing should 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 16:

Soil stockpiles should be established in locations where natural drainage is away from the adjacent Valleyland. If this is not possible and there is a possibility of any stock pile slumping and moving toward the edge of the Valleyland, the stockpiles should be protected with robust sediment and erosion control. Access to the stockpile should be confined to the up-gradient side.

Recommendation 17:

Sediment and erosion control fencing should be inspected prior to construction to ensure it was installed correctly and during construction prior to rain events 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 18:

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 19:

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 20:

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 Landowner(s) Education

Recommendation 21:

Provide homeowners with the "Living with Natural Areas" brochure published by UTRCA in 2005 [Appendix H]. This will help educate the future residents on appropriate ways to interact with natural areas and discourage damaging encroachment activities such as dumping landscape waste, using chemicals on lawns, mowing past residential boundaries, and creating trails.

7.3 Monitoring Plan

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

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

Long-term post-construction monitoring shall evaluate the success of the proposed active naturalization efforts and planting compensation. This plan should include remedial actions that are triggered if effects exceed pre-determined thresholds (e.g. supplemental plantings if survival rates are low). Monitoring requirements should be confirmed in consultation with agency staff.

Recommendations for monitoring include, but are not limited to:

- Vegetation monitoring should be completed for two years after planting to document compliance with the plans (e.g., the correct species and quantities were planted, tree protection measures were effective), 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 of planted material (triggered at <80% survival), insufficient vegetation cover, and the presence of unacceptable non-native and invasive species.

Monitoring requirements are presented 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, 2018). Development is proposed within the UTRCA regulated area associated with the erosion hazard of the east Valleyland, including demolition of the existing house. Development proposed within the regulated areas will require a Section 28 Permit Application from the UTRCA.

7.5 Net Effects

Table 6, below, summarizes potential impacts to natural heritage features and functions as well as proposed mitigation, compensation, and enhancement measures.

Table 6: Net Effects

Source of Impact	Affected Feature	Predictions of Impact	Mitigation Strategy	Net Effects	Recommendations for Management and Monitoring
Artificial Lighting	Woodland, Valleyland	Low impacts expected - residential lights	New houses are further setback from the Woodland than the existing home; residential lighting is unlikely to significantly impact wildlife species	No net effect	N/A
Litter and Garbage	Woodland, Valleyland	Low impacts expected - garbage/litter from residential area	Homeowner education ("Living With Natural Areas" brochure); monuments along the naturalization area boundary	No net effect	Ongoing education.
Increased access to sensitive area	Woodland, Valleyland	Medium impacts expected - vegetation could get trampled	Educational materials ("Living With Natural Areas" brochure) to discourage wandering; monuments along the naturalization area boundary	No net effect	Ongoing education.
Creation of new trails	Woodland, Valleyland	Medium impacts expected - ad-hoc trails may trample ground cover, transport invasive species	Educational materials ("Living With Natural Areas" brochure) to discourage wandering; monuments along the naturalization area boundary	No net effect	Ongoing education.
Vegetation Removal	Woodland	Low impacts expected - removal of one Black Walnut in the Significant Woodland (confirmed/candidate SWH)	The remainder of the Woodland will be retained and protected by Tree Protection Measures (MTE, August 2022); the naturalized buffer increases the net area of native vegetation including the planting of eight native trees to compensate for removal of the Black Walnut; naturalized buffer increases the setback between residential development and the retained Woodland (SWH), therefore decreasing impacts of human disturbance such as light and noise.	Net positive	Monitoring of naturalization/planting success in the buffer.
Tree damage	Woodland	Low impacts expected - limb removal, root damage	Tree Preservation Report mitigation measures (MTE, August 2022)	No net effect	Monitor for tree damage post-construction.

Source of Impact	Affected Feature	Predictions of Impact	Mitigation Strategy	Net Effects	Recommendations for Management and Monitoring
Increased noise	Woodland, Valleyland	Low impacts expected - common faunal species present - impact is temporary	Low level noise from homes will not impact common species; noise disturbance during construction should be limited to allowable hours per City of London By-law; noise from heavy machinery should be avoided where possible during the migratory bird breeding period (April 11 to August 15 in forest habitats in region C2) to avoid disturbance of birds nesting; increased noise from construction will be temporary	No net effect	Residential by-laws restrict excessive noise.
Disturbance to wildlife during construction	Woodland, Valleyland	Low impacts expected - disruption to activities of nearby wildlife will be temporary	Restrict timing of habitat and vegetation removal to outside breeding and sensitive periods for birds; make workers aware of potential incidental encounters and necessary protections; if an animal enters the work site, work at that location will stop and the animal should be permitted to leave without being harassed; if there are repeat observations of wildlife in the work area, barrier fencing may be used to direct wildlife away from active construction and toward natural areas	No net effect	Disturbance is temporary and minimal for species within the surrounding lands.
Decreased infiltration and increased run-off	Woodland, Valleyland, Masonville Creek	Low impacts expected - impervious surfaces decrease infiltration	Vegetated areas for infiltration will be retained; sediment and erosion control fencing at edge of development should remain until construction is complete and disturbed areas are seeded; all issues with sediment and erosion control measures should be resolved the same day	No net effect	Monitor sediment and erosion control fencing.
Increased erosion	Woodland, Valleyland	Low impacts expected	Retention and enhancement of vegetation along the top of the Valleyland slope; sediment and erosion control fencing installed at development limit; fencing should remain until construction is complete and disturbed areas are seeded; all issues with sediment and erosion control measures should be resolved the same day	No net effect	Monitor sediment and erosion control fencing.

Source of Impact	Affected Feature	Predictions of Impact	Mitigation Strategy	Net Effects	Recommendations for Management and Monitoring
Increased nutrient, pesticide, chemicals, and sediment	Woodland, SGRA/HVA, Masonville Creek	Low impacts expected - lawn care will remain similar to existing residential conditions	Naturalization Area buffers the Woodland; sediment and erosion control plan during construction; limit the use of commercial fertilizers and other chemical applications; consider the use of grass varieties which are heartier and require less extensive watering or fertilizers; limit the use of salts or other additives for ice and snow control on driveways	No net effect	Monitor sediment and erosion control fencing.
Visual intrusion	Woodland, Valleyland	Low impacts expected - residential housing is not visually intrusive	Subject Lands are currently residential and will remain residential; Naturalization Area buffers the Woodland; surrounding lands are residential; no decrease in visual appeal is anticipated	No net effect	N/A
Domestic animals	Woodland, Valleyland	Low impacts expected - off-leash dogs can trample plants - outdoor cats kill wildlife	Homeowner education ("Living With Natural Areas" brochure)	No net effect	Ongoing education.
Introduced invasive plants	Woodland, Valleyland	Low impacts expected - inappropriate disposal of lawn/gardening waste	Removal of invasive and ornamental species within the Woodland edge; native species planted in the Naturalization Area; homeowner education about disposing of lawn/garden waste ("Living With Natural Areas" brochure)	Positive net effect	Monitor the success of invasive species management and establishment of native species.
Air pollution	Woodland, Valleyland	No impacts expected	The single family homes will not generate substantial air pollution in the region	No net effect	N/A
Fire Hazards	Woodland	Low impacts expected - potential for recreational gatherings	Homeowner education ("Living With Natural Areas" brochure) to discourage physical encroachment	No net effect	Ongoing education.
Use of heavy machinery – tree damage, soil compaction	Woodland	Low impacts expected - machinery too close to retained vegetation can break off branches, wound trunks, or compact soil over vital tree roots	Tree Preservation Report mitigation measures (MTE, August 2022); all issues with protection fencing should be resolved the same day	No net effect	Regular monitoring during construction to ensure tree protection fencing and sediment and erosion control fencing is functioning. Post-construction monitoring to ensure tree protection measures were successful.

Source of Impact	Affected Feature	Predictions of Impact	Mitigation Strategy	Net Effects	Recommendations for Management and Monitoring
Use of heavy machinery – oil, gasoline, grease spill	Woodland, Valleyland	Medium impacts expected - machinery can leak or refueling can generate spills	BMPs and a spill contingency plan (including a spill action response plan) should be in place for fuel handling, storage and onsite equipment maintenance activities to minimize the risk of contaminant releases as a result of the proposed construction activities; contractors working at the site should ensure that construction equipment is in good working order; equipment operators should have spill-prevention kits, where appropriate	No net effect	Containment of spills should be included in plan.
Changes in soil grade	Woodland, Valleyland	Medium impacts expected - raising the grades may result in root suffocation - lowering grade may result in removal of tree roots	Grading will not occur within the critical root zones of the trees in the Woodland as should be outlined in the Tree Preservation Plan (MTE, August 2022); implement tree protection measures from the Tree Preservation Plan	No net effect	Regular monitoring by an ecological consultant during construction to ensure trees are protected. Post-construction monitoring to ensure tree protection measures were successful.

8.0 Summary and Conclusions

Mclver Developments Inc. (the “Proponent”) is proposing the demolition of a single family house followed by construction of two single family houses within the Subject Lands, located at 96 Tallwood Circle in the City of London.

The proposed development avoids direct impacts to the features and functions of the adjacent Woodland and Valleyland, as well as the species and habitat associated with the features. This is accomplished by pulling the new homes further away from the natural heritage features than the existing home and providing additional compensation through naturalization and management of ornamental species encroaching into the woodland. The Naturalization Area should be landscaped with native species to restore the Woodland dripline and enhance slope stability. A detailed landscape plan [Figure 11] is provided by Ron Koudys Landscape Architects Inc. (2022).

This EIS has also set out recommendations to protect the adjacent significant natural heritage features from indirect impacts, such as erosion and sediment control measures and homeowner education.

Provided the recommendations in this 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 EIS. Formal comments can be submitted in writing to MTE of behalf of the client. Should you wish to clarify any questions or require additional information as part of the review of this EIS, do not hesitate to contact us.

All of which is respectfully submitted,

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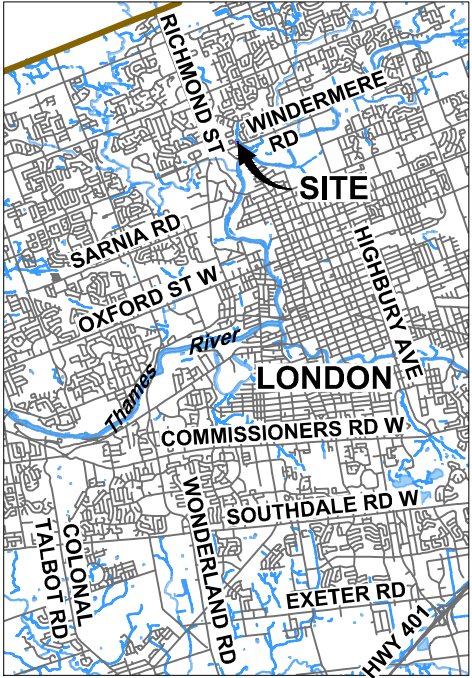
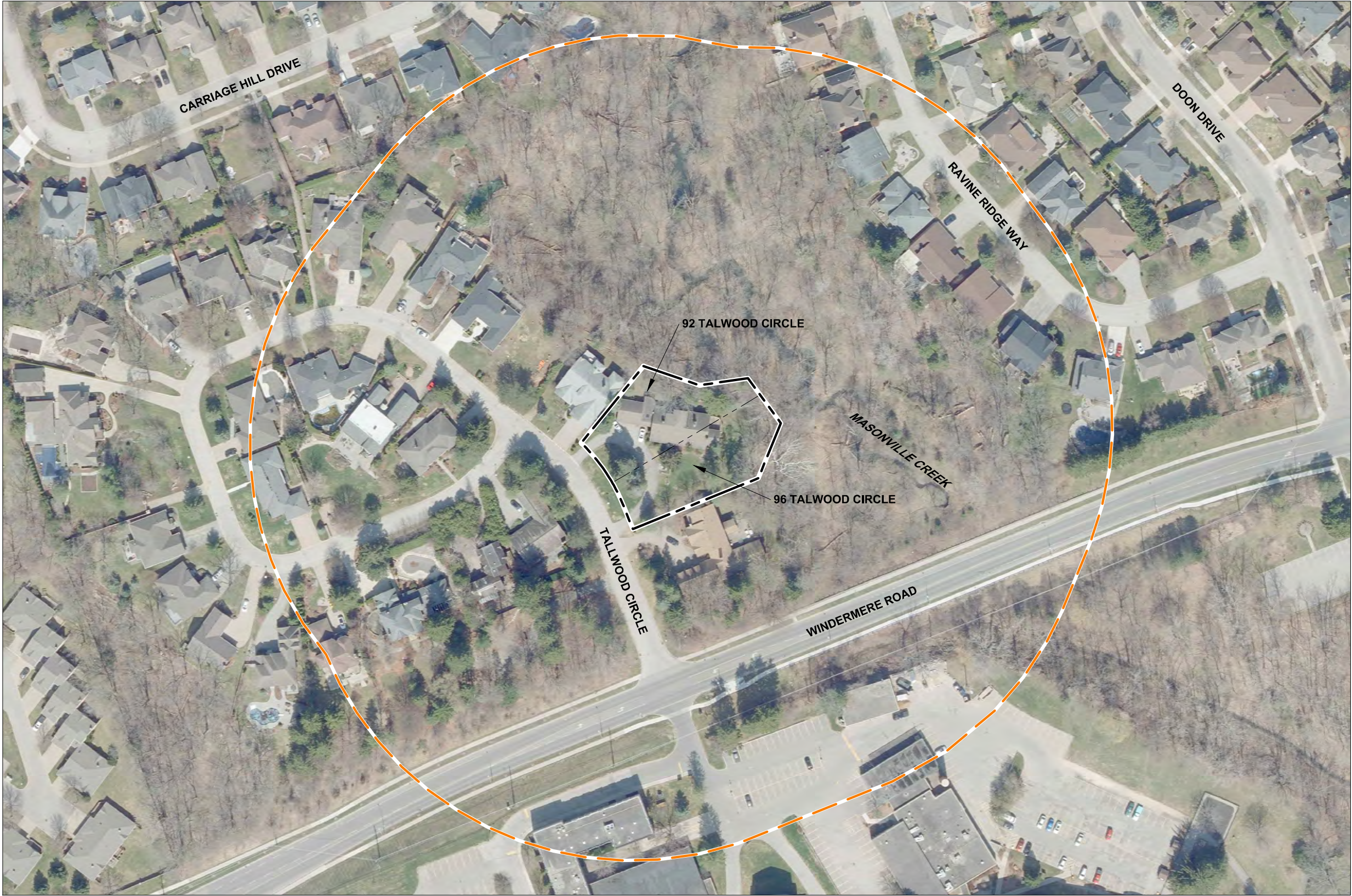
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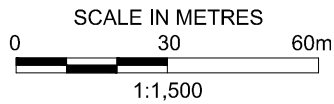
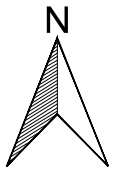
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Figures



KEY PLAN



PROJECT
ENVIRONMENTAL IMPACT STUDY
96 TALLWOOD CIRCLE
LONDON, ONTARIO

TITLE
PROJECT LOCATION

Drawn	DCH	Scale	AS SHOWN
Checked		Project No.	50760-200
Date	July 20/22	Rev No.	0

FIGURE 1

LEGEND

- SUBJECT PROPERTY
- - - STUDY AREA
(120m Buffer Subject Property)

REFERENCES

CITY OF 2021 LONDON PARCEL, ROAD/WATER NETWORK, AND AERIAL IMAGERY, OPEN DATA SET; AND
MTE LOT GRADING SEDIMENT EROSION PLAN, "50760-101 and 102 Lot Grading Sediment Erosion Plan June 08 2022.dwg"

NOTES

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

ALL LOCATIONS ARE APPROXIMATE.



REFERENCES

CITY OF 2021 LONDON PARCEL, ROAD/WATER NETORK, AND AERIAL IMAGERY, OPEN DATA SET; AND
CITY OF LONDON MAP 5 - NATURAL HERITAGE, MAY 2021.

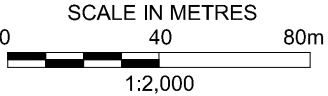
NOTES

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ALL LOCATIONS ARE APPROXIMATE.

LEGEND

- SUBJECT LANDS
- SIGNIFICANT VALLEYLAND
- STREET
- SUBWATERSHED BOUNDARY
- UNEVALUATED WETLAND
- WATERCOURSE

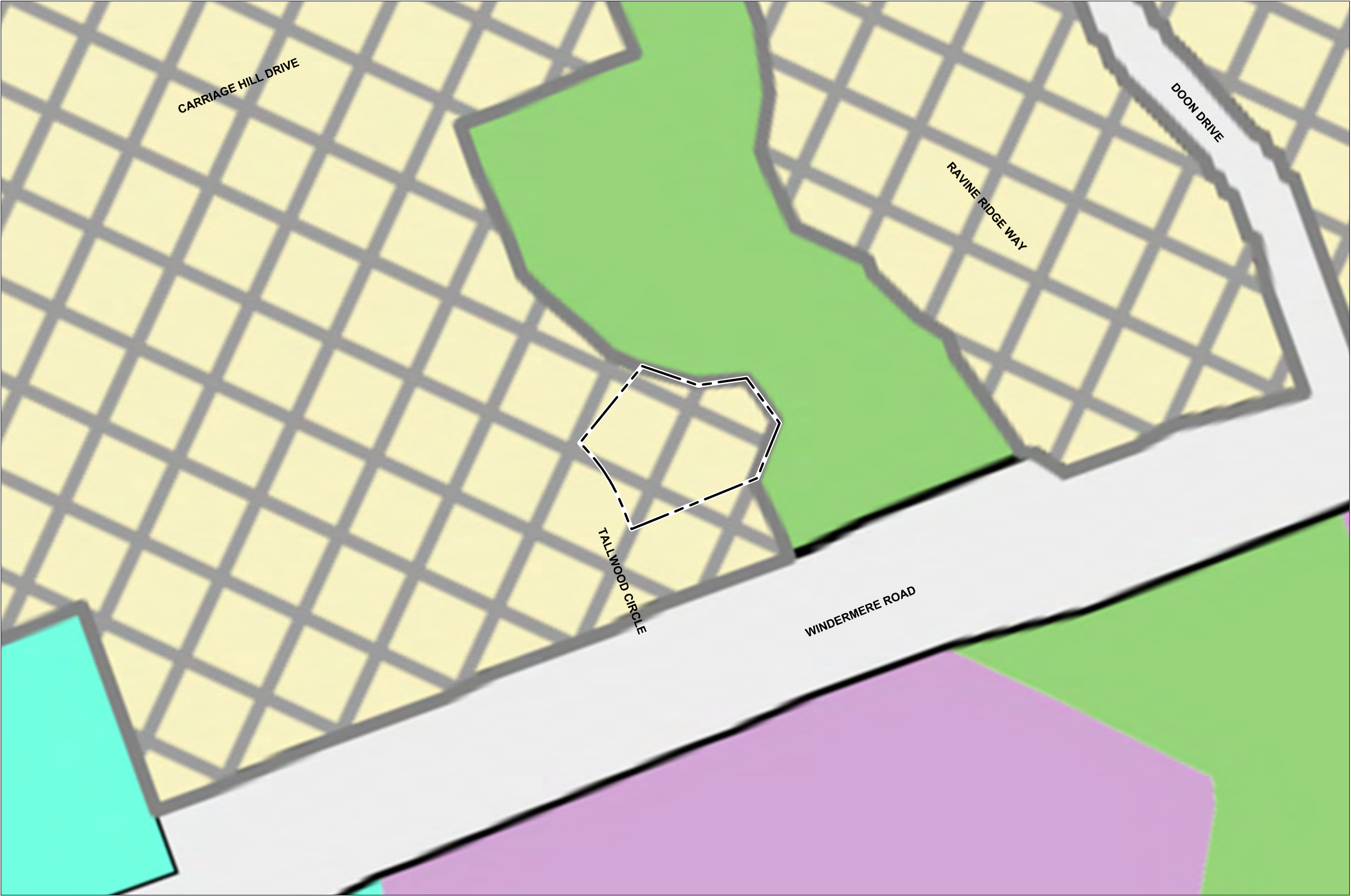


PROJECT
ENVIRONMENTAL IMPACT STUDY
96 TALLWOOD CIRCLE
LONDON, ONTARIO

TITLE
NATURAL HERITAGE

Drawn	DCH	Scale	AS SHOWN
Checked		Project No.	50760-200
Date	July 20/22	Rev No.	0

FIGURE 2



REFERENCES

CITY OF 2021 LONDON PARCEL, ROAD/WATER NETORK, AND AERIAL IMAGERY, OPEN DATA SET; AND
CITY OF LONDON MAP 1 - PLACE NAMES, MAY 2021.

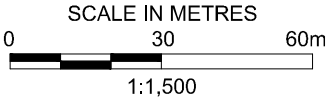
NOTES

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ALL LOCATIONS ARE APPROXIMATE.

LEGEND

- SUBJECT LANDS
- STUDY AREA (120m Buffer Subject Property)
- GREEN SPACE
- URBAN CORRIDOR
- INSTITUTIONAL
- AREAS WITHHELD FROM LPAT APPROVAL

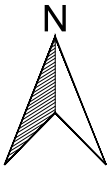
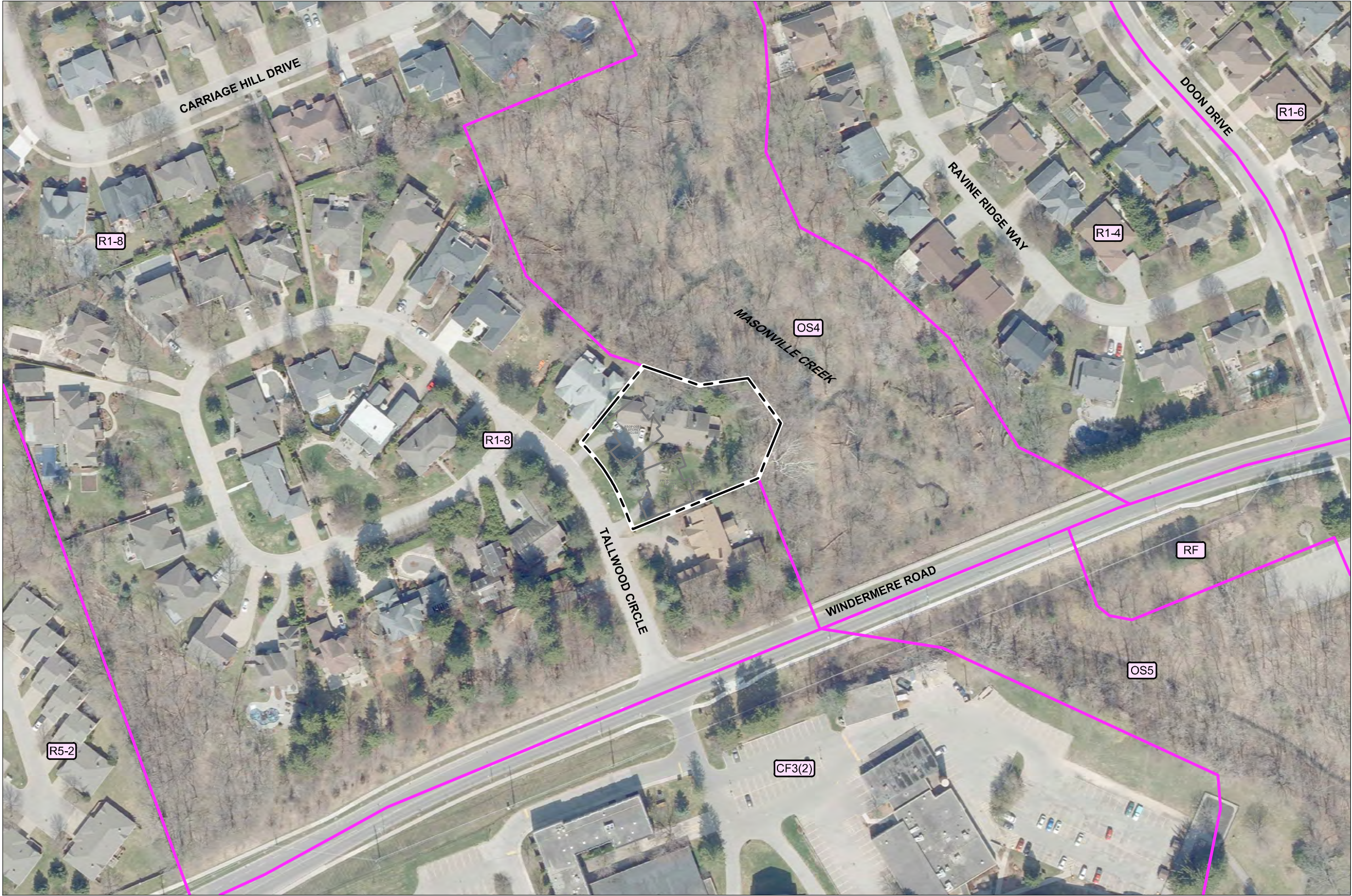


PROJECT
ENVIRONMENTAL IMPACT STUDY
96 TALLWOOD CIRCLE
LONDON, ONTARIO

TITLE
PLACE TYPES

Drawn	DCH	Scale	AS SHOWN
Checked		Project No.	50760-200
Date	July 20/22	Rev No.	0

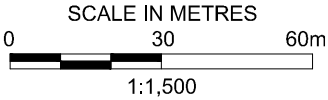
FIGURE 3



LEGEND

--- SUBJECT LANDS
--- ZONING BOUNDARY (City of London)

CF COMMUNITY FACILITY ZONE
OS OPEN SPACE ZONE
R RESIDENTIAL ZONE
RF REGIONAL FACILITY ZONE



REFERENCES

CITY OF 2021 LONDON PARCEL, ROAD/WATER NETORK, AND AERIAL IMAGERY, OPEN DATA SET; AND CITY OF LONDON INTERACTIVE ZONING MAP.

NOTES

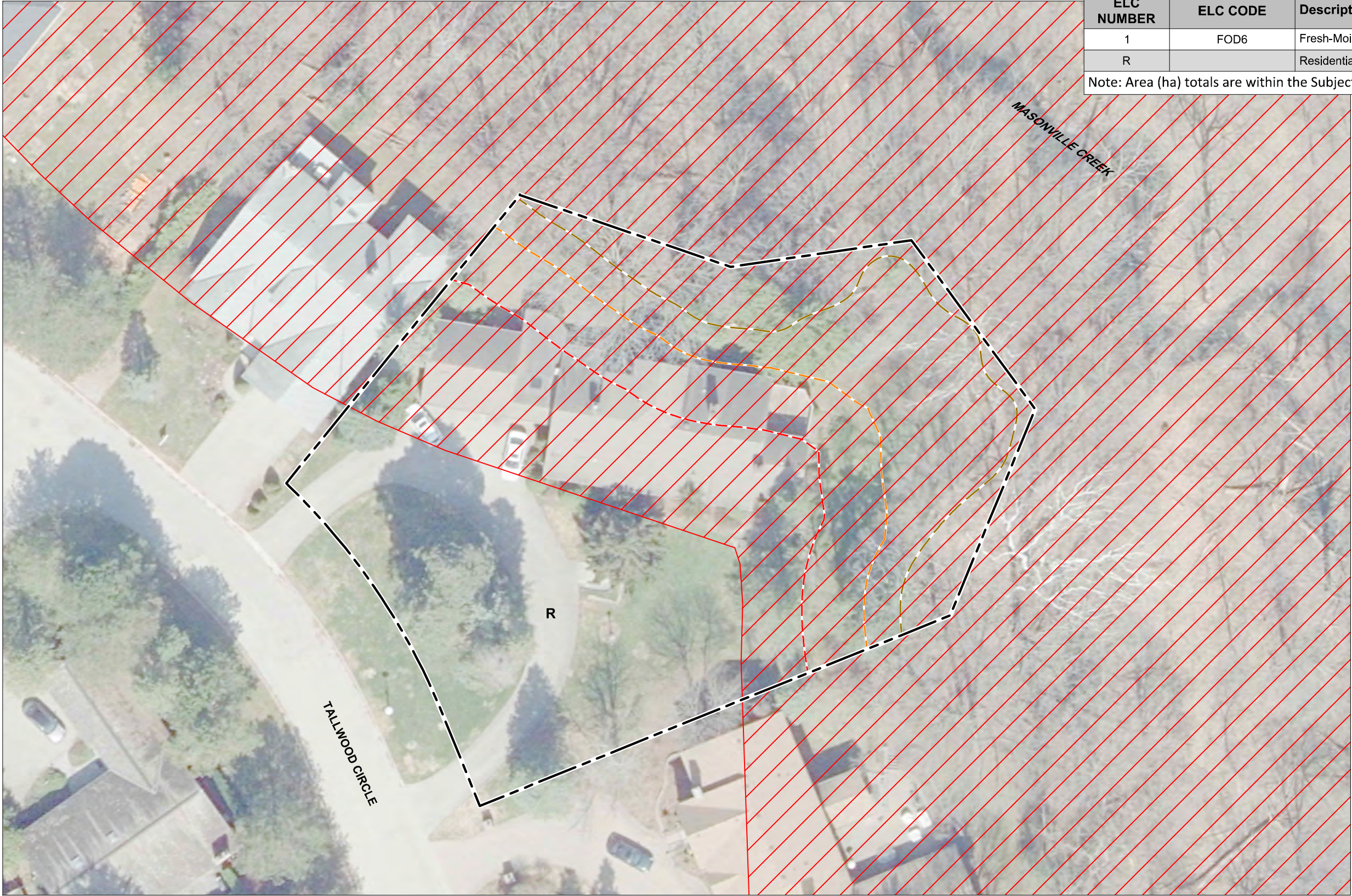
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ALL LOCATIONS ARE APPROXIMATE.

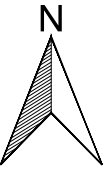


PROJECT			
ENVIRONMENTAL IMPACT STUDY 96 TALLWOOD CIRCLE LONDON, ONTARIO			
TITLE			
ZONING			
Drawn	DCH	Scale	AS SHOWN
Checked		Project No.	50760-200
Date	July 20/22	Rev No.	0

FIGURE 4

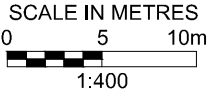


ELC NUMBER	ELC CODE	Description
1	FOD6	Fresh-Moist Sugar Maple Deciduous Forest Ecosite(0.09ha)
R		Residential
Note: Area (ha) totals are within the Subject Lands only		



LEGEND

- SUBJECT LANDS
- UTRCA REGULATION SCREENING AREA
- EXP SLOPE STABILITY ASSESSMENT
 - TOP OF EXISTING SLOPE
 - STABLE SLOPE SETBACK
 - DEVELOPMENT SETBACK (Erosion Hazard Limit)



REFERENCES

CITY OF 2021 LONDON PARCEL, ROAD/WATER NETORK, AND AERIAL IMAGERY, OPEN DATA SET; AND UPPER THAMES RIVER CONSERVATION AUTHORITY, REGULATION SCREENING AREA, VERSION 2, AS OF DECEMBER 10 - 2021.

NOTES

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

ALL LOCATIONS ARE APPROXIMATE.



PROJECT
ENVIRONMENTAL IMPACT STUDY
96 TALLWOOD CIRCLE
LONDON, ONTARIO

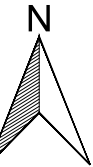
TITLE
UTRCA
REGULATION LIMITS

Drawn	DCH/SGL	Scale	AS SHOWN
Checked		Project No.	50760-200
Date	July 20/22	Rev No.	0

FIGURE 5



ELC NUMBER	ELC CODE	Description
1	FOD6	Fresh-Moist Sugar Maple Deciduous Forest Ecosite(0.09ha)
R		Residential
Note: Area (ha) totals are within the Subject Lands only		



LEGEND

- SUBJECT LANDS
- ① VEGETATION COMMUNITY
- MOWED LAWN UNDER DRIPLINE
- INCLUSION AREA (Coincident with Stone Wall and Retaining Wall)

SCALE IN METRES
0 5 10m
1:400

REFERENCES

CITY OF 2021 LONDON PARCEL, ROAD/WATER NETORK, AND AERIAL IMAGERY, OPEN DATA SET.

NOTES

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

ALL LOCATIONS ARE APPROXIMATE.



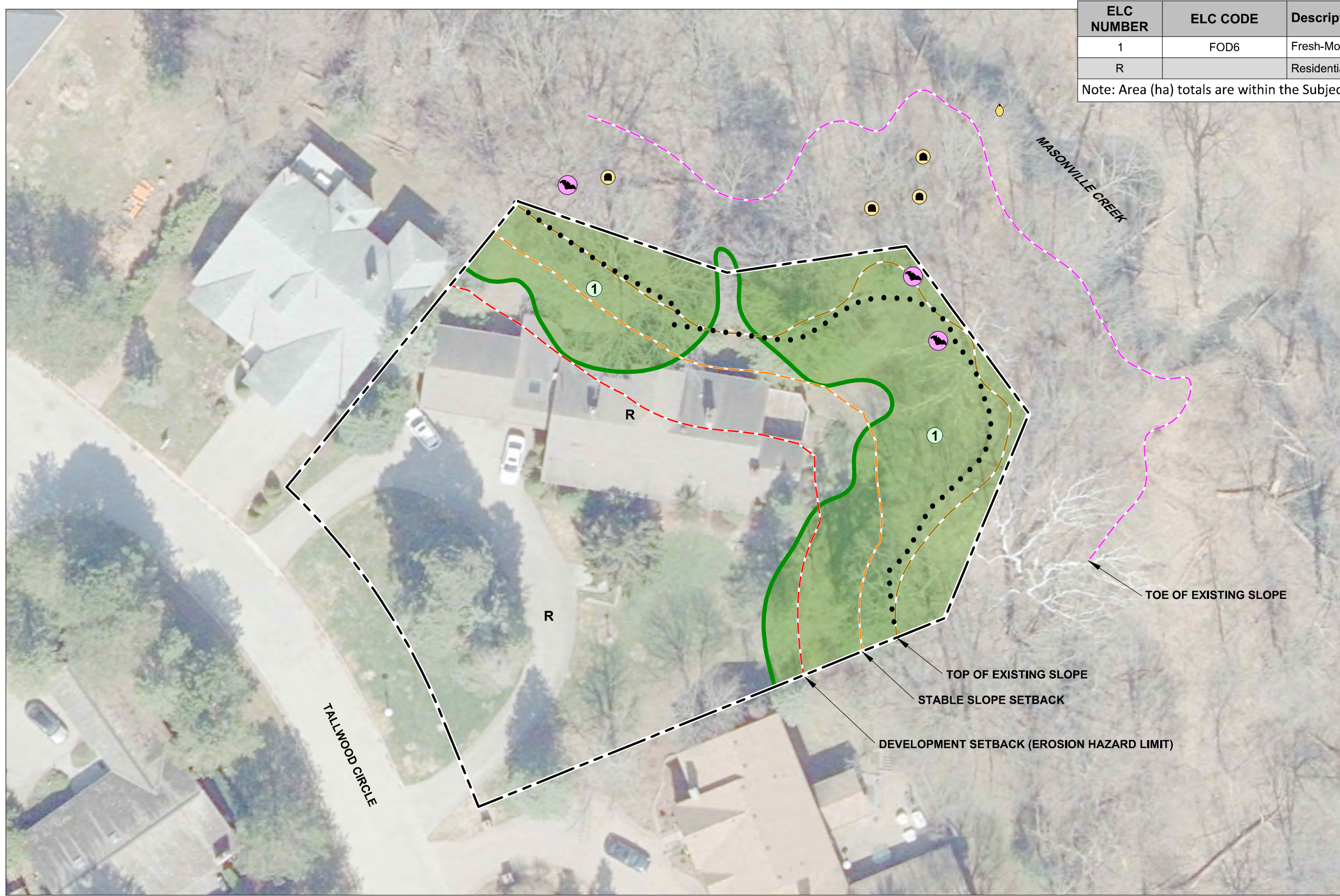
PROJECT
ENVIRONMENTAL IMPACT STUDY
96 TALLWOOD CIRCLE
LONDON, ONTARIO

TITLE
VEGETATION COMMUNITIES

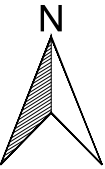
Drawn	DCH	Scale	AS SHOWN	FIGURE 6
Checked		Project No.	50760-200	
Date	July 20/22	Rev No.	0	

CAD: P:\50760\200\2_PROD\50760-200-R03 ENVIRONMENTAL IMPACT STUDY\50760-200-R03001.DWG
0 25mm Original Format in Tabloid (279mm x 432mm; 11" x 17")

Client: McIver Developments Inc.
Plot Date: 20 July 2022 Time: 11:08:55



ELC NUMBER	ELC CODE	Description
1	FOD6	Fresh-Moist Sugar Maple Deciduous Forest Ecosite(0.09ha)
R		Residential
Note: Area (ha) totals are within the Subject Lands only		



REFERENCES

CITY OF 2021 LONDON PARCEL AND AERIAL IMAGERY, OPEN DATA SET; AND EXP. SLOPE STABILITY ASSESSMENT, PROPOSED NEW RESIDENCE, PROJECT No. LON-22002033-A0, DWG No. 2, MAY 2022.

NOTES

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ALL LOCATIONS ARE APPROXIMATE.



PROJECT

ENVIRONMENTAL IMPACT STUDY
96 TALLWOOD CIRCLE
LONDON, ONTARIO

TITLE

SIGNIFICANT NATURAL HERITAGE
FEATURES AND KEY FINDINGS

Drawn	DCH	Scale	AS SHOWN	FIGURE 7
Checked		Project No.	50760-200	
Date	July 20/22	Rev No.	0	

LEGEND

---	SUBJECT LANDS	CANDIDATE MATERNITY ROOST TREE	EXP SLOPE STABILITY ASSESSMENT
1	VEGETATION COMMUNITY	MAMMAL BURROW/UNDERGROUND ACCESS	TOE OF EXISTING SLOPE
.....	MOWED LAWN UNDER DRIPLINE INCLUSION AREA (Coincident with Stone Wall and Retaining Wall)	BUTTERNUT [END]	TOP OF EXISTING SLOPE
	WOODLAND		STABLE SLOPE SETBACK
			DEVELOPMENT SETBACK (Erosion Hazard Limit)

NOTES

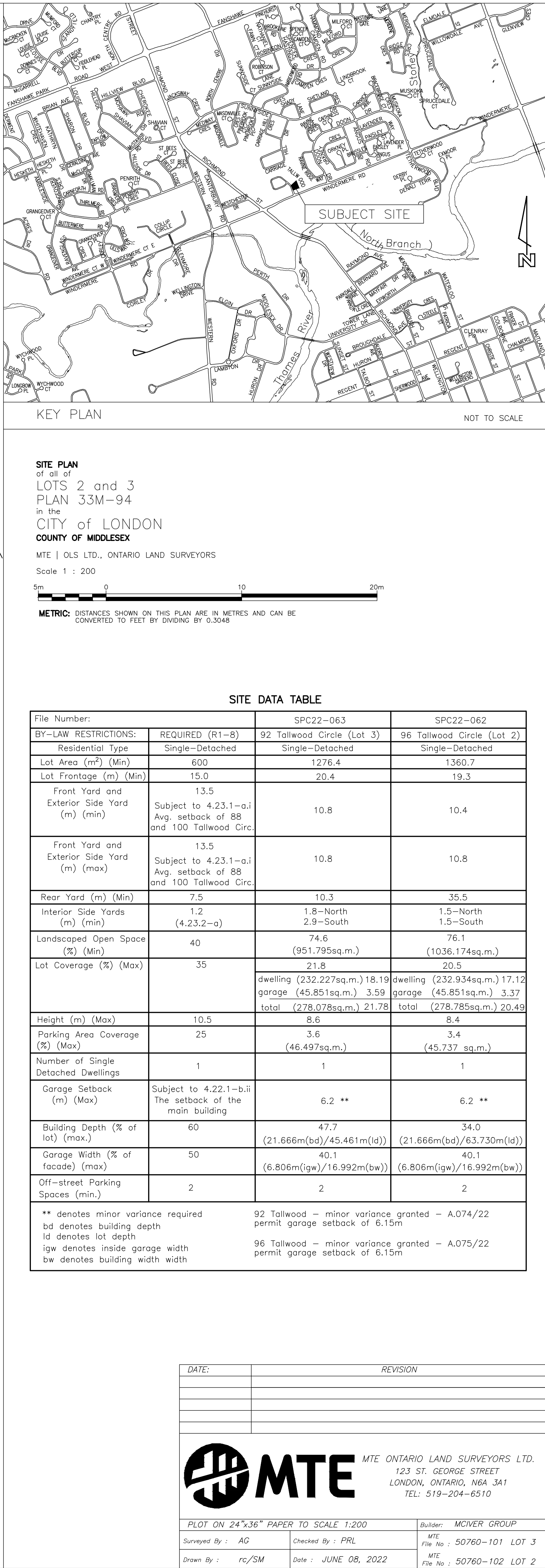
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ALL LOCATIONS ARE APPROXIMATE.

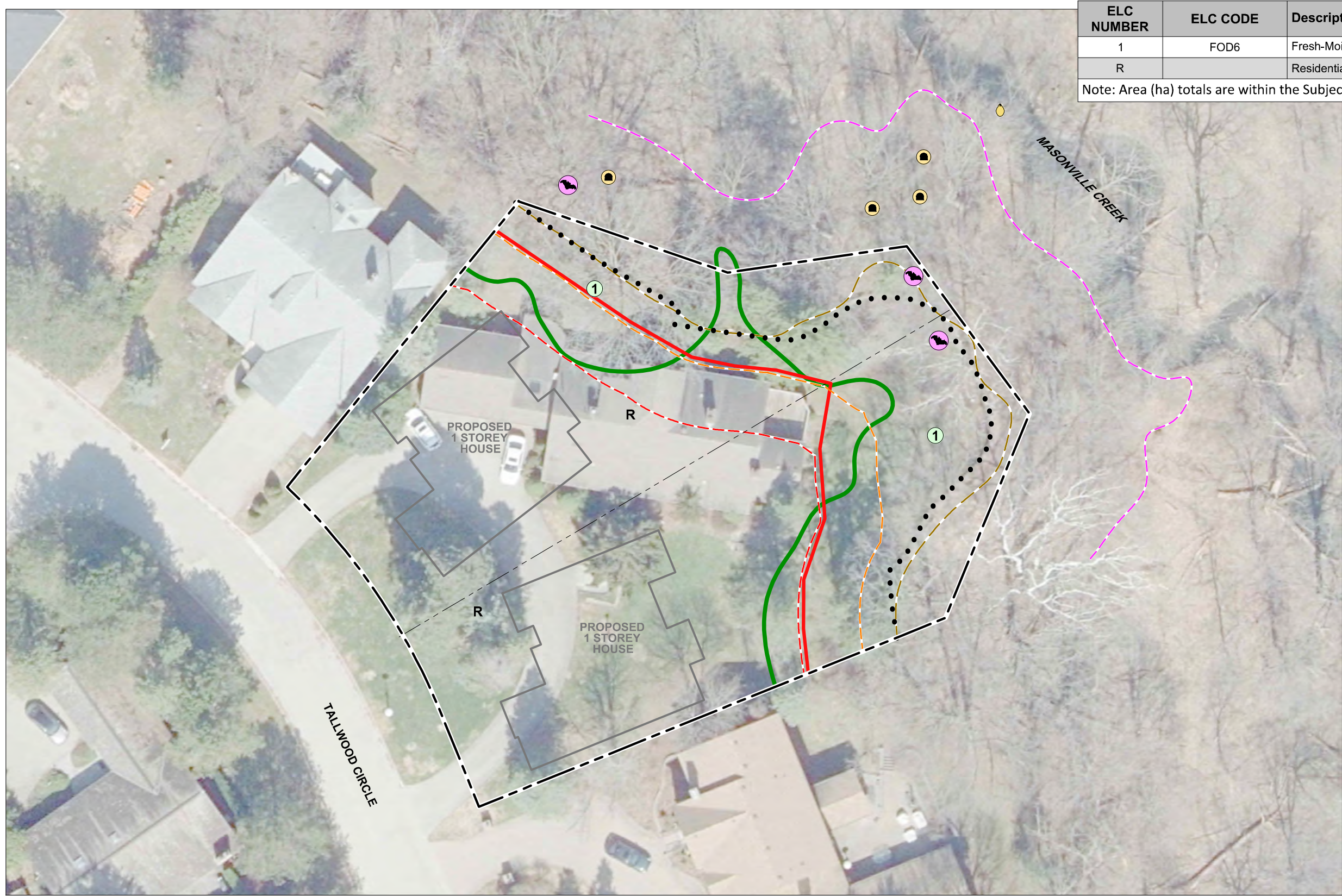
BEARINGS ARE UTM GRID DERIVED FROM SPECIFIED CONTROL POINTS 02819941035 AND 02819942020 UTM ZONE 17, NAD83 (ORIGINAL)

DISTANCES SHOWN ON THIS PLAN ARE GROUND LEVEL DISTANCES AND CAN BE CONVERTED TO GRID DISTANCES BY MULTIPLYING BY A COMBINED SCALE FACTOR OF 0.999569425

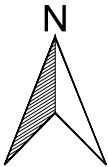
SPECIFIED CONTROL POINTS (SCP's) : UTM ZONE 17, NAD83 (ORIGINAL)	POINT ID	NORTHING	EASTING
SCP 02819941035	4762491.900	478056.206	
SCP 02819942020	4762864.746	478294.919	

COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE-ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.





ELC NUMBER	ELC CODE	Description
1	FOD6	Fresh-Moist Sugar Maple Deciduous Forest Ecosite(0.09ha)
R		Residential
Note: Area (ha) totals are within the Subject Lands only		



REFERENCES

CITY OF 2021 LONDON PARCEL AND AERIAL IMAGERY, OPEN DATA SET; EXP, SLOPE STABILITY ASSESSMENT, PROPOSED NEW RESIDENCE, PROJECT No. LON-22002033-A0, DWG No. 2, MAY 2022; MTE LOT GRADING PLAN, FILE "50760-101 LGPI March 27 2022.dwg"; AND MTE LOT GRADING SEDIMENT EROSION PLAN, "50760-101 and 102 Lot Grading Sediment Erosion Plan June 08 2022.dwg"



PROJECT
ENVIRONMENTAL IMPACT STUDY
96 TALLWOOD CIRCLE
LONDON, ONTARIO

TITLE
DEVELOPMENT OVERLAY

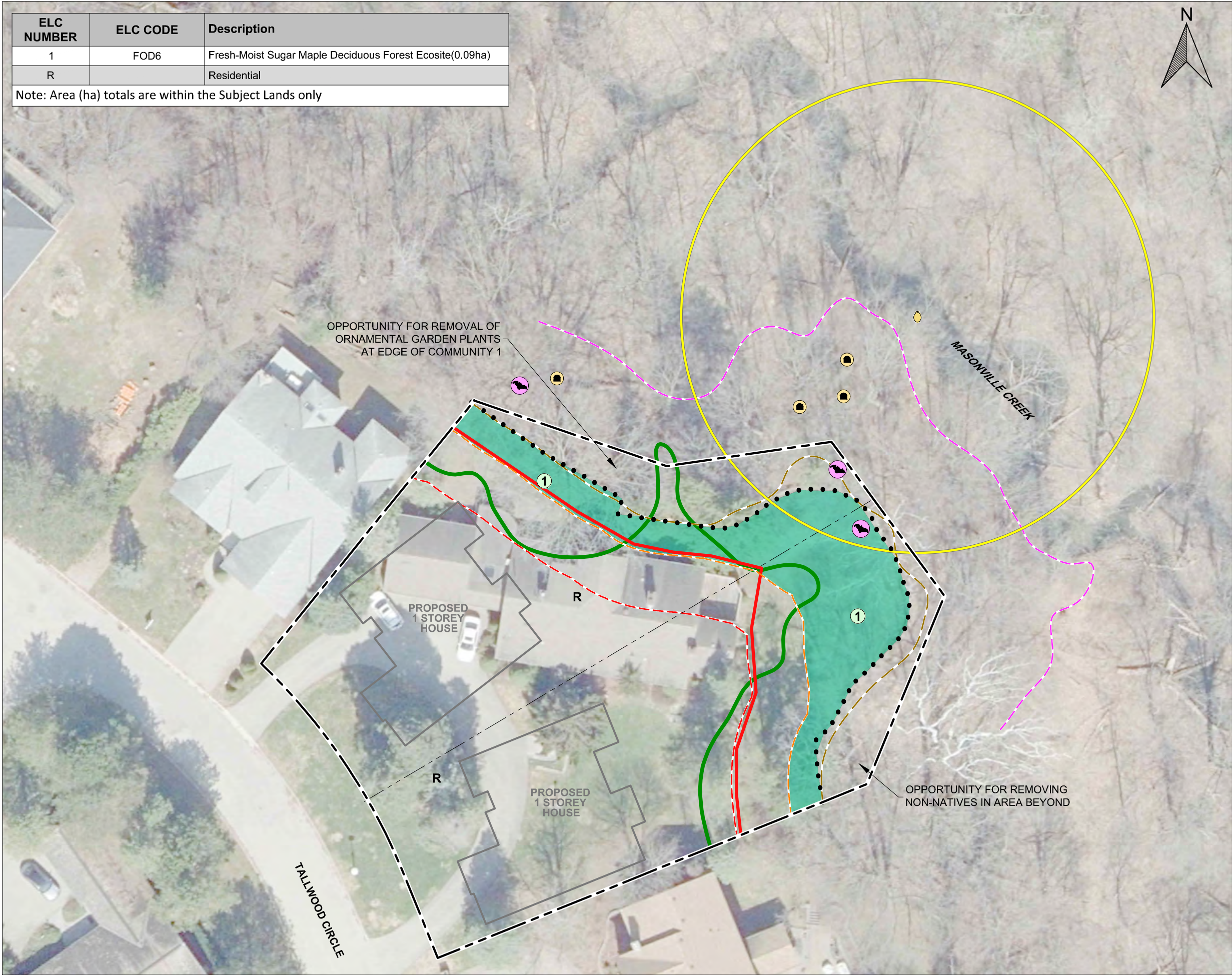
Drawn	DCH	Scale	AS SHOWN	FIGURE 9
Checked		Project No.	50760-200	
Date	July 20/22	Rev No.	0	

LEGEND

--- SUBJECT LANDS	CANDIDATE MATERNITY ROOST TREE	EXP SLOPE STABILITY ASSESSMENT
VEGETATION COMMUNITY	MAMMAL BURROW/UNDERGROUND ACCESS	TOE OF EXISTING SLOPE
MOWED LAWN UNDER DRIPLINE INCLUSION AREA (Coincident with Stone Wall and Retaining Wall)	BUTTERNUT [END]	TOP OF EXISTING SLOPE
LIMIT OF REGRADING		STABLE SLOPE SETBACK
		DEVELOPMENT SETBACK (Erosion Hazard Limit)

NOTES

THIS FIGURE IS SCHEMATIC ONLY AND TO BE READ IN CONJUNCTION WITH ACCOMPANYING TEXT.
ALL LOCATIONS ARE APPROXIMATE.



ELC NUMBER	ELC CODE	Description
1	FOD6	Fresh-Moist Sugar Maple Deciduous Forest Ecosite(0.09ha)
R		Residential
Note: Area (ha) totals are within the Subject Lands only		

LEGEND

SUBJECT LANDS

1

VEGETATION COMMUNITY

MOWED LAWN UNDER DRIPLINE

INCLUSION AREA (Coincident with Stone Wall and Retaining Wall)

SILT FENCE/LIMIT OF REGRADING

25m RADIUS BUTTERNUT HABITAT REGULATION

NATURALIZATION AREA

CANDIDATE MATERNITY ROOST TREE

MAMMAL BURROW/UNDERGROUND ACCESS

BUTTERNUT [END]

EXP SLOPE STABILITY ASSESSMENT

TOE OF EXISTING SLOPE

TOP OF EXISTING SLOPE

STABLE SLOPE SETBACK

DEVELOPMENT SETBACK (Erosion Hazard Limit)

REFERENCES

CITY OF 2021 LONDON PARCEL AND AERIAL IMAGERY, OPEN DATA SET; EXP, SLOPE STABILITY ASSESSMENT, PROPOSED NEW RESIDENCE, PROJECT No. LON-22002033-A0, DWG No. 2, MAY 2022; MTE LOT GRADING PLAN, FILE "50760-101 LGPI March 27 2022.dwg"; AND MTE LOT GRADING SEDIMENT EROSION PLAN, "50760-101 and 102 Lot Grading Sediment Erosion Plan June 08 2022.dwg"

NOTES

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

ALL LOCATIONS ARE APPROXIMATE.

SCALE IN METRES

0 5 10m

1:400

MTE

Engineers, Scientists, Surveyors

PROJECT

ENVIRONMENTAL IMPACT STUDY

96 TALLWOOD CIRCLE

LONDON, ONTARIO

TITLE

RECOMMENDED MITIGATION MEASURES

Drawn	DCH/SGL	Scale	AS SHOWN
Checked		Project No.	50760-200
Date	July 20/22	Rev No.	0

FIGURE 10

OVERALL LANDSCAPE PLAN
SCALE = 1/16"=1'-0"

TYPE 2: UPLAND MEADOW SEED MIX:

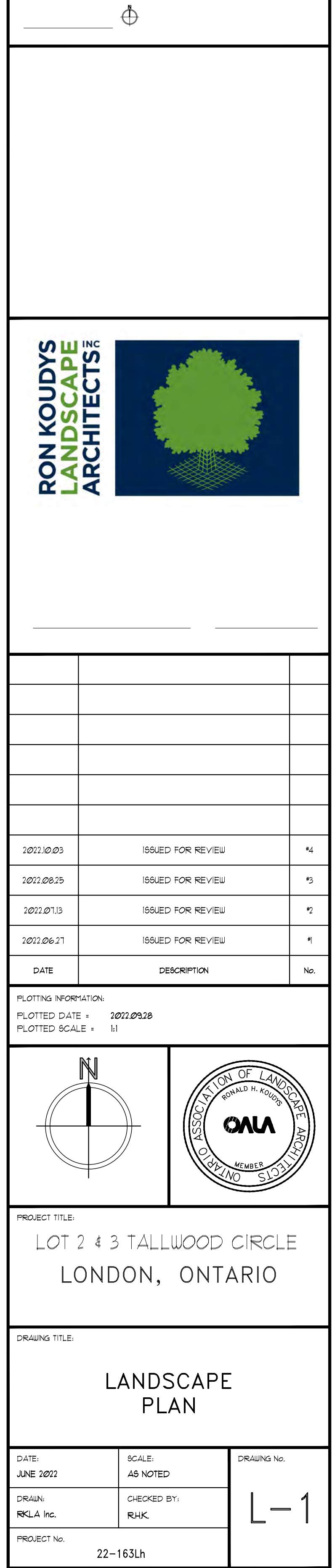
Permanent Seed Mix	Seed Mix %	Minimum % Germination	Maximum % of Weed Seed
Ontario Seed Company Native Prairie Meadow Mix*		70	3.0
Grasses, Sedges			
Foral Bluegrass	25%		
Switchgrass	22%		
Indian Grass	20%		
Little Bluestem	15%		
Forbs			
Black Eyed Susan	7%		
Evening Primrose	4%		
Foxglove Bearhugue	2%		
New England Aster	1%		
Showy Tick-leafed	1%		
Wild Bergamot	1%		
Early Goldenrod	1%		
White Vervain	1%		

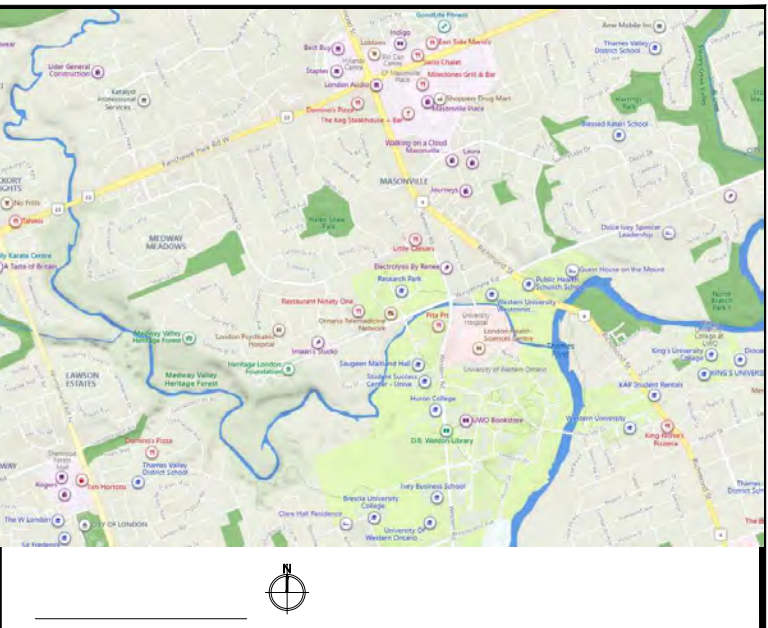
PLANT MATERIAL

KEY	COMMON NAME	BOTANICAL NAME	QTY	SIZE	COND
Co	HACKBERRY	Celtis occidentalis	2	45mm	UB
Qr	RED OAK	Quercus rubra	1	175cm1gal	POT
Ra	FRAGRANT SUMAC	Rhus aromatica	15	2gal	POT
Hv	WITCH HAZEL	Hamamelis virginiana	3	100cm1gal	POT
Ac	SERVICEBERRY	Amelanchier canadensis	3	175cm1gal	POT
Vd	ARROWWOOD	Viburnum dentatum	10	2gal	POT
As	SUGAR MAPLE	Acer saccharum	3	45mm	UB
Lt	TULIP TREE	Liriodendron tulipifera	2	45mm	UB
Ov	IRONWOOD	Ostrya virginiana	2	45mm	UB
Ta	BASSWOOD	Tilia americana	1	45mm	UB

LEGEND

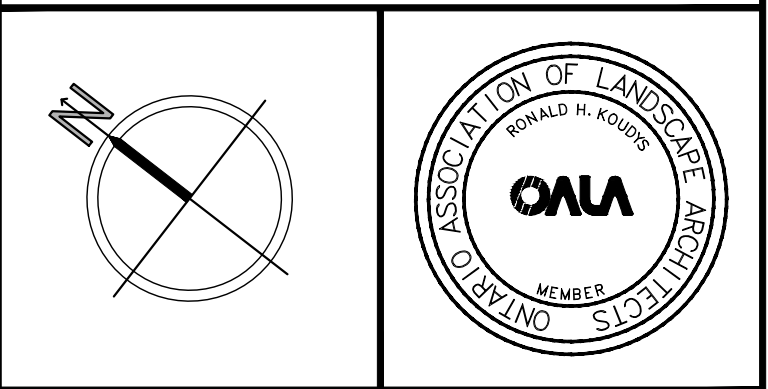
- PROPOSED DECIDUOUS TREES
- PROPOSED CONIFEROUS TREES
- PROPOSED PLANTINGS
- PLANT KEYS - SEE PLANT MATERIALS LIST
- PROPOSED CONCRETE PAVING
- PROPOSED EXPOSED AGGREGATE
- PROPOSED OSC TYPE 2 UPLAND MEADOW SEED MIX
- TREES TO BE PRESERVED - REFER TO MTE TREE PRES. DRAWING
- TREES TO BE REMOVED - REFER TO MTE TREE PRES. DRAWING





2022.10.03	ISSUED FOR REVIEW	*4
2022.08.25	ISSUED FOR REVIEW	*3
2022.07.13	ISSUED FOR REVIEW	*2
2022.06.21	ISSUED FOR REVIEW	*1
DATE	DESCRIPTION	No.

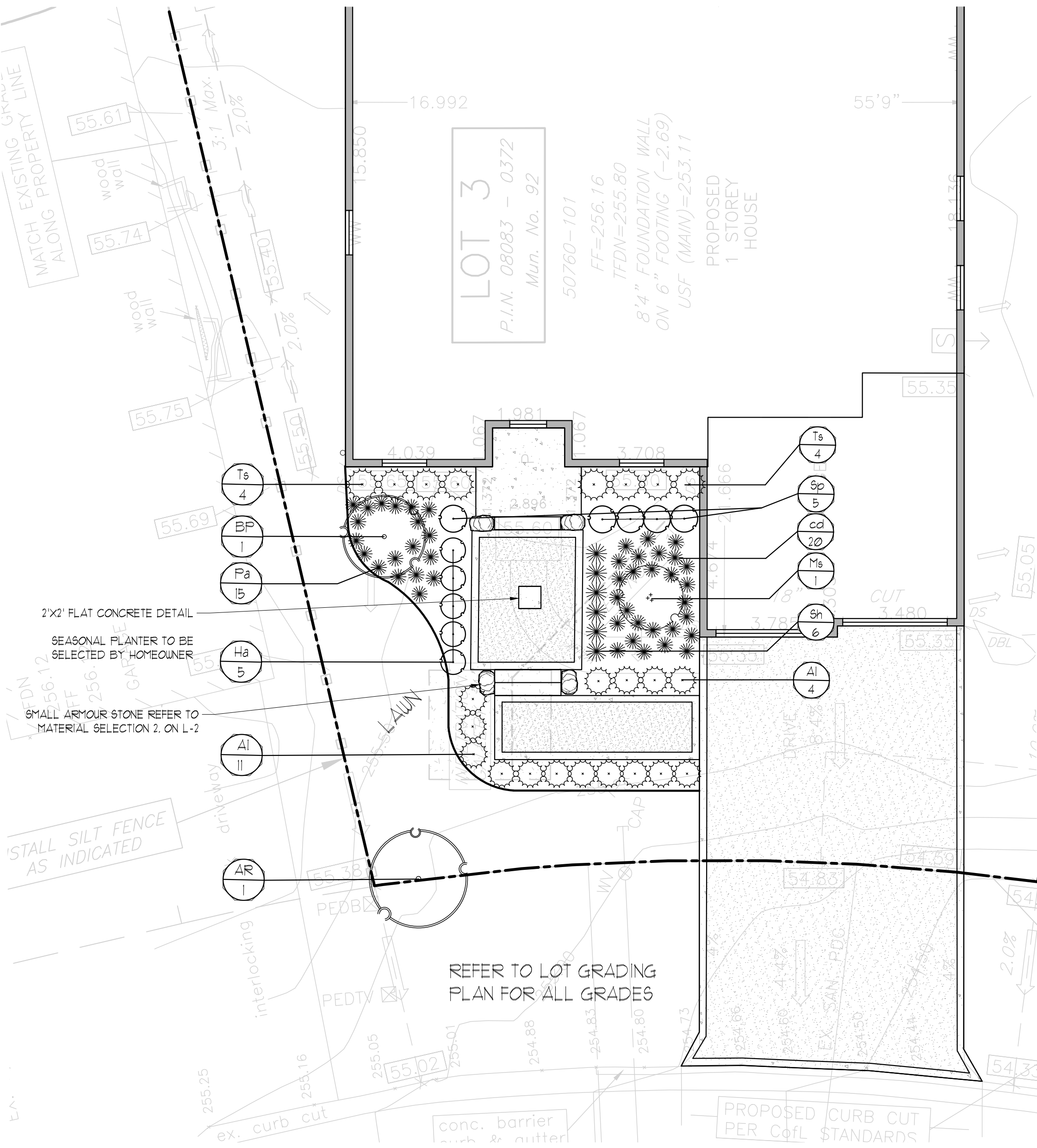
PLOTTING INFORMATION:
PLOTTED DATE = 2022.09.28
PLOTTED SCALE = 1/1



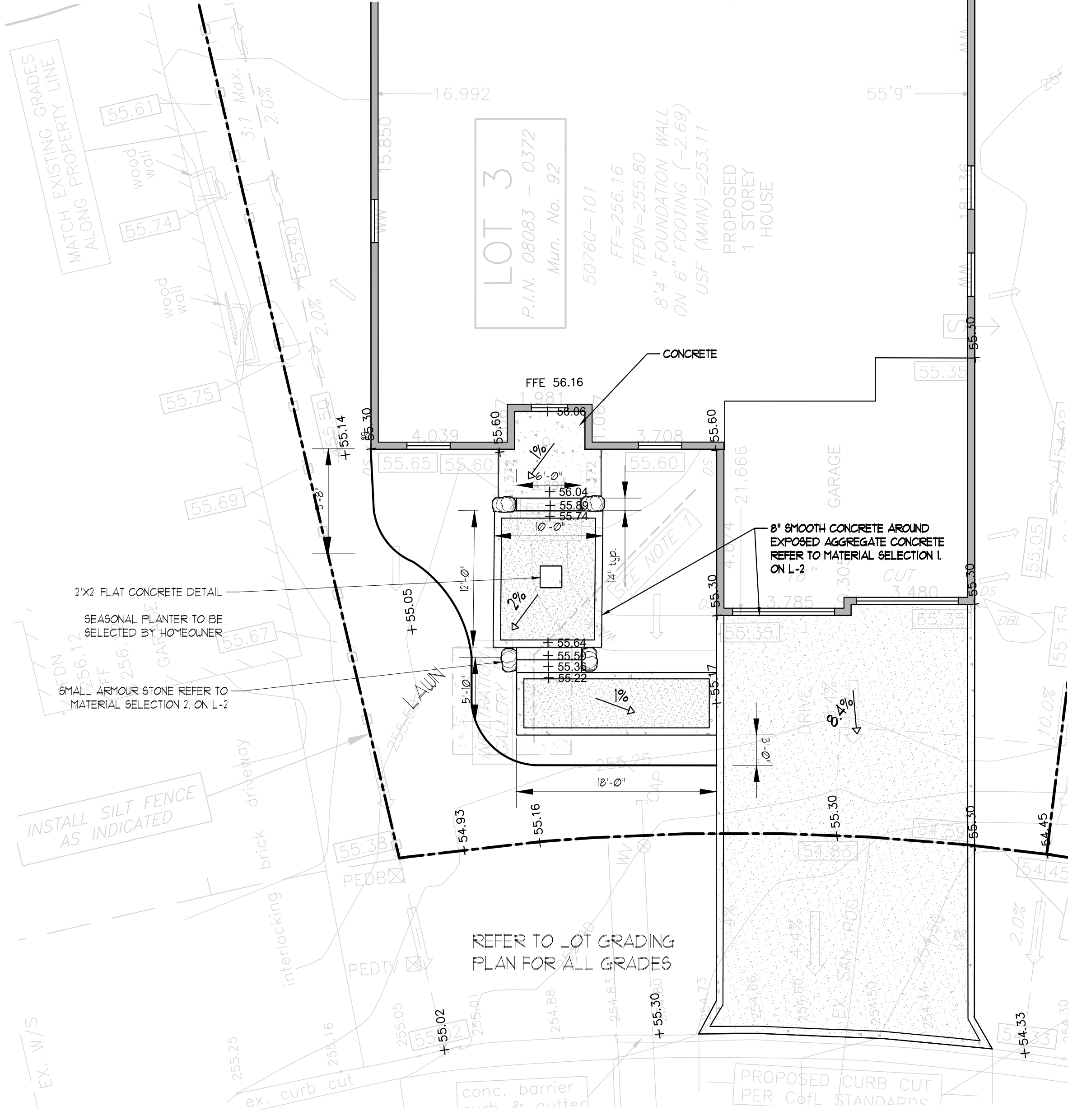
PROJECT TITLE:
LOT 3 TALLWOOD CIRCLE
LONDON, ONTARIO

DRAWING TITLE:
LANDSCAPE & DIMENSION
PLAN

DATE: JUNE 2022	SCALE: AS NOTED	DRAWING No. L-2
DRAWN: RKL/A Inc.	CHECKED BY: RHK	
PROJECT No. 22-163Lh		



LANDSCAPE AND PLANTING PLAN
SCALE = 1/8"=1'-0"



GRADING AND DIMENSION PLAN
SCALE = 1/8"=1'-0"

PLANT MATERIAL

KEY	COMMON NAME	BOTANICAL NAME	QTY	SIZE	COND
Ts	HILLS YEW	Taxus x Media 'Hilli'	0	40cm3gal	POT
BP	PARKLAND PILLAR BIRCH	Betula platyphylla 'Parkland Pillar'	1	100cm1gal	POT
Ha	BOBO HYDRANGEA	Hydrangea paniculata 'Bobo'	5	2y2gal	POT
Pa	LITTLE BUNNY FOUNTAIN GRASS	Pennisetum alopecuroides 'Little Bunny'	15	1gal	POT
Al	LOW SCAPE MOUND ARONIA	Aronia x 'Low Scape Mound'	15	30cm2gal	POT
Sh	PRAIRIE DROPSIEED	Sporobolus heterolepis	6	1gal	POT
Mg	STAR MAGNOLIA	Magnolia stellata 'Royal Star'	1	80cm5gal	POT
cd	GOLD FOUNTAINS SEDGE	Carex dolichostachya 'Gold Fountains'	20	1gal	POT
Sp	MISS KIM LILAC	Syringa patula 'Miss Kim'	5	40cm3gal	POT
AR	RED MAPLE	Acer rubrum	1	150cm10gal	POT

MATERIAL SELECTION

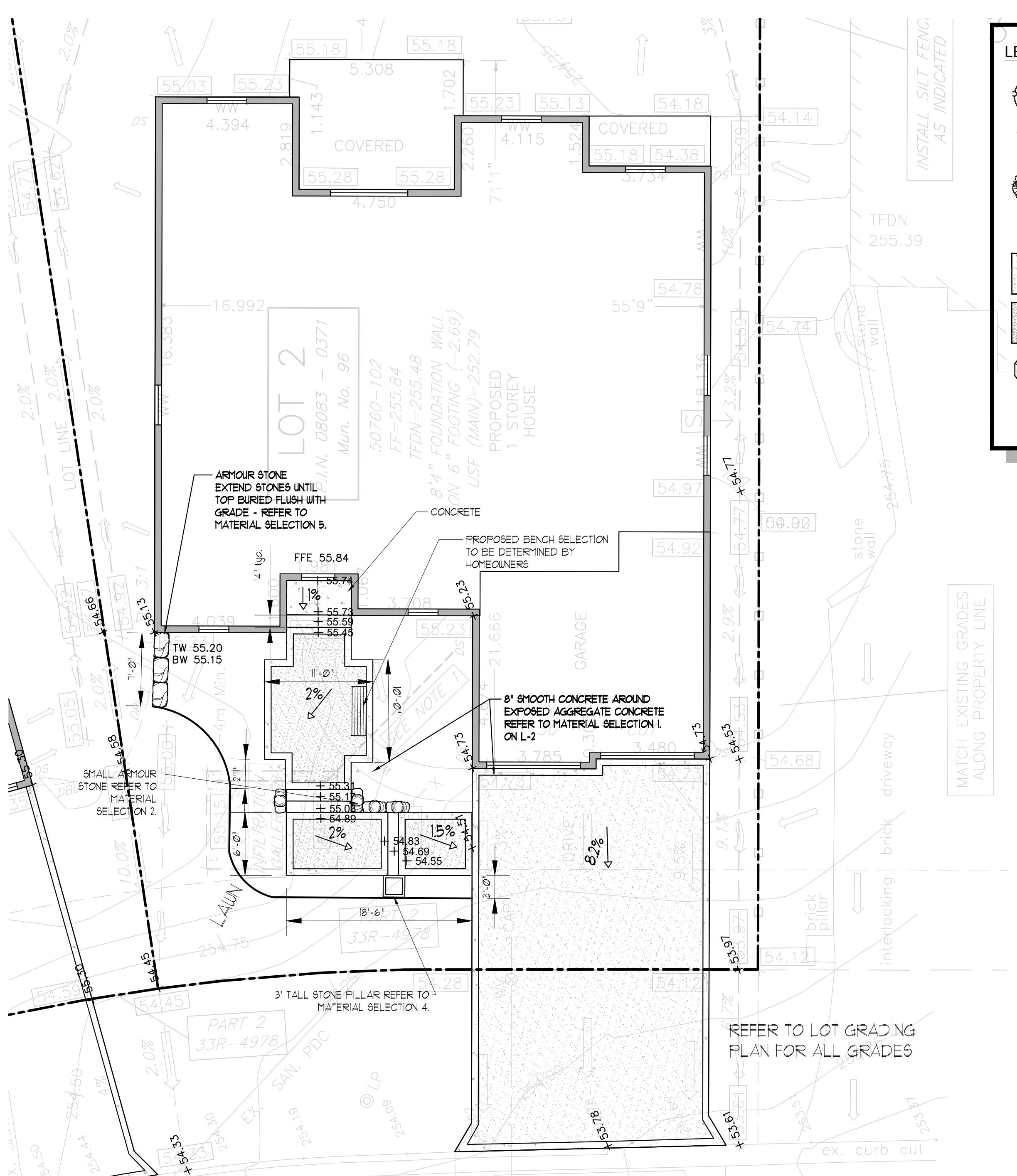
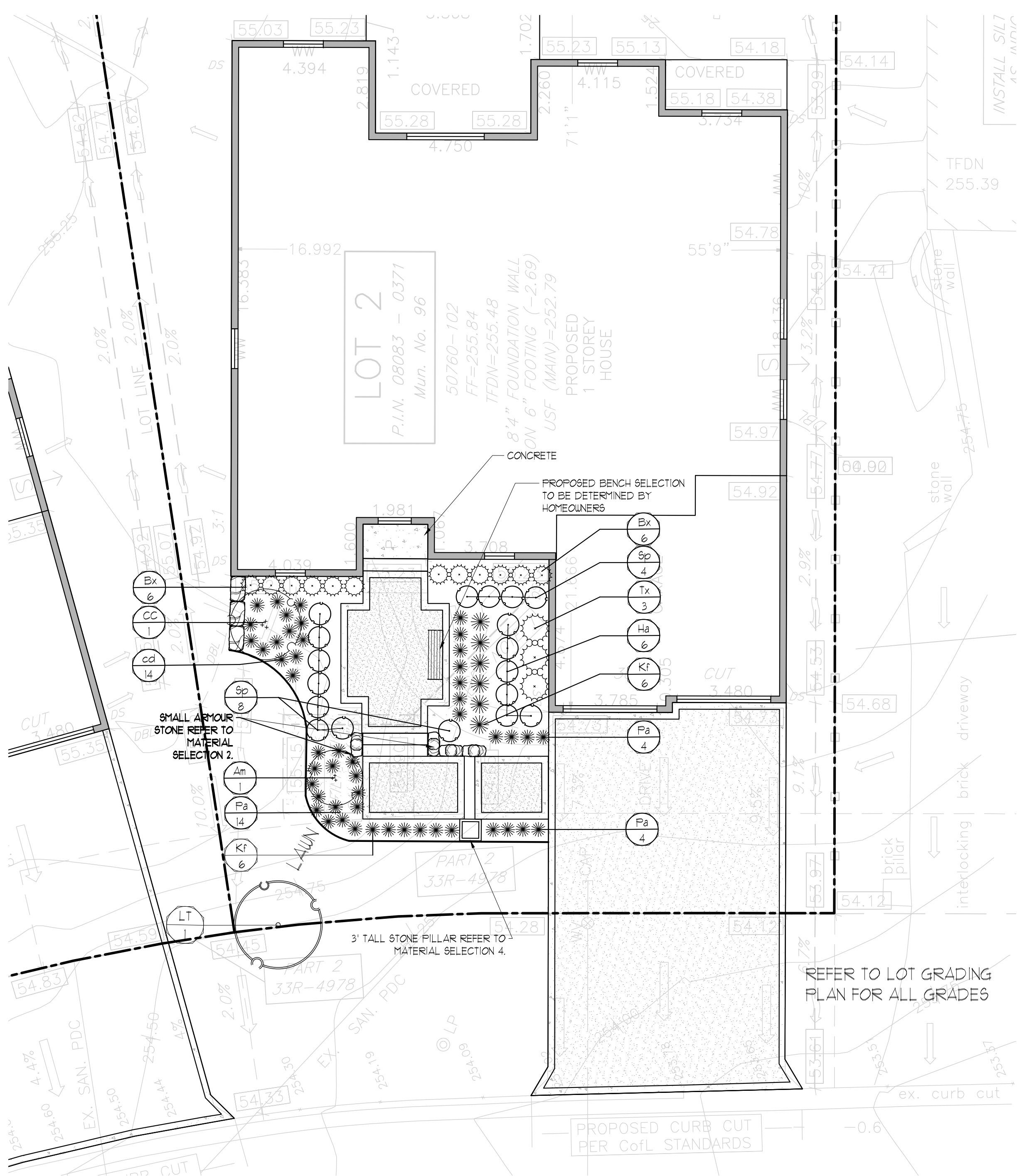


1. EXPOSED AGGREGATE CONCRETE STEPS AND DRIVEWAY WITH 8" CONCRETE BANDING AROUND PERIMETER



2. SMALL ARMOUR STONE TO RETAIN GRADE AROUND CONCRETE STEPS

REFER TO L-3 FOR PLANTING DETAILS



LEGEND

- PROPOSED DECIDUOUS TREES
- PROPOSED CONIFEROUS TREES
- PROPOSED PLANTINGS
- PLANT KEYS - SEE PLANT MATERIALS LIST
- PROPOSED CONCRETE PAVING
- PROPOSED EXPOSED AGGREGATE
- LANDSCAPE ROCKERY TO RETAIN GRADE AROUND STEPS
- EXISTING GRADES PROPOSED BY LOT GRADING PLAN

LANDSCAPE PLAN
SCALE = 1/8"=1'-0"

GRADING AND DIMENSION PLAN
SCALE = 1/8"=1'-0"

PLANT MATERIAL					
KEY	COMMON NAME	BOTANICAL NAME	QTY	SIZE	COND
Ts	HILLS YEW	Taxus x Media 'Hillii'	3	40cm3gal	POT
CC	EASTERN REDBUD	Cercis Canadensis	1	80cm1gal	POT
Ha	BOBO HYDRANGEA	Hydrangea paniculata 'Bobo'	6	2yr2gal	POT
Pa	LITTLE BUNNY FOUNTAIN GRASS	Fernisetum alopecuroides 'Little Bunny'	22	1gal	POT
Bx	GREEN GEM BOXWOOD	Buxus x 'Green Gem'	12	30cm2gal	POT
Am	SERV/CEBERRY	Amelanchier canadensis	1	1gal	POT
Kf	KARL FOERSTER GRASS	Calamagrostis acutiflora 'Karl Foerster'	12	1gal	POT
Sp	MISS KIM LILAC	Syringa patula 'miss kim'	12	40cm3gal	POT
cd	GOLD FOUNTAINS SEDGE	Carex dolichostachya 'Gold Fountains'	14	1gal	POT
LT	TULIP TREE	Liriodendron tulipifera	1	175cm5gal	POT

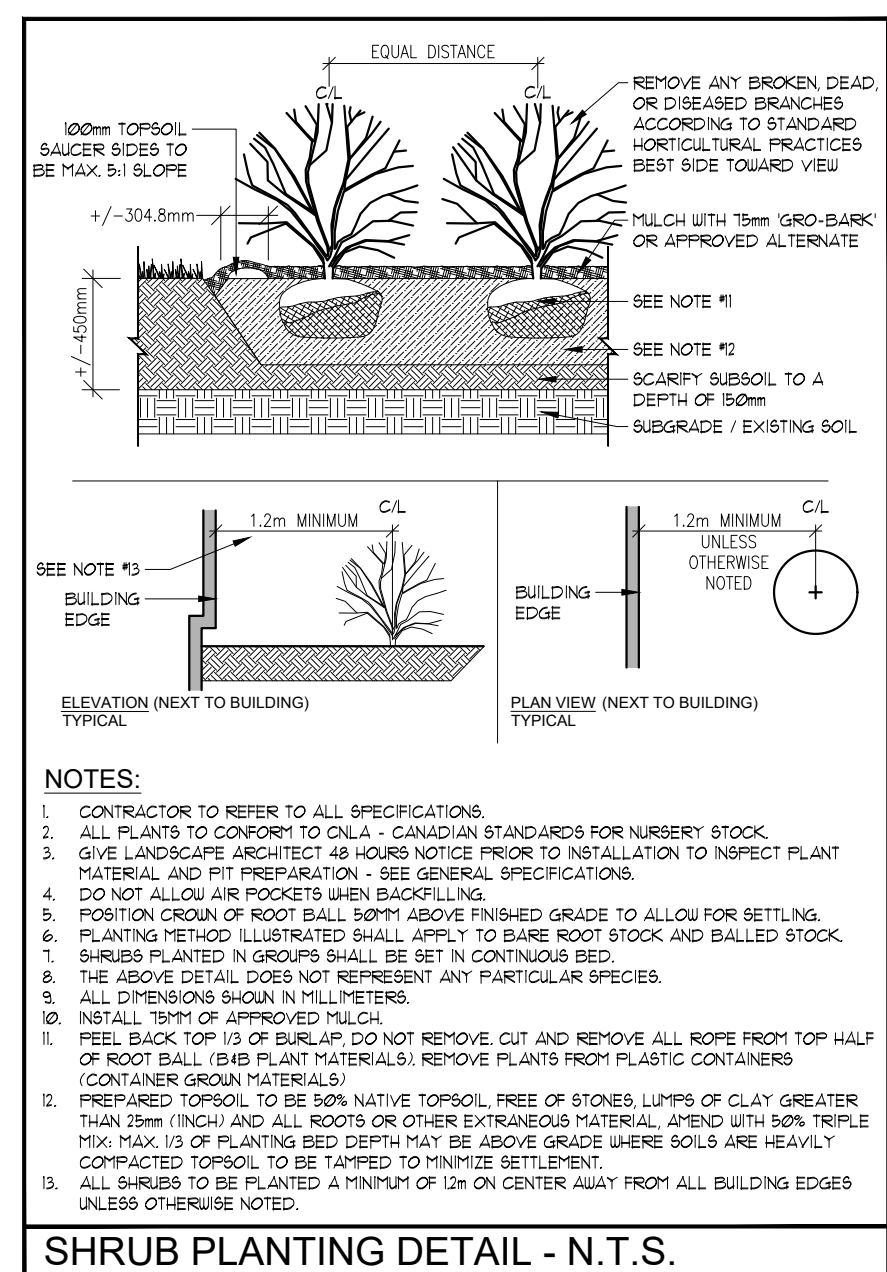
MATERIAL SELECTION



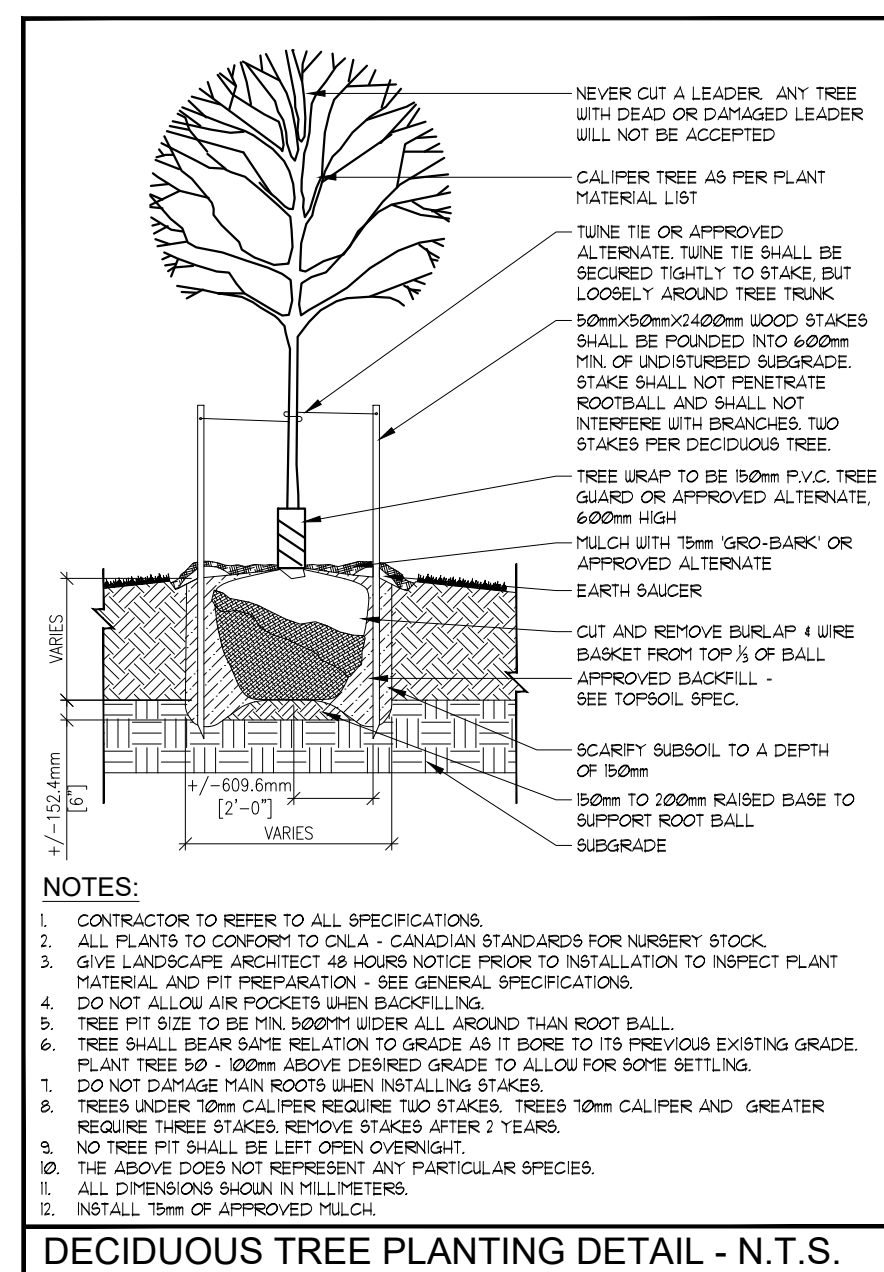
4. PERMACON LAFITT STONE RANGE MARGAUX BEIGE - VENEER OF 402mm - REFER TO PERMACON SPECIFICATION



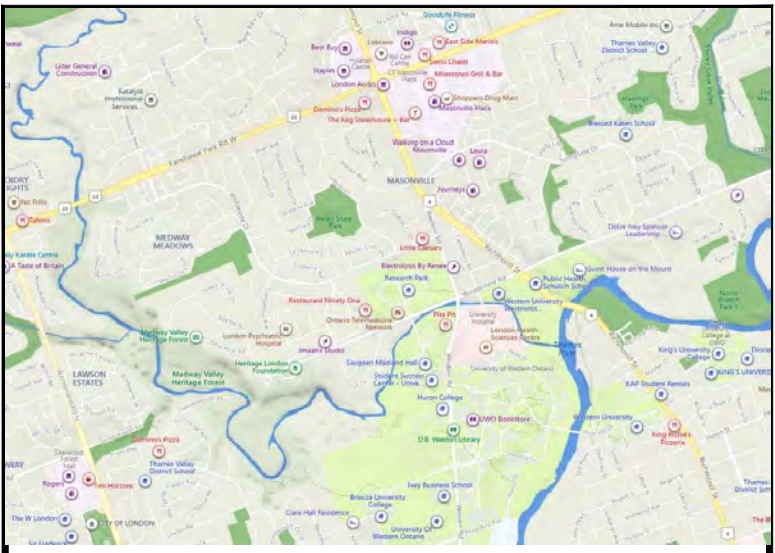
5. ARMOUR STONE AROUND GARDEN BED TO RETAIN GRADE



SHRUB PLANTING DETAIL - N.T.S.

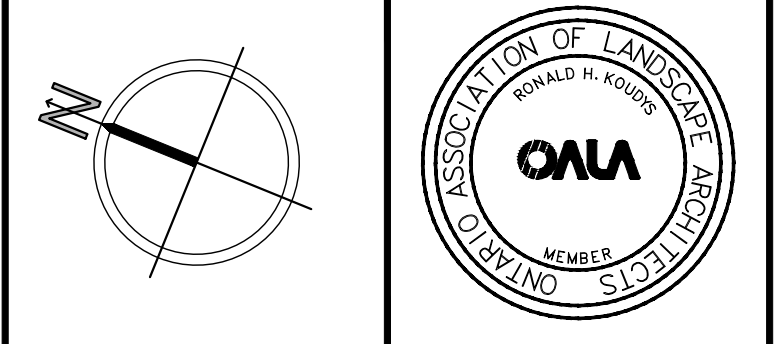


DECIDUOUS TREE PLANTING DETAIL - N.T.S.



DATE	DESCRIPTION	No.
2022.10.03	ISSUED FOR REVIEW	14
2022.08.25	ISSUED FOR REVIEW	13
2022.07.13	ISSUED FOR REVIEW	12
2022.06.21	ISSUED FOR REVIEW	11

FLOTTING INFORMATION:
FLOTTED DATE = 2022.09.28
FLOTTED SCALE = 1:1



PROJECT TITLE:
LOT 2 TALLWOOD CIRCLE
LONDON, ONTARIO

DRAWING TITLE:

LANDSCAPE PLAN

DATE: JUNE 2022	SCALE: AS NOTED	DRAWING No. L-3
DRAWN: RKL/Inc.	CHECKED BY: RKL	
PROJECT No. 22-163Lh		

Appendix A

EIS Scoping Checklist

APPENDIX B - Environmental Study Scoping Checklist

Application/Project Name: (50760-200) 96 Tallwood Circle
Proponent: Mclver Developments Inc. **Date:** May 18, 2022
Proposed Project Works: Replacement of one residential home with two homes.
Study Type: Environmental Impact Study
Lead Consultant: MTE Consultants
Key Contact: Allie Leadbetter
Subconsultants:

Technical Review Team:

- ☒ Ecologist Planner: Shane Butnari ☐ Province – Species at Risk: _____
☐ Planner for the File: Leif Maitland ☐ Province - Other: _____
☐ Conservation Authority: _____ Contact: _____
☐ EEPAC: _____ ☐ Other: _____
☐ Project Manager, Environmental Assessment: _____
☐ First Nation(s): _____

Subject Lands and Study Area:

Location/Address and Size (ha) of Subject Lands:
96 Tallwood Circle, London, ON

Study Area Size (approximate ha): 7.18 ha ☒ Map (attached): Site Location

Position of Site in Subwatershed: Masonville Creek Subwatershed (south portion)

Tributary Fact Sheet: _____

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

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

Policy:

- ☒ Study must demonstrate how it conforms to the Provincial Policy Statement
☒ Study must demonstrate how it conforms to *The London Plan*

Map 1 Place Types:

- ☒ Green Space (Adjacent) ☐ Environmental Review

Other Place Types: Neighbourhoods, Institutional (south across Windermere Rd)

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. "City Parks and Openspace" on London Patch Map (1998)

** 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): (Lee et al., 1998) - May 17, 2022
- ☐ 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: Bat maternity roost survey (May 17, 2022)
- ☐ Mammal Surveys: _____
 - ☐ Winter Wildlife Surveys: _____
- ☐ Butterflies (Lepidoptera): _____
- ☐ Dragonflies / Damselflies (Odonata): _____
- ☐ Species at Risk Specific Surveys: _____
- ☐ Species of Conservation Concern Surveys: _____
- ☒ Significant Wildlife Habitat Surveys: Habitat assessment (May 17, 2022)
- ☐ Other field investigations: _____

Supporting Concurrent Studies/Investigations:

- ☐ Hydrogeological/Groundwater: _____
- ☐ Surface Water/Hydrology: _____
- ☐ Water Balance: _____
- ☐ Fluvial Geomorphological: _____
- ☐ Geotechnical: _____
- ☒ Tree Inventory: Completed February 18, 2022
- ☒ Other: Dripline to be delineated and walked with the City

Evaluation of Significance:

Federal:

- ☐ Fish Habitat ☐ Other Federal: _____
- ☒ Species at Risk (SARA)

Provincial:

- ☐ Provincially Significant Wetlands
- ☐ Significant Valleylands
- ☐ Areas of Natural & Scientific Interest
- ☐ Water Resource Systems
- ☒ Species at Risk (ESA): _____
- ☐ Significant Woodlands
- ☒ Significant Wildlife Habitat Ecoregion 7E
- ☐ Fish Habitat
- In an area of SGRA and HVA

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 Woodland at back (east) of property (not labelled on Map 5).
- ☐ Potential Naturalization Area
- ☐ Other: _____

Impact Assessment:

- ☒ Impact Assessment Required
- ☒ Net Effects Table Required

Environmental Management Recommendations:

- ☒ Environmental Management Plan: To be included in the EIS Appendices
- ☐ Specifications & Conditions of Approval: _____
- ☐ Other: _____

Environmental Monitoring:

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

Additional Requirements and Notes:

- The EIS will reference the 2021 Environmental Management Guidelines (City of London) and the 2021 London Plan.
- Can the City provide the EIS for the Windermere Road Improvements EA to provide additional ecological information for this site and the adjacent lands? - Shane can look into it.
- EMP (included in EIS) will address clean equipment protocols, spill response, invasive species and wildlife interaction protocols.
- If SAR plants found in background report, one floral inventory at the property boundary may be completed to confirm absence.
- 30 m buffer would not be expected even if assumed Significant Woodland (consider smaller buffer, restoration in southeast, etc.).

Appendix B

June 6, 2022 Site Meeting Minutes



Project Name: 96 Tallwood Circle, London

MTE File No.: 50760-200

Proponent: McIver Developments Inc.

Date: June 6, 2022 – 1:00 PM

RE: June 6, 2022 City of London Site Visit

Attendees:

- Jim McIver (Proponent)
- Shane Butnari (City of London Ecologist)
- Allie Leadbetter (MTE Ecologist)
- Will Huys (MTE Plant and Wildlife Technician)

This meeting was conducted primarily to review the woodland dripline and confirm staking by MTE Consultants was accurate. The dripline was confirmed.

Ideas for compensation and naturalization were also discussed, and the discussion is summarized below:

- Due to site conditions (i.e. dripline over the existing residential property), the typical 30 m buffer from a Significant Woodland is not going to apply here
- Instead, Shane Butnari is hoping for some restoration
- Shane suggests focusing naturalization in the 'bay' area and that should be sufficient (essentially edge to edge of the stone wall)
 - o Cover can be mostly herbaceous with some shrubs (focus on overseeding)
 - o Shrubs and a native seed mix at the edge of the woodland is acceptable instead of thick tree coverage
- Shane Butnari is fine with removing a non-native Norway Maple that is growing into the stone wall (this tree was not counted in the dripline)
- MTE staff and Shane agreed the removal of non-natives at the woodland edge is a good opportunity for additional compensation
- The woodland edge in the north is relatively narrow between the existing house and top of slope

The Black Walnut extending over the existing home was inspected and the potential for retention was discussed:

- Will Huys and Jim McIver note that this tree could cause issues in the future as it is overhanging the property
- Demolition and foundation removal of the existing house will be quite close to this tree and could cause harm without appropriate tree protection measures
 - o Shane Butnari would prefer to see this tree retained (will check with manager)
 - o Will Huys would prefer it could be removed
 - o Will Huys will need to address whether it is possible to retain this tree in the Tree Preservation Report

Additional Miscellaneous Notes:

- The stone wall along the back of the property will remain
- Deer seen in ravine
- Eastern Wood-pewee [SC] heard calling from farther back in the woodland

Appendix C

Species at Risk Screening

**Primary 1km² – 17MH7862**

Common Name	Scientific Name	S Rank	SARO Status
Butternut	<i>Juglans cinerea</i>	S2	
Queensnake	<i>Regina septemvittata</i>	S2	
Spiny Softshell	<i>Apalone spinifera</i>	S2	
Barn Swallow	<i>Hirundo rustica</i>	S4B	
Bobolink	<i>Dolichonyx oryzivorus</i>		
Chimney Swift	<i>Chaetura pelagica</i>		
Eastern False Rue-anemone	<i>Enemion biternatum</i>		

Adjacent to Primary 1km² – 17MH7763, 7762, 7863, 7963, 7962, 7761, 7861, 7961

Common Name	Scientific Name	S Rank	SARO Status
Eastern Meadowlark	<i>Sturnella magna</i>		THR

A number of relatively common and/or widespread species and habitats protected under the ESA are under-represented or unevaluated within the NHIC Database. As a result, surveyors included the following species and habitats as a component of site investigations, including: Candidate Myotis Roost Trees [END], American Chestnut [END] and habitat (burrows) for American Badger [END].

NHIC Data Review

The Subject Lands were surveyed for floral and faunal species protected under the ESA (hereafter Protected Species), potential critical habitat, and general habitat features. One Protected Species (Butternut [END]) and potential adjacent habitat for Protected Species identified by the NHIC were identified during site investigations.

A number of Protected Species were identified by NHIC within the 1 km square that includes the Subject Lands and immediately adjacent 1 km squares.

American Badger [END]:

Four mammal burrows were observed along the slope outside the Subject Lands boundary [Appendix A]. Two large and recently excavated burrows were determined to belong to groundhogs based on the grouping of several entrances together and a lack of clear claw marks on the inside of the burrow walls or distinctive throw piles. Two smaller burrows with no evidence of recent activity were also observed. No American Badger habitat was confirmed within or adjacent to the Subject Lands.

Barn Swallow [THR]:

No suitable nesting habitat structures (barns, bridges, open buildings) are present within the Subject Lands to provide nesting opportunities for this species. No individuals were observed within the Subject Lands during field investigations.

Bobolink [THR] & Eastern Meadowlark [THR]:

No tall grass meadows were identified within or adjacent to the Subject Lands to provide nesting opportunities for grassland birds. No Bobolink [THR] or Eastern Meadowlark [THR] individuals were observed during field investigations.

Butternut [END]:

The adjacent deciduous forest provides suitable moist woodland habitat for this species east of the Subject Lands. One Butternut tree was identified on February 16, 2022 in this woodland approximately 17 metres northeast of the Subject Lands.

Chimney Swift [THR]:

The residential home within the Subject Lands has a chimney, however no Chimney Swift [THR] individuals were observed during field investigations.

Eastern False Rue Anenome [THR]:

This species is found in deciduous forests and thickets with rich moist soils, and especially in mature forests close to watercourses that have lots of Beech and Maple trees. Suitable habitat may be present in the Fresh-Moist Sugar Maple Deciduous Forest east of the Subject Lands, however it was not observed on or within 25m of the Subject Lands during field investigations.

Little Brown Myotis [END], Northern Myotis [END], and Tri-Coloured Bat [END]:

Three candidate bat maternity roost trees were identified within vegetation Community 1 along the interface of the residential Subject Lands and the adjacent Fresh-Moist Sugar Maple Deciduous Forest. Additional bat maternity habitat is likely present farther east within the woodland.

Queensnake [END]:

This species is found in rivers, streams, and lakes that have clear water, rocky/gravel substrate, and support crayfish (their main prey species). The adjacent Masonville Creek is narrow and shallow and does not provide suitable habitat for Queensnake [END]. There is no potential for this species to be present within or adjacent to the Subject Lands. Queensnake [END] was not observed during site investigations.

Spiny Softshell [END]:

The Spiny Softshell relies heavily on aquatic habitat (usually rivers and lakes), venturing onto land only for nesting and rarely moving overland between water sources (Environment and Climate Change Canada, 2018). The adjacent Masonville Creek is narrow and shallow and is unlikely to provide suitable habitat for this species. No Spiny Softshell individuals were identified during field investigations.

Summary:

Site investigations, including a general field investigation, tree inventory, and bat maternity roost survey, located one Butternut [END] tree and three candidate bat maternity roost trees within the northeast woodland. No other species identified by NHIC were observed within or adjacent to the Subject Lands. Based on habitat preferences, vegetation communities, and features present, the Subject Lands do not contain habitat for American Badger [END], Barn Swallow [THR], Bobolink [THR], Chimney Swift [THR], Eastern Meadowlark [THR], Queensnake [END], or Spiny Softshell [END]. The adjacent woodland to the east may have suitable habitat for Eastern False Rue Anenome [THR], but this species is not present in the vicinity of the Subject Lands.



Citizen Science Data Review

Ontario Breeding Bird Atlas (2005)

(within 10km Square 17MH76 which includes Project Site)

Species	SARO Rank	Max. Breeding Evidence	Protected or Suitable Habitat	NHIC
Northern Bobwhite	END	Territorial Behavior	No	No
Yellow-breasted Chat	END	Seen in unsuitable habitat	No	No
Barn Swallow	THR	Nest with Young	No	Yes
Bobolink	THR	Adult occupying nest	No	Yes
Chimney Swift	THR	Adult occupying nest	No	Yes
Eastern Meadowlark	THR	Agitated behaviour	No	Yes (Adjacent)

eBird

(within 2 km from Project Site)

Species	SARO Rank	Observation Date	Protected or Suitable Habitat	NHIC
Bank Swallow	THR	May 25, 2020	No	No

iNaturalist

(Research Grade; Threatened within 2km from Project Site)

Species	SARO Rank	Observation Date	Protected or Suitable Habitat	NHIC
Eastern Flowering Dogwood		May 28, 2021	No	No
Spiny Softshell		April 2021	No	Yes
Chimney Swift		May 24, 2019	No	Yes
Kentucky Coffee-tree		August 11, 2021	No	No

Ontario Reptile and Amphibian Atlas

(within 10km Square 17MH76 which includes Project Site)

Species	SARO Rank	Observation Date	Suitable Protected Habitat?	NHIC
N/A	N/A	N/A	N/A	N/A

Additional Citizen Science Data Summary Review

A number of species protected under the *ESA* (2007) have been identified through various citizen science projects within the vicinity of the Subject Lands. Habitat requirements for these species were reviewed and compared to the vegetation communities present within and adjacent to the Subject Lands.

Bank Swallow [THR]:

Although the east edge of the Subject Lands is sloped, this slope is not vertical silt or sand that would provide nesting opportunities for Bank Swallows [THR]. No individuals or nest holes were observed during field investigations.

Bobolink [THR] & Eastern Meadowlark [THR]:

No tall grass meadows were identified within or adjacent to the Subject Lands to provide nesting opportunities for grassland birds. No Bobolink [THR] or Eastern Meadowlark [THR] individuals were observed during field investigations.



Citizen Science Data Review

Butternut [END]:

The adjacent Fresh-Moist Sugar Maple Deciduous Forest provides suitable moist woodland habitat for this species east of the Subject Lands. One Butternut tree was identified on February 16, 2022 in this woodland at the bottom of the slope, approximately 24 metres northeast of the Subject Lands.

Chimney Swift [THR]:

The residential home within the Subject Lands has a chimney, however no Chimney Swift [THR] individuals were observed during field investigations.

Eastern False Rue Anenome [THR]:

This species is found in deciduous forests and thickets with rich moist soils, and especially in mature forests close to watercourses that have lots of Beech and Maple trees. Suitable habitat may be present in the Fresh-Moist Sugar Maple Deciduous Forest east of the Subject Lands, however this species was not observed from the property boundary during field investigations.

Eastern Flowering Dogwood [END]:

This species is found in mid-age to mature deciduous or mixed forests, frequently under taller trees on floodplains, slopes, bluffs, and in ravines. Community 1 is a deciduous forest on a slope and in a ravine, but this species was not observed within or adjacent to the Subject Lands during targeted field investigations.

Kentucky Coffee-tree [THR]:

Northern Bobwhite [END]:

This species is no longer extant in Southern Ontario outside Walpole Island and does not merit consideration with respect to the proposed works.

Yellow-breasted Chat [END]:

There is no suitable nesting habitat for this species (overgrown thickets and shrub) within or adjacent to the Subject Lands. No individuals were identified within the Subject Lands during site investigations.

Summary: Citizen Science Data

One Butternut [END] was identified in the east adjacent woodland approximately 24 m outside the Subject Lands. No other Protected Species were observed. Suitable habitat may exist farther into the adjacent woodland for Eastern False Rue Anenome [THR], Eastern Flowering Dogwood [END], or Kentucky Coffee-tree [THR], but site investigations confirm these species are not within the vicinity of the Subject Lands.



Citizen Science Data Review

References

- COSEWIC. 2015. COSEWIC assessment and status report on the Louisiana Waterthrush *Parkesia motacilla* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 41 pp.
- Environment and Climate Change Canada (ECCC). 2020. Recovery Strategy for the Cerulean Warbler (*Setophaga cerulea*) in Canada [Proposed]. Species at Risk Act Recovery Strategy Series. Environment and Climate Change Canada, Ottawa. vii + 54 pp.
- Environment and Climate Change Canada (ECCC). 2018. Recovery Strategy for the Spiny Softshell (*Apalone spinifera*) in Canada, Species at Risk Act Recovery Strategy Series. Environment and Climate Change Canada, Ottawa. ix + 60 pp.
- Ministry of the Environment, Conservation and Parks (MECP). 2022. Species at Risk in Ontario. Ontario.ca. Retrieved from <https://www.ontario.ca/page/species-risk-ontario>
- Wood, P.B., S.B. Bosworth and R. Dettmers. 2006. Cerulean Warbler abundance and occurrence relative to large-scale edge and habitat characteristics. *The Condor* 108:154–165.

Appendix D

Significant Wildlife Habitat Table

ELCs: FOD6

Seasonal Concentration of Animals

Wildlife Habitat	ELC Code Triggers	Additional Habitat Criteria	Candidate SWH	SWH Defining Criteria	Confirmed SWH
Waterfowl Stopover and Staging Areas (Terrestrial)	-	- No suitable ecosite present.	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.	No
Waterfowl Stopover and Staging Areas (Aquatic)	-	- No suitable ecosite 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.	No
Shorebird Migratory Stopover Area	-	- No beach areas, bars, seasonally flooded, muddy and un-vegetated shoreline habitat available.	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.	No
Raptor Wintering Area	FOD6	- A combination of forest and fields >20 ha is not present within/adjacent to the Subject Lands. - Large watercourses or lakes are not present to support	No	Studies confirm the use of these habitats by: - One or more Short-eared Owls or; One or 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.	No

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		Bald Eagles. The Thames River to the south is more suitable for wintering Bald Eagles.		The habitat area for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area.	
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	FOD6	- A candidate bat maternity roost survey was conducted May 17, 2022, however Community 1 was not fully assessed beyond the property boundary. - Three candidate bat maternity roost trees were identified at the property edge, and it is assumed more are present farther into Community 1.	Yes (Community 1)	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”	Assumed Present (Community 1)
Turtle Wintering Areas	-	- No suitable aquatic features present. Masonville Creek is narrow and shallow in the area of the Subject Lands.	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).	No
Reptile Hibernaculum	-	- Several mammal burrows identified along the east slope. - An old rock wall delineates the backyard along the slope. - No targeted snake emergence surveys have	Yes	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	Unconfirmed

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		been completed.		days in Spring (Apr/May) and Fall (Sept/Oct). • 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.	
Colonially-Nesting Bird Breeding Habitat (Bank/Cliff)	-	- No suitable exposed soil banks, cliff faces, sandy hills, borrow pits, steep slopes, or other suitable habitat present. The wooded steep slope is not sheer enough and there is no evidence of nesting.	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 ecosite.	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)	-	- No islands, peninsulas, or low bushes close 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

Migratory Butterfly Stopover Areas	FOD6	- 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 the large distance from both Lake Erie and Lake Ontario and lack of open field habitat.	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	FOD6	- No woodlots 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	FOD6	- No woodlots >100 ha in size. Criteria not met. Community 1 is divided from the woodlands along Masonville Creek and the Thames River by Windermere Road. - 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 white-tailed 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.	

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	FOD6	- Not Old Growth forest.	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	-	- No suitable ecosites 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".	No
Bald Eagle and Osprey Nesting, Foraging, Perching	FOD6	- Community 1 (FOD6) is present, but Masonville Creek is small and unsuitable for raptor foraging. - No nests observed. - No Osprey feeding or resting areas identified near Subject Lands on LIO wildlife values mapping.	No	• Studies confirm 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	FOD6	- No natural or conifer plantation woodlands/forest stands >30 ha with >4 ha of interior habitat. Criteria not met.	No	• 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: 200m radius around the nest is the SWH. • Broad-winged Hawk and Coopers Hawk: 100m radius around the nest is SWH. • Sharp-Shinned Hawk: 50m radius around the nest is the SWH. • Conduct field investigations from early March to end of May.	No

Wildlife Habitat	ELC Codes Triggers	Additional Habitat Criteria	Candidate SWH	SWH Defining Criteria	Confirmed SWH
Turtle Nesting Areas	-	- No suitable aquatic habitat with nearby exposed mineral soils present.	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.	No
Springs and Seeps	FOD6	- No seeps or springs observed within or directly adjacent to the Subject Lands.	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)	-	- No suitable wet habitat present adjacent or within Community 1. Masonville Creek is narrow, shallow, and flowing.	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 suitable wetland habitat present.	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

Wildlife Habitat	ELC Codes Triggers	Additional Habitat Criteria	Candidate SWH	SWH Defining Criteria	Confirmed SWH
Woodland Area-Sensitive Bird Breeding Habitat	FOD6	- Community 1 does not have interior habitat (at least 200 m from forest edge).	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. • 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".	No

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	-	- No suitable wetland ecosites present.	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	-	- 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

96 Tallwood Circle (Project #50760-200)

Shrub/Early Successional Bird Breeding Habitat	-	- There is not >10 ha of shrub/thicket habitat 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 territories • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects".	No
Terrestrial Crayfish	-	- No suitable wetland ecosites present.	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 identified Snapping Turtle [SC], Northern Map Turtle [SC], and Lizard's Tail [S3] as potentially present within the area of the Subject Lands. - No SOCC were observed. - Community 1 was not thoroughly investigated for Special Concern or rare wildlife off-property.	Yes (Community 1)	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.	

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. Criteria not met.	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	-	- Subject Lands are not near Long Point.	No	• The confirmation criteria and habitat areas for this SWH are still being determined.	No

Appendix E

Floral Inventory Data

Floral Inventory June 6, 2022									
Scientific Name	Common Name	CW	GRank	COSEWIC	Nrank	SARO	SRank	MD	Invasive
<i>Acer negundo</i>	Manitoba Maple		G5		N5		S5	C	
<i>Acer platanoides</i>	Norway Maple	5	GNR		NNA		SE5	IU	
<i>Acer saccharum</i>	Sugar Maple		G5		N5		S5	C	
<i>Berberis thunbergii</i>	Japanese Barberry		GNR		NNA		SE5	IX	
<i>Betula pendula</i>	Weeping Birch	3	GNR		NNA		SE4	IR	
<i>Carex blanda</i>	Woodland Sedge		G5		N5		S5	C	
<i>Carya cordiformis</i>	Bitternut Hickory		G5		N5		S5	X	
<i>Celtis occidentalis</i>	Common Hackberry		G5		N4		S4	X	
<i>Chelidonium majus</i>	Greater Celandine	5	GNR		NNA		SE5	IX	
<i>Circaea canadensis</i>	Broad-leaved Enchanter's Nightshade		G5		N5		S5	X	
<i>Convallaria majalis</i>	European Lily-of-the-valley	5	G5		NNA		SE5	IR	
<i>Euonymus europaeus</i>	European Euonymus	5	GNR		NNA		SE2	IR	
<i>Galium odoratum</i>	Sweet-scented Bedstraw	5	GNR		NNA		SE1	IR	
<i>Hepatica acutiloba</i>	Sharp-lobed Hepatica	5	G5		N5		S5	X	
<i>Juglans cinerea</i>	Butternut		G3		N2		S2?	X	
<i>Juglans nigra</i>	Black Walnut		G5		N4?		S4?	X	
<i>Leonurus cardiaca</i>	Common Motherwort	5	GNR		NNA		SE5	IC	
<i>Matteuccia struthiopteris</i>	Ostrich Fern		G5		N5		S5	X	
<i>Pachysandra terminalis</i>	Japanese-spurge		GNR		NNA		SE1		
<i>Picea abies</i>	Norway Spruce	5	G5		NNA		SE3	IX	
<i>Poa annua</i>	Annual Bluegrass		GNR		NNA		SE5	IC	
<i>Prunus virginiana</i>	Chokecherry		G5		N5		S5	C	
<i>Sanguinaria canadensis</i>	Bloodroot		G5		N5		S5	X	
<i>Solidago flexicaulis</i>	Zigzag Goldenrod		G5		N5		S5	X	
<i>Tilia americana</i>	Basswood		G5		N5		S5	C	
<i>Vinca minor</i>	Lesser Periwinkle	5	GNR		NNA		SE5	IR	
<i>Vitis riparia</i>	Riverbank Grape		G5		N5		S5	C	

Appendix F

Bat Maternity Roost Survey Data



GENERAL SITE INFORMATION FIELD SHEET

Project: 96 Tallwood (50760-200)
Date: May 17, 2022 Project Manager: AL/MC
Collector(s): AL WH Visit #: _____
Time started: 8:00 AM Time finished: 7:00 PM Combined collectors' hours: _____
☐ NHIC List ☐ MNR EO's ☐ none ☐ not provided to collector

WEATHER CONDITIONS				WIND SCALE			
Temp. <u>7°C</u>	Wind: <u>Z</u>	Cloud Cover (%) <u>5%</u>	Precipitation	0	Calm		
	Direction: <u>W</u>		Today: <u>No</u>	1	Smoke Drifts		
			Yesterday: <u>Yes (rain)</u>	2	Wind Felt on Face		
DATA FOCUS				3	Leaves in constant motion		
☐ Birds 1__2__ Mig__	☐ ELC's	☒ Drip/Tree Survey	4	Wind raises dust and paper			
☐ Mammals	☐ Floral V__S__A__	☐ Aquatic - Physical	5	Small trees sway			
☐ Amphibians 1__2__3__	☐ Wetland	☐ Aquatic - Biological	6	Large branches sway			
☐ Reptiles	☐ Butternut (BHA)	☒ Faunal Habitat - Bats	7	Lots of resistance when walking into			
☐ Invertebrates	☐ other SAR	☐ Other - see notes	8	Limbs breaking off trees			
FEATURES (with GPS co-ordinates where applicable)				Mapped Follow-up Req'd			
Man-made Structures: ☐ None observed				UTM	Yes	No	Who
Yes No							
☐ ☒ Barns/Footings/Wells/other(list)							
☐ ☒ Rock Piles							
☐ ☒ Garbage							
Natural Vegetation: ☐ None observed							
☐ ☒ Fallen Logs outside woods (#s)							
☐ ☒ Brush Piles							
☐ ☒ Snags (raptor perch)							
☐ ☒ Tree Cavities (nesting)							
☐ ☒ Sentinel Trees							
☐ ☒ Butternut Identified <u>~50 m off property</u>							
☐ ☒ Mast Trees (6E)	☐ Berry Shrubs (6E)						
Wildlife Features: ☐ None observed							
☐ ☒ Waterfowl nesting (large #s, # of species)							
☐ ☒ Exposed Banks (nesting swallows) <u>not that steep</u>							
☐ ☒ Stick Nests							
☐ ☒ Animal Burrows (>10cm) <u>Lrg animal burrow with mound of dirt -> Badger? (off property) (2 seen)</u>							
☐ ☒ Heronry <u>(478093 478286)</u>							
☐ ☒ Crayfish mounds							
☐ ☒ Sand/gravel on site <u>some sandy soils</u>							
☐ ☒ Marsh/open country/shrub							
☐ ☒ Winter Deer yards							
☐ ☒ Corridor from pond to woods (amphibian movement) <u>creek in woods</u>							
☐ ☒ Bat corridor (shorelines, escarpments)							
☐ ☒ Bat hibernacula (caves, mines, crevices, etc.)							
Aquatic Features:							
☐ ☒ Perm. pond in woodland ☐ emergents/submergents/logs ☐ temp.							
☐ ☒ Perm. pond in open ☐ emergents/submergents/logs ☐ temp.							
☐ ☒ Water in woodland ☐ pools ☒ flowing ☐ dry <u>creek</u>							
☐ ☒ Waterways ☐ flowing ☐ dry ☐ pools							
☐ ☒ natural stream ☒ ☐ ☐							
☐ ☒ swale ☐ ☐ ☐ ☐ None observed							
☐ ☒ open drain ☐ ☐ ☐ ☐							
☐ ☒ Seeps/Springs ☐ ☐ ☐ ☐							
Incidental Observations/Notes:							
<u>Chickadees Northern Cardinal Tennessee Warbler Eastern Wood Pewee</u>							
<u>* Didn't mark invasives/non-native as part of dripline.</u>							
<u>* 2 large holes seen + 2 smaller old holes</u>							
<u>* will probably need some sort of remediation at retaining wall</u>							
<u>* Gopher will know more</u>							
<u>* properly steeply chips down in creek</u>							

~~See tree survey~~

Appendix B – Suitable Maternity Roost Trees for Little Brown Myotis/Northern Myotis

Include all live and dead standing trees $\geq 10\text{cm}$ dbh with loose or naturally exfoliating bark, cavities, hollows or cracks.

Project Name: 96 Tallwood Circle

Survey Date(s): May 17, 2022

Site Name: 50760-200

Observers(s): AL, WH

ELC Ecosite:

Snag Density (snags/ha):

Tree #	Tree Species ID	dbh (cm)	Height Class ²	Snag attributes (check all that apply)	Easting	Northing	Notes
1	European Birch	35	2	☒ cavity ☐ loose bark ☐ crack ☐ knot hole ☐ other snag within 10m? ☐ Decay Class 1-3? 1	478094	4762875	* non-native * #030
2	Sugar Maple	40	2	☒ cavity ☐ loose bark ☐ crack ☐ knot hole ☐ other snag within 10m? ☐ Decay Class 1-3? 1	478091	4762880	* #028 * top part off (not sure if hole goes up/down)
3	Sugar Maple	70	2	☒ cavity ☐ loose bark ☐ crack ☒ knot hole ☐ other snag within 10m? ☐ Decay Class 1-3? 2	See TPP		* large cavity at base + halfway up + knot hole * #12
				☐ cavity ☐ loose bark ☐ crack ☐ knot hole ☐ other snag within 10m? ☐ Decay Class 1-3?			
				☐ cavity ☐ loose bark ☐ crack ☐ knot hole ☐ other snag within 10m? ☐ Decay Class 1-3?			
				☐ cavity ☐ loose bark ☐ crack ☐ knot hole ☐ other snag within 10m? ☐ Decay Class 1-3?			
				☐ cavity ☐ loose bark ☐ crack ☐ knot hole ☐ other snag within 10m? ☐ Decay Class 1-3?			
				☐ cavity ☐ loose bark ☐ crack ☐ knot hole ☐ other snag within 10m? ☐ Decay Class 1-3?			
				☐ cavity ☐ loose bark ☐ crack ☐ knot hole ☐ other snag within 10m? ☐ Decay Class 1-3?			
				☐ cavity ☐ loose bark ☐ crack ☐ knot hole ☐ other snag within 10m? ☐ Decay Class 1-3?			
				☐ cavity ☐ loose bark ☐ crack ☐ knot hole ☐ other snag within 10m? ☐ Decay Class 1-3?			

² Height Class: 1 = Dominant (above canopy); 2 = Co-dominant (canopy height); 3 = Intermediate (just below canopy); 4 = suppressed (well below canopy)

³ The approx. height of the cavity should be noted. Note that cavities with an entrance near the ground may also be used by bats if they are "chimney-like".

Decay Class: 1 = Healthy, live tree; 2 = Declining live tree, part of canopy lost; 3 = Very recently dead, bark intact, branches intact

Appendix G

Site Photos



Photo 1: Animal burrow (478093 4762892)



Photo 2: Animal print outside of burrow



Photo 3: Animal burrow (478088 4762887)



Photo 4: Animal burrow (478063 4762897)



Photo 5: East ravine (478093 4762886)



Photo 6: East ravine (478088 4762886)



Photo 7: Existing house (front) in Feb. 2022



Photo 8: Existing house (side) in Feb. 2022



Photo 9: Existing house within the Subject Land (front view) in February 2022



Photo 10: Existing house (back view) and backyard



Photo 11: Existing backyard with a stone wall (woodlands beyond)

Appendix H

“Living with Natural Areas” Brochure (UTRCA, 2005)



Living With Natural Areas

a guide for homeowners

Is this information for me?

Natural areas are valuable features of our communities' parks and open spaces. Many citizens, however, may not be aware of these local treasures and the need to protect them. What can you do - whether as a property owner or as someone out to enjoy the scenery and get some exercise - to minimize your impact on natural areas? This brochure answers that question. First, it provides guidelines for those of us who live near natural areas, outlining ways to make the spillover impact from our properties more positive. Next, a "code of behaviour" describes what activities are appropriate in a natural area. The last section lists sources where more information can be obtained.



What is a natural area?

Natural areas include wetlands, meadows, woodlots, valley lands and other relatively undisturbed lands that are home to many different plants and wildlife. Natural areas also include the green spaces and stormwater management ponds found in many new developments.

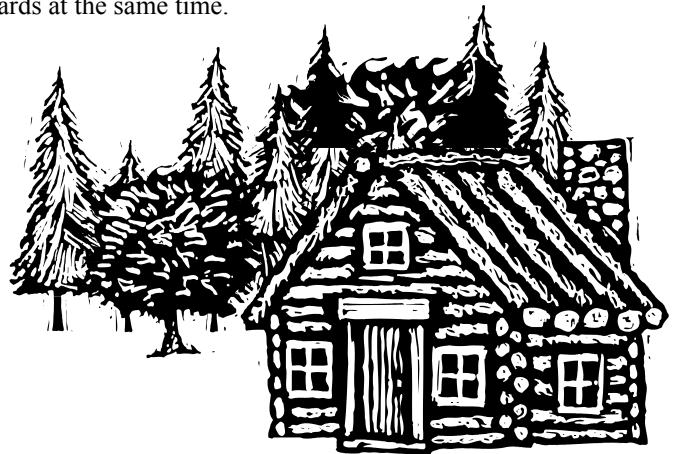
Some natural areas contain rare plants, wildlife or landforms, or have features characteristic of the region before European settlement, or are especially large or diverse in habitat. Many natural areas are considered environmentally significant on a local, regional, provincial or even national scale.

Many municipalities are working to preserve local natural areas. Settlement and development have destroyed much natural vegetation and caused some types of habitat to disappear completely. Often, natural areas contain the only remaining large sections of forest or wetland. They help us to learn about nature, provide clues to the current health of our environment, and add to our quality of life.

Around your home - having a positive impact

The properties that surround natural areas were once part of a wild landscape. Some yards still have remnants of particular habitat types, such as wet areas along the edge of a wetland. As development moves closer to natural areas, trees and other plants that were once in the middle of woodlands or wetlands, shielded by forests, are now exposed.

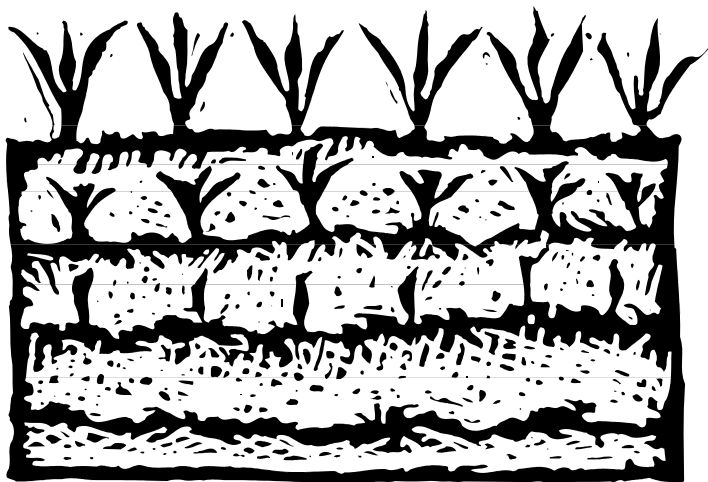
Because urban development sits on the doorstep of many natural areas, what is done in neighbouring yards is critical to their health. Here are some ideas to help home owners to ensure that their activities can help neighbouring natural areas and enhance their yards at the same time.



What about encroachment into natural areas?

Thanks to people who recognize their property limits! If a lawn is mowed past property boundaries into a natural area, the rich habitat is replaced by a manicured lawn and the original diversity is reduced. The cumulative impact of dozens, even hundreds of landowners cutting into the edges of natural areas threatens their integrity.

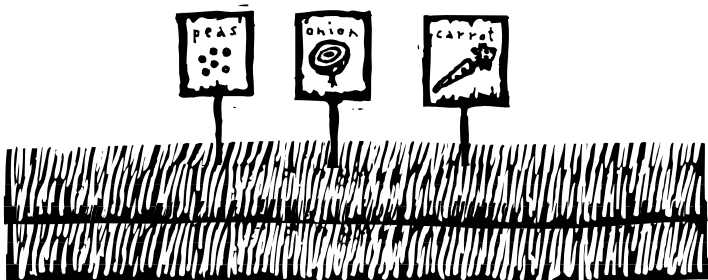
Encroaching past private lot lines into municipal parkland or open space is not permitted and may result in legal proceedings. Call your municipality for more information.



Can I dump my yard & garden waste in a natural area?

Dumped yard waste is bad news for any natural area. Dumped material smothers natural vegetation, may contain harmful chemicals, and often has plant seeds not found normally in the wild. If these materials are dumped in a natural area, the introduced seeds may grow where they fall. Native plants and the wildlife that depends on are constantly under threat from invading non-native plants.

Your local municipality has by-laws concerning dumping waste. For more serious offences, charges can be laid under the Provincial Offences Act, with fines of up to \$5000. Call your municipality if you have concerns about waste being dumped illegally.

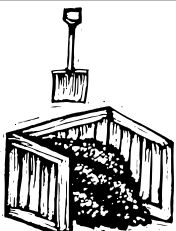


What should I do with yard & garden waste?

The best solution is to reduce and recycle as much as possible, by composting leaves, grass clippings, weeds and other materials on your own property. You reduce the amount of garbage going to landfills and create rich soil for your lawn and garden. If you can't use all your grass clippings, leaves and brush, ask your neighbours if they need more material for their home composters. Alternatively, put your yard waste out for curbside collection, or drop it off at London's Yard Waste Depots.

If you employ a professional gardener, check that proper disposal practices are followed. Reputable commercial gardeners are well aware of the City's yard waste regulations.

If you are having home composting problems, such as visits from unwanted wildlife, call the Rot Line (operated by the Thames Region Ecological Association, or TREA) at 519-672-5991 for free advice.



Is it okay to use lawn and garden chemicals?

Remember that, just as water landing on your property doesn't always stay there, neither may all the chemicals that you put on your lawn, garden or driveway. If your property drains into a natural area, any chemical that you use can be carried by water into that area. By adopting an environmentally friendly approach to yard maintenance, you will enhance both your yard and the natural area beyond.



Here are some tips to follow:

- Add compost to your lawn to fertilize it.
- Use a mulching lawnmower to return nutrients to your lawn.
- Cut your lawn at a high setting to reduce weed growth and retain moisture.
- Water grass early in the morning and allow it to dry out between waterings.
- Use alternative native ground covers in shaded areas.
- If you live next to a natural area, consider creating a buffer strip (up to 5 metres wide) on your property. Plant native shrubs and trees in the buffer to reduce the spillover effect.
- Investigate non-toxic alternatives to chemicals for control of pests, weeds and plant diseases.
- If you have to use pesticides, read the product labels carefully and use only as directed. Dispose of household and pool chemicals safely.



Did you know that, in general, approximately 10 times more pesticides are applied by city home owners than are used by farmers on an equal area of farm land?

Does it matter what I grow in my garden?

Alien alert! Be careful when growing plants that are not native to Southern Ontario. Plants don't recognize property boundaries and can spread easily from gardens to natural areas. Many alien species do not have natural predators here and are extremely invasive. For example, the beautiful European import called Purple Loosestrife is flourishing across North America, invading wetlands and out-competing native plants. As a result, plant diversity is reduced and fewer places remain where native wildlife can survive.

Other common species that out-compete native plants are Norway Maple, Periwinkle, and Goutweed (Goat's Foot). Check with your local nursery to find out which plants are native to your region before purchasing. Native plants are better adapted to the climate, soil conditions, insects and diseases of this area.



Many municipalities or counties have information on plants that are suitable for use near natural areas and which plants to avoid.

Can I attract wildlife to my yard?

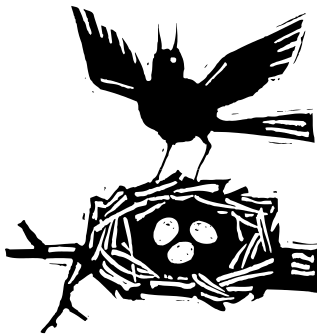
Habitat loss is the number one threat to wildlife today. With time and careful planning, you can create habitat in your back yard and provide a safe haven for many species to visit. Wildlife will be attracted by food, water and shelter, but these elements must be arranged so that birds and animals are not exposed to danger. Cats can have a major impact on bird and animal populations. Keeping your cat indoors from May to July will reduce its impact on nesting birds and small animals. Squirrels drawn to birdfeeders will also eat eggs and nestlings.



A natural area can be a great source of scenic beauty and pleasure. These areas may also be home to insects, such as mosquitoes, that are an important link in the food chain. Suitable clothing and insect repellants will help you avoid becoming part of the chain.

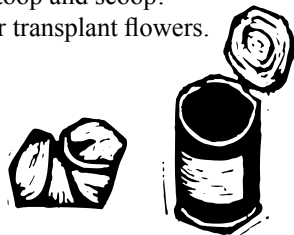
Stepping out in a natural area - “Take only memories, leave only footprints”

Many natural areas are accessible to the public. Local significant areas may contain rare and endangered plants and animals, unique landforms, and habitats that are prized for their high quality and diversity. However, the very features that make them precious are also those that could be easily damaged by thoughtless actions. Most damage occurs when people leave the marked trails and trample vegetation. By following the guidelines below, you can enjoy these natural areas without harming them, and leave them in a healthy state for their “residents” and future visitors.



Rules to remember in a natural area

- Please use the official access points and managed trails. Don't create or use trails that originate in people's backyards, as these additional trails cause more widespread trampling and disturbance of wildlife and plants.
- Avoid walking in natural areas when the trails are muddy, such as in the early spring or after a heavy rainfall. More vegetation gets trampled when people have to walk around mudholes.
- Please respect signs indicating that bicycles are not permitted in a natural area.
- Keep natural areas litter free.
- Keep dogs leashed. Cats and dogs are hunters by nature. If allowed to run loose, they put great stress on or kill birds and small animals. Don't forget to stoop and scoop!
- Do not disturb wildlife or pick or transplant flowers.



Can I take anything from a natural area?

Natural areas are often the only wild place remaining for rare native wildflowers to grow. These plants may have complicated life cycles or need seeds from existing flowers to regenerate the next year. Removing even a few plants can jeopardize the remaining population. Some garden centres stock a wide variety of native plants, trees and shrubs. These have a much better chance of surviving in your yard as they have been raised under similar soil and light conditions.

It is tempting to pick plants for food or herbal remedies, but this practice, just like transplanting, is not appropriate or sustainable. Even a few people picking plants can put the local population of that species in danger. Besides, those plants have a more important role in the natural environment than as food or medicine for humans!

A natural area is no place to find firewood or lawn decorations. Taking dead wood from a natural area will hurt that area's health in the long-term. As wood decays, it contributes nutrients to the soil



and provides food and shelter for thousands of tiny organisms. In addition, new growth often depends on old stumps and logs. Cutting trees and brush destroys habitat, tramples vegetation and disturbs wildlife.

Enjoy wildlife when you discover it, but leave it in its natural setting. Don't make survival harder by taking animals out of their homes, leaving fewer behind to carry on. It is impossible to give a wild animal the proper care and nutrition to keep it healthy and happy. Also, it is illegal to keep wild animals, even injured ones, in captivity without a permit.

You can help out the local naturalist and trail groups that regularly remove litter from the natural areas. Pick up any litter that you find and dispose of it properly, and, of course, don't leave any more behind!



Beware!

If you encounter a plant with three shiny green leaflets, leave it alone! You may have found poison ivy, which is abundant in many natural areas. Many people get nasty rashes from the sap of this plant, whether from direct contact with the leaves, roots and stems or from touching pets or equipment that have the sap on them. Remember, though, that poison ivy is part of the food chain, growing berries that are edible for birds and animals. Learn to recognize and avoid it, rather than trying to get rid of it. Poison ivy is usually found in partial shade as a knee-high ground cover, but can also grow as a vine up tree trunks. "Leaflets three, let it be!"

Deer, Deer!

If you are bothered by deer foraging in your backyard, here are some suggestions to protect your garden.

Make your garden unpalatable - Garden centres and the Internet are good sources of information on "deer proof plants." Beebalm, bleeding heart, butterfly bush, cone flower, foxglove and rhododendron are among the plants that deer don't like eating.

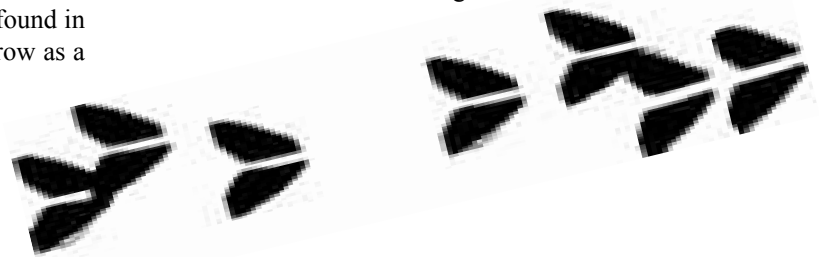
Make the fringes unpalatable - Surround your property with unpalatable and repellent native plants, and the deer may decide to forage elsewhere. Cedar and yew are delicacies for deer and should be avoided. White spruce, tamarack and juniper are good substitutes as deer will avoid them.

Block the view - Deer want an unobstructed view to see approaching predators and do not like to venture past anything that they cannot see through or over. A trellis covered in vines may discourage them.

Block the landing sites - Deer will not jump into your yard if they cannot see where they will land. Wooden fences or lattices that obstruct their view are a good deterrent.

Tidy up - Pick fruit such as apples and pears as they ripen, and remove or till under plants in the vegetable garden after harvest.

Fence them out - Specific trees or beds can be protected with mesh or screen. The barriers should be at least two metres high and at least half a metre from the foliage.



Where can I find out more?

More information on being a good natural neighbour:

- For composting tips call the "Rot Line" at 519-672-5991. This free service is offered to the public by the Thames Region Ecological Association (TREA).
- *Backyard Habitats* (pamphlet) and *Natural Invaders* (booklet). Available from the Federation of Ontario Naturalists at 1-800-440-2366, www.ontarionature.org
- Johnson, Lorraine, 1995. *The Ontario Naturalized Garden*. Whitecap Books, Toronto, Ontario.
- Ministry of Natural Resources, 1990. *Landscaping for Wildlife*. Queen's Printer for Ontario, Ontario.
- Rubin, Carole, 1989. *How to Get your Lawn & Garden off Drugs*. Friends of the Earth, Ottawa, Ontario.

This brochure was published in 2005 by the Upper Thames River Conservation Authority, and based on *Living with Natural Areas - A Guide for Citizens of London*, originally produced by the Upper Thames River Conservation Authority, the City of London's Ecological and Environmental Planning Advisory Committee, and Celebrate the Thames.

UPPER THAMES RIVER

CONSERVATION AUTHORITY

Inspiring a healthy environment

1424 Clarke Road, London, Ontario N5V 5B9
519-451-2800 www.thamesriver.on.ca

Appendix I

Environmental Management Plan



MTE Consultants

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

October 5, 2022

MTE File No.: 50760-200

McIver Developments Inc.
238 Piccadilly Street
London, ON N6A 1S4
jim@mcivergroup.com

To whom it may concern,

RE: Environmental Management Plan (EMP) for 92 & 96 Tallwood Circle, London, ON

McIver Developments Inc. (the 'Proponent') is seeking a building permit for the development of two single family homes (the 'Project') on two existing residential lots located at 92 and 96 Tallwood Circle in the City of London (the 'Subject Lands'). MTE Consultants has been retained to prepare an 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 EIS and provide the mitigation and monitoring recommendations from the EIS (MTE, 2022) and Tree Preservation Report (MTE, 2022) in the order to be completed.

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

- Woodlands
- Valleylands
- Significant Wildlife Habitat (confirmed Eastern Wood-pewee SWH, candidate reptile hibernaculum SWH, assumed bat maternity roost SWH)
- Fish Habitat
- Habitat of Endangered and Threatened Species
- Water Resources System

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 Development Plan provides adequate buffers and setbacks to adjacent natural heritage features [Figure 8; MTE, 2022] in accordance with the London Environmental Management Guidelines (2021b) and taking into consideration the existing land use and feature sensitivities. These buffers are outlined in Section 7.0 of the EIS (MTE, 2022), but will be restated here. Buffers are shown on Figure 10 of the EIS (MTE, 2022).

Natural Heritage Feature	Buffer
Woodland (including SWH)	Houses are 3-26 m from the current Woodland dripline with grading 3-17 m from the tree trunks. This is a significant increase from the current buffer as the woodland is currently extending over top of the home and the ground layer is mowed all the way up to the tree trunks. The buffer will be naturalized beyond the Stable Slope Setback in an area currently used as a maintained residential lawn.
Fish Habitat	Development limit is setback greater than 30 m from Masonville Creek.
Butternut [END]	Development limit is setback greater than 30 m from the trunk of the Butternut [END]. This is greater than the required 25 m habitat regulation area.
Valleyland	Proposed houses are a minimum of 9.5 m above the top of the existing slope and a minimum of 6 m above the stable slope setback as determined by EXP (2022).

Tree Protection Measures

Recommendation 1.1:

The limits of clearing should be surveyed, staked, and fenced in the field to allow for the protection of off-site natural areas and vegetation. The contractor shall meet with the consultant on site prior to commencing operations to review tree protection requirements and mark the Tree Protection Zone (TPZ). Tree protection measures shall be in accordance with Section 12 of the City of London Design Specifications & Requirements Manual.

Recommendation 1.2:

Trees 14, 31-34, 44, 46-50 should be felled prior to the installation of tree protection fencing. Refer to Section 5.2 of the Tree Preservation Report for details on tree removal protocols.

Recommendation 1.3:

Avoid vegetation clearing during migratory bird breeding season (April 11 to August 15 for forest nesting birds in zone C2) to ensure that no active nests are removed or disturbed in accordance with the *Migratory Birds Convention Act* and/or Regulations under that Act.

Recommendation 1.4:

Remove Tree 14 (Black Walnut) from Community 1 outside the bat active season (active May 1 - September 1) to avoid disturbing potential nearby maternity roosts.

Recommendation 1.5:

Tree fencing and remaining tree protection measures shall be implemented prior to any further tree removals, land clearing, demolition, excavation, construction or grading operations within 30m of the TPZ. The TPZ shall be established according to the Tree Preservation Plans. The TPZ shall be delineated by tree protection fencing which shall be 1.2m high, orange vinyl snow fencing secured at 2.4m intervals with 2.0m high iron T-posts driven 0.60m into the ground or an approved alternate. A 2X4 wood top-rail will be affixed at either end to the T-post.

Recommendation 1.6:

The consultant shall be contacted to inspect the tree protection fencing once it has been installed and prior to any further site works.

Other Design and Pre-Construction Considerations

Recommendation 1.7:

Prior to works on site, sediment and erosion control fencing should be installed along the stable slope setback [Figure 10; MTE, 2022]. This should include robust silt fencing as indicated on the Erosion Control Plan (MTE). The fence will act as a barrier to keep construction equipment and spoil away from the slopes and vegetation to remain, as well as prevent erosion and sedimentation of the adjacent natural heritage features.

Recommendation 1.8:

Sediment and erosion control fencing should 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 1.9:

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

Recommendation 1.10:

A Best Management Practice (BMP) and spill contingency plan (including a spill action response plan) should be in place for fuel handling, storage and onsite equipment maintenance activities to minimize the risk of contaminant releases as a result of the proposed construction activities. 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 1.11:

Ensure workers are aware of potential incidental encounters with wildlife and the necessary protective measures that can be implemented. 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.

2.0 During Construction

These recommendations are to be conducted from initiation of construction activities until a specified build-out stage as determined in consultation with the City of London.

Recommendation 2.1:

Avoid vegetation clearing and site disturbance during migratory bird breeding season to ensure that no active nests are removed or disturbed in accordance with the *Migratory Birds Convention Act* and/or Regulations under that Act. The active nesting season is defined as April 11 to August 15 for 95% of forest nesting birds in zone C2 (ECCC, 2018). 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 15 or until the nest has been confirmed inactive (e.g. young have fledged).

Recommendation 2.2:

During construction, no equipment, materials or tools shall be stored within the TPZ. Tree protection fencing shall remain in place until all construction work is completed. The consultant shall be contacted should work within the TPZ be required for any reason during the development process.

Recommendation 2.3:

If pruning or excavations at the edge of the TPZ is required, refer to protocols provided in Sections 5.3 and 5.4 of the Tree Preservation Report (MTE, 2022).

Recommendation 2.4:

The consultant shall be informed if any temporary haul or access roads must pass over the root area of trees to remain. A road bed of mulch shall be installed and maintained to a depth of 15cm to prevent compaction of the root zone. Access should be limited or restricted in periods of high soil moisture.

Recommendation 2.5:

Any damage to trees to remain that may happen as a result of demolition or construction related operations shall be reported to the consultant as soon as possible so that appropriate treatments can be applied.

Recommendation 2.6:

Soil stockpiles should be established in locations where natural drainage is away from the adjacent Valleyland. If this is not possible and there is a possibility of any stock pile slumping and moving toward the edge of the Valleyland, the stockpiles should be protected with robust sediment and erosion control. Access to the stockpile should be confined to the up-gradient side.

Recommendation 2.7:

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

Recommendation 2.8:

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

Recommendation 2.9:

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 2.10:

Noise disturbance during construction should be limited to allowable hours per City of London By-law. Where possible, construction noise from heavy machinery should be avoided during the migratory bird breeding period, defined as April 11 to August 15 in forest habitats of nesting zone C2 (ECCC, 2018) to avoid disturbance of nesting birds.

Recommendation 2.11:

If an animal enters the work site, work at that location should stop and the animal should be permitted to leave without being harassed. If there are repeat observations of wildlife in the work area, barrier fencing may be used to direct wildlife away from active construction and toward natural areas.

Recommendation 2.12:

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 apartment building construction until grounds adjacent to natural features are vegetated and stabilized. Reports should be made available to the UTRCA and Planning and Economic Development Staff.

Recommendation 2.13:

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 should be resolved as quickly as possible, ideally the same day.

Recommendation 2.14:

Any spills and subsequent containment actions should be recorded and included in reporting to the UTRCA and Planning and Economic Development Staff.

3.0 Post-Construction

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

Recommendation 3.1:

Sediment and erosion control fencing should not be removed until adequate re-vegetation and site stabilization has occurred. 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 3.2:

Vegetative cover should be re-established in disturbed areas following construction to minimize runoff and erosion.

Recommendation 3.3:

Provide homeowners with the “Living with Natural Areas” brochure published by UTRCA in 2005 [Appendix H; MTE, 2022]. This will help educate the future residents on appropriate ways to interact with natural areas and discourage damaging encroachment activities such as dumping landscape waste, using chemicals on lawns, mowing past residential boundaries, and creating trails.

Recommendation 3.4:

Limit the use of chemical fertilizers within the Subject Lands as well as salts or other additives for ice and snow control on the roadways and parking areas.

Recommendation 3.5:

Tree tags shall be removed from all trees to remain when tree protection measures are removed.

Naturalization

This section provides recommendations for the proposed naturalized buffer delineated by the stable slope setback. A Landscape Plan is provided by Ron Koudys Landscape Architects Inc. (2022).

Recommendation 3.6:

Remove non-native ornamental plants along the Woodland edge prior to seeding with native floral species.

Recommendation 3.7:

Refer to the Landscape Plan in Figure 11 (Ron Koudys Landscape Architects Inc., 2022) for creation of the Naturalization Area in the area of mowed lawn beyond the top of stable slope setback. The Naturalization Area incorporates a woodland herbaceous seed mix extending onto the valley slopes, with some native shrubs and trees to provide wildlife benefits (ex: nesting, pollination, forage) and compensate for tree removal.

Recommendation 3.8:

No mowing or encroachment should occur within the Naturalization Area. Monuments in the form of 3' tall, 10"x10" columns (refer to Landscape Plan) will be installed where the Naturalization Area crosses the side yard property lines to clearly mark the permissible limits of mowing and maintenance.

Monitoring Phase 2 – Post-Construction

Long-term post-construction monitoring shall evaluate the success of the proposed active naturalization efforts, as well as areas of invasive species management. 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:

- Check for tree damage post-construction to ensure tree protection measures were successful. Consult a certified arborist if damage has occurred.
- Vegetation monitoring should be completed for two years after planting to document compliance with the plans (e.g., the correct species and quantities were planted, tree protection measures were effective), 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 of planted material (triggered at <80% survival), insufficient vegetation cover, and the presence of unacceptable non-native and invasive species.

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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