4452 Wellington Road South Natural Heritage Support

Environmental Impact Study (EIS)

Project Location:
4452 Wellington Road South
London, ON

Prepared for:
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1.0 INTRODUCTION

MTE Consultants Inc. (MTE) has been retained by 2858637 Ontario Inc. to complete an Environmental Impact Study (EIS) in support of the re-zoning of the west portion of a property at 4452 Wellington Road South in the City of London, legally described as Concession 3, Lot 15, Westminster, City of London. The property is herein referred to as the 'Subject Lands' [Figure 1]. For the purpose of evaluating adjacent natural heritage features, a Study Area for the Environmental Impact Study (EIS) has been defined as the Subject Lands plus adjacent lands within 120m [Figure 1].

The Subject Lands are approximately 3.3 hectares (ha) and consist of the west portion of a parcel of land south of Highway 401, bounded by Wellington Road South to the west, Dingman Drive to the south, Castleton Road to the east and a commercial development to the north. The eastern portion of the property is in the final stages of Site Plan approval for a truck terminal.

The majority of the site is currently under agricultural use (row crops) with a woodland surrounding the old homestead in the northwest of the property. The Subject Lands are mapped as regulated by the Upper Thames River Conservation Authority (UTRCA) and are part of the Dingman Creek Watershed.

Life science data collection within the Subject Lands was completed by MTE Consultants in 2021 and 2022. This report compiles the data collection results for these years.

1.1 Report Objective

This report is an Environmental Impact Study (EIS), with the first sections meeting the requirements of a Subject Lands Status Report (SLSR) to identify natural heritage areas in the Study Area. The objective of the SLSR component of the report is to describe and define any natural features, based on field surveys and background information, and to identify potential functions to be protected or replicated on the Subject Lands. The EIS component evaluated the potential for impacts to natural heritage features and functions as a result of the Project. Following evaluation, recommendations for avoidance or mitigation of impacts, potential restoration, enhancement measures, and monitoring will be presented to protect natural features and functions. This SLSR/EIS report will be circulated to the City of London and UTRCA for review and comment on the findings and recommendations.

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

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

1.3 Background Documents

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

- MTE Consultants Inc. 2021a. Natural Heritage Features Preliminary Assessment – Opportunities and Constraints
- MTE Consultants Inc. 2021b. Site Servicing Brief 4452 Wellington Road South

1.4 Pre-Consultation and Site History

At the onset, the proponent was contemplating a Truck Terminal use for the east portion of the Legal parcel and a future commercial use for the west portion of the site. A Record of Pre-Application Consultation for the two developments was received from the City of London, dated August 10, 2021. This document provided City of London comments, including information requested to be included in an SLSR/EIS. The requirement for the SLSR/EIS was focused on a woodland entirely situated on the future commercial block on the west side of the site.

Given the proponent near term timelines for the development on the east portion of the legal parcel the City was approached with a proposal to forgo an EIS for the east SPA and to place a holding provision on the woodland. The City accepted this approach provided a 30m buffer was added to the holding provision (email. E. Williamson, January 21, 2022 – included in Appendix A].

However, a few months later, in the Site Plan application process for the East Truck Terminal application, the City altered their opinion and requested a full EIS despite the SPA providing the 30m minimum setbacks (April 4, 2022 – included in Appendix A].

An EIS scoping meeting was held on May 16, 2022, with the City of London and Upper Thames River Conservation Authority staff to review the proposed project and scope. In this meeting the City and UTRCA requested that the limits of the wetland and woodland be delineated to confirm boundaries and calculate feature size. Based on discussion in the EIS scoping meeting, an updated Scoping Checklist was submitted to the City for review on May 31, 2022 and accepted on September 20, 2022.

The EIS/SLSR for the full Site (MTE, October 2022) was submitted along with the east Truck Terminal ZBA application. The City of London accepted the zoning by-law amendment on December 22, 2022. However, instead of placing a holding provision on the woodland patch plus 30m on the west property, the area was re-zoned to Environmental Review (ER). An EIS is needed to address the new ER zone as part of the commercial development application.

This EIS submission will follow the previously agreed-upon Scoping Checklist and will address comments received from the Upper Thames River Conservation Authority and the City of London from the EIS submitted as part of the Truck Terminal application. The accepted TOR and record of consultation are provided in Appendix B.

2.0 LAND USE SETTING AND POLICY OVERVIEW

The following provincial and municipal legislation and policies were reviewed to inform the evaluation of natural heritage features and their functions, as well as the assessment of potential impacts.

2.1 Planning Act

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

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

- Fish Habitat, and,
- Habitat of Endangered and Threatened Species

The Subject Lands are within Ecoregion 7E where no development or site alteration are permitted in Provincially Significant Wetlands or Coastal Wetlands. Development and site alteration are not permitted in Habitat of Endangered or Threatened Species or Fish Habitat or, except in accordance with provincial and federal legislation. For the remaining features, development and site alteration shall not be permitted unless it has been demonstrated through an EIS that there will be no negative impacts on the features or their ecological functions. No items of provincial interest are identified on provincial database (LIO, 2023). The *Endangered Species Act, 2007* protects species listed as Threatened, Endangered or Extirpated in Ontario (SARO, 2007) from killing, harm, harassment or possession, and also protects their habitats from damage or destruction. Activities that may impact a protected species or its habitat require prior authorization from the Ministry of Environment, Conservation and Parks (MECP), unless the activities are exempt under a Regulation. Habitat of Threatened and Endangered Species are not typically mapped by the province.

These above provincial policies and Act are further reviewed under municipal policies and significance review later in this EIS.

2.2 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 2021). 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 demonstrated to have no negative impacts on the features or ecological functions.

2.2.1 Environmental Classifications – London Plan, Map 5 (2022)

There are no Environmental Classifications located within the Study Area according to Map 5 of the London Plan and Schedule B of the Southwest Area Plan.

2.2.2 Land Use Designations

The entirety of the Subject Lands is designated as Shopping Area (City of London Official Plan Map 1, 2021) and New Format Regional Commercial Node of the Southwest Area Plan.

The proposal does not require an Official Plan amendment.

2.3 City of London Zoning Bylaws

The Adjacent Lands are zoned as Community Shopping Area (CSA4) to the north, Light Industrial (LI6) to the west including the remaining legal parcel, Urban Reserve (UR6) to the south and Community Shopping (CSA4) and Associated Shopping Area (ASA1, ASA3 & ASA12) to the east of the Subject Lands.

The Subject Lands are zoned as holding-associated Shopping Area Commercial (h-17*ASA1/ASA2/ASA6) [Figure 4]. These zoning bylaws allow for retail, convenience and personal service as well as semi-light industrial retail and large traffic generating uses. The south portion of the Subject Lands requires the lifting of the holding provision. A portion of the Subject Lands are also now zoned as Environmental Review (ER) as part of the re-zoning process for the portion of the legal parcel to the east.

As a result, this west commercial parcel will require another zoning amendment to address the recently applied ER zone.

2.4 Upper Thames River Conservation Authority (UTRCA) Regulation

The Upper Thames River Conservation Authority (UTRCA) regulates lands within its watershed under Ontario Regulation 157/06, pursuant to Section 28 of the *Conservation Authorities Act, 1990.* The UTRCA has jurisdiction over riverine flooding and erosion hazard, 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 UTRCA does not regulate the Subject Lands with any specific hazard identification. This was confirmed in the Record of Pre-consultation with the City (Dec. 2022). However, the entire area is associated with the proposed Dingman Creek Screening Area which is currently under review

2.5 Additional Relevant Legislation

During the implementation phase of development additional natural heritage focused legislation may need to be considered.

2.5.1 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 (see below).

2.5.2 Fish and Wildlife Conservation Act

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

3.0 TRIGGERS FOR EIS

When a development proposal requires a Planning Act application (i.e., Draft Plan submission, or amendments to the Official Plan and/or zoning by-law), the City of London requires an EIS to be

completed if development or site alteration is proposed within or adjacent to the Natural Heritage System, as set out in Table 13 (Areas Requiring Environmental Study) of the London Plan (2021a).

The proponent is planning to re-designate and re-zone the western portion of the Subject Lands to allow for future commercial development. No natural heritage features are shown on or adjacent to the Subject Lands on Map 5 of the London Plan (Figure 2). This Environmental Impact Study (EIS) is required based on the following triggers from the City of London Environmental Management Guidelines (2021) and Table 13 of the London Plan:

- Proposed development within 30m of an unmapped vegetation patch >0.5ha (within the Subject Lands).
- Proposed development now includes lands recently re-zoned to ER.

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

- Subject Lands are within the UTRCA's mapped regulation limits.

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

The following section (Section 4.0) reviews the natural heritage setting of the Subject Lands.

4.0 DESCRIPTION OF THE NATURAL ENVIRONMENT

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

4.1 Physical Setting

4.1.1 Physiography

Bedrock within the area of the Subject Lands is Middle Devonian-aged limestone and dolostone of the Dundee Formation (Ministry of Northern Development and Mines, 1991). Bedrock is not exposed in the area of the Subject Lands.

4.1.2 Soils

The Subject Lands are located in an area of 40-100 cm of glaciolacustrine loam, silt loam and occasionally very fine sandy loam overlying clayey glaciolacustrine deposits (Soils of Middlesex County; Sheet 3, 1991).

4.1.3 Topography

The topography of the Subject Lands is largely flat. Elevations on the Subject Lands range from approximately 262m to 265 m, with the highest elevations in the woodland on the northwest corner and the lowest elevations in the southwest corner.

4.1.4 Surface Water Features

The Subject Lands are located within the Dingman Creek subwatershed (City of London, 2021). There are no known surface water features located within the Subject Lands.

4.1.5 Hydrogeology

According to the Thames-Sydenham Source Protection Plan (TSSPP), the Subject Lands are not located in a Significant Groundwater Recharge Area (SGRA) or a Highly Vulnerable Aquifer (HVA).

4.2 Natural Heritage Records Review

A review of background natural heritage data sources was completed as part of the EIS to inform study scoping as well as proposed field investigations. The following documents and databases were reviewed to identify potential or confirmed natural heritage features within the Study Area:

- Ontario's Natural Heritage Information Centre database for Species at Risk occurrences (NHIC, 2022);
- Land Information Ontario (LIO; MNRF, 2022);
- London Plan, 2022;
- Satellite imagery (Google Earth Pro 2022);
- Atlas of Breeding Birds of Ontario (OBBA) (Cadman, 2007);
- eBird Canada (ebird, 2022);
- Ontario Reptile and Amphibian Atlas (Ontario Nature, 2020); and
- iNaturalist (2022)

4.2.1 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. According to these sources, there are no designated natural heritage features located within the Study Area.

4.2.2 Species Records

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

S1: critically imperiled; often fewer than 5 occurrences

S2: imperiled; often fewer than 20 occurrences

S3: vulnerable; often fewer than 80 occurrences

S4: apparently secure

S5: secure

S?: unranked, or, if following a ranking, rank uncertain (e.g. S3?)

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

A review of the Ontario Natural Heritage Information Centre (NHIC), Ontario Breeding Bird Atlas (OBBA), Ontario Reptile and Amphibian Atlas (ORAA) database, and Citizen Science sources

(iNaturalist and eBird) identified several Protected Species and SOCC as potentially present within the area of the Subject Lands (Tables 1 and 2). The areas included in the background review vary, including 10 km Atlas squares (OBBA and ORRA) or 1km NHIC square. It should be noted that OBBA occurrence data are from 2001-2005, and the dates of NHIC records are unknown. The remainder of the records are from within the past 10 years. The observation dates are provided for each species where possible. These sources display data for a broad area and therefore, provide only a general potential for species presence on or near the Subject Lands. A complete screening of potential species is provided in Appendix C.

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 Butternut [END].

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

Common Name	Scientific Name	SARO Status	Date Observed (If Known)	Source
Barn Swallow	*Hirundo rustica*	THR	N/A	NHIC, 2022
Bobolink	*Dolichonyx oryzivorus*	THR	N/A	NHIC, 2022
Chimney Swift	*Chaetura pelagica*	THR	N/A	OBBA, 2022
Eastern Meadowlark	*Sturnella magna*	THR	N/A	NHIC, 2022
Acadian Flycatcher	*Empidonax virescens*	END	N/A	OBBA, 2022

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 Data Review (Potential Within 10 km of the Subject Lands)

Common Name	Scientific Name	SARO Status	Date Observed (If Known)	Source
Black Tern	*Childonias niger*	SC	N/A	OBBA, 2022
Eastern Wood-pewee	*Contopus virens*	SC	N/A	OBBA, 2022
Peregrine Falcon	*Falco peregrinus*	SC	N/A	OBBA, 2022
Snapping Turtle	*Chelydra serptentina*	SC	N/A	ORAA, 2022
Wood Thrush	*Hylocichla mustelina*	SC	N/A	OBBA, 2022

4.3 Field Investigations

Field investigations within the Subject Lands were completed by MTE staff in 2021 and 2022. A complete list of field investigations is provided in Table 3, below. Targeted field investigations were undertaken on the Subject Lands. These investigations were completed to support the assessment of potential impacts to faunal habitat.

In addition to the targeted surveys listed below, incidental observations of wildlife and general habitat characteristics were recorded during all site visits.

Table 3: Summary of Natural Heritage Field Investigations Completed in 2021 & 2022

Survey	Date(s) Completed	MTE Surveyor (s)
Vegetation Community Surveys & Ecological Land Classification (ELC)	October 26, 2021 May 4, 2022 August 23, 2022	Will Huys Tanya Cooper
Breeding Bird Surveys	June 6, 2022 (5:45-8:50) June 23, 2022 (5:45-7:05)	Brandon Holden
Amphibian Call Count Surveys	April 13, 2022 (21:53-22:00) May 12, 2022 (22:27-22:35) June 14, 2020 (22:40-22:49)	Allie Leadbetter Victoria Schveighardt Tanya Cooper Samantha Wilson
Bat Maternity Roost Habitat Assessment	May 4, 2022	Will Huys Tanya Cooper
Snake Emergence Surveys	April 12, 2022 May 5, 2022	Allie Leadbetter Elise Roth Tanya Cooper
Woodland and Wetland Delineation	July 5, 2022	Will Huys (OWES Certified) Melissa Cameron Tanya Cooper
Butternut Health Assessment	July 27, 2022	Will Huys Tanya Cooper

4.4 Species at Risk Screening

Six Butternut trees were observed on the Subject Lands. A Butternut Health Assessment was completed for trees in Community 1 on July 27, 2022, by Will Huys, an ISA certified arborist (BHA#222), according to BHA protocols. Butternut data collection forms (2010 edition) were completed for six (6) Butternut trees. Tree health, size, percent live crown and diagnostic hybrid features were noted.

According to the BHA, one tree was identified as a dead Category 1 Butternut, and the remaining five trees were sent for genetic testing to Nature Metrics North America Ltd. Testing concluded that all 5 of the remaining Butternut trees are hybrids. As a result, no Butternut within the Legal Parcel are protected under the Endangered Species Act. BHA field sheets and the BHA report, including the full genetics report, are provided in Appendix D.

Three candidate bat maternity roost trees were identified within Community 1 on the Subject Lands. Targeted acoustic monitoring was not undertaken based on the small number of candidate trees observed relative to the size of the feature and the cultural nature of the community (MNRF, 2017). 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] or Northern Myotis [END]. Myotis is discussed further in Section 4.5.1 under subheading of Bats.

4.4.1 Floral Site Investigations

Vegetation Communities

Ecological Land Classification (ELC) was completed on October 26, 2021, by Will Huys, certified to complete ELC in Ontario using protocols outlined in the Ecological Land Classification for Southern

Ontario, First Approximation and its Application (Lee et al, 1998). Provincial significance of vegetation communities is based on the rankings assigned by the NHIC (2020).

Vegetation within the Subject Lands consists of one (1) cultural community, two (2) ticket communities and one (1) meadow marsh community, as listed in Table 4 and shown in Figure 5. The communities listed in Table 3 are secure in Ontario. Area measurements are based on interpretation of aerial photos. ELC field data collection sheets are provided in Appendix E.

The limits of Community 1 and the wetland were reviewed and confirmed in the field by MTE with the City of London and UTRCA on July 5, 2022 and surveyed by MTE engineering staff on July 26, 2022.

Table 4: Ecological Land Classifications for the Subject Lands

Polygon	ELC Code	Description	S-rank	Area (ha) In the Subject Lands
1	CUW1	Mineral Cultural Woodland	N/A	0.86
2	THDM2-6	Buckthorn Deciduous Shrub Thicket	N/A	0.13
3	MAM	Meadow Marsh	N/A	0.02
4	THDM3-2	Native Shrub Deciduous Thicket Type	N/A	0.05
AG	-	Agricultural	N/A	2.26

*Areas are approximate and have only been measured within the Subject Lands.

The Subject Lands are currently an agricultural field with a woodland, wetland and thicket community located within the northwest corner. There is also a hedgerow community located along the northern boundary on the eastern portion.

Community 1 is classified as a Mineral Cultural Woodland (CUW1). The dripline of this community has been staked and finalized with the City of London and the UTRCA. The canopy of Community 1 is dominated by Northern Catalpa and Black Walnut and also includes the occasional Norway Spruce. The Sub-canopy is dominated by Black Walnut and also includes Trembling Aspen, Butternut Hybrids and Bur Oak. The understorey consists of Northern Catalpa, Tartarian Honeysuckle, Cranberry Viburnum and Gray Dogwood. The ground layer is dominated by Garlic Mustard.

Community 2 is classified as a Buckthorn Deciduous Shrub Thicket (THDM-2) located between the edge of the agricultural field and adjacent commercial parking lot. The canopy of Community 2 is dominated by Manitoba Maple and White Mulberry. The understory is dominated by Common Buckthorn, Gray Dogwood and Staghorn Sumac. The ground layer is dominated by Aster species, Canada Goldenrod and Reed Canary Grass.

Community 3 is 0.02 ha and classified as a Meadow Marsh (MAM). The feature was staked and delineated with the City of London and the UTRCA. Field investigations conducted in July confirmed the community to be dry and containing wetland colonizer species. The ground layer is dominated by Rough Cocklebur, Southern Water-plantain and Soft Rush.

Community 4 is classified as a Native Shrub Deciduous Hedgerow Type (THDM3-2). The canopy is dominated by Manitoba Maple and American Elm. The understory is dominated by Gray Dogwood, Staghorn Sumac and Hawthorn species. The ground layer is dominated by Aster species, Canada Goldenrod, Smooth Brome and Reed Canary Grass.

4.5 Significant Wildlife Habitat Assessment

MNRF Significant Wildlife Habitat (SWH) Criteria Schedules for Ecoregion 7E (January 2015) uses ELC ecosite codes and habitat criteria (e.g. size of ELC polygon, proximity to other natural features) to define candidate SWH. Additional candidate SWH types for the City of London were obtained from the

London Plan (Policy 1354, 2021a). An assessment of candidate SWH was completed for the Subject Lands using a combination of desktop analysis and field observations.

One candidate SWH for reptile hibernaculum was identified on the Subject Lands. These candidate features were further evaluated using the results of targeted field investigations discussed later in this report following field survey results.

Results of the assessment and evaluation of significance for SWH are presented Appendix F.

Botanical Inventory

Floral inventories were completed on October 26, 2021, and May 5 and August 23, 2022, using commonly acceptable sampling and recording methods. The status of all plant species is based on the provincial NHIC database (MNRF, 2020) and the list of vascular plants for the Carolinian Zone (Oldham, 2017).

A total of 43 species were observed on the Subject Lands, of which 10 or 23% are native to Ontario and 28 or 77% are introduced species, including Hybrid Butternut.

No other floral species of provincial interest (Special Concern or S1-S3 ranked) or of regional interest were identified within the Subject Lands. A complete botanical list is provided in Appendix G.

Floristic Quality Analysis

Based on the floral inventories, the Cultural Woodland (Community 1) on the Subject Lands was assessed using SOFIA (Southern Ontario Floral Inventory Analysis) (Lebedyk, 2018). SOFIA provides several values based on floral inventories to evaluate the value and natural quality of vegetation communities. These values are provided in Table 5. The Coefficient of Conservatism (CoC) is a value (0 to 10) assigned to each species based on the species' degree of fidelity to certain ecological parameters (Oldham, Bakowsky & Sutherland, 1995). Plants found in a wide range of vegetation communities are assigned low values while those that are found in a narrow range of parameters are assigned high values. For a community, the mean Coefficient of Conservatism (CoC) is calculated between all species observed, and this provides a measure of floristic quality (Lebedyk, 2018). A community with a Mean CoC that is >3.5 is of sufficient floristic quality to be of remnant natural quality. A Mean CoC >4.5 would indicate a relatively intact natural area with high floristic quality.

Another measure is the Floristic Quality Index (FQI). FQI is intended to indicate the overall vegetative quality of a community and is calculated by multiplying the mean CoC by the square root of the number of species present (Oldham, Bakowsky & Sutherland, 1995). Based on a study of urban woodlands in the Chicago area, a community with a FQI <20 is considered to have minimal significance from a natural quality perspective, and a community with a FQI >35 has sufficient conservatism and richness to be floristically important from a provincial perspective. The values in Table 4 have been rounded to one decimal place. The percent of native species is based on the total number of identified species in the community, not the proportion of coverage or dominance. No mean CoC or FQI values for the communities within the Subject Lands are higher than the minimal thresholds for moderate floristic quality (3.5 and 20 respectively).

Table 5: Southern Ontario Floral Inventory Analysis (SOFIA) Results

Vegetation Community	Mean CoC	FQI	% Native Species	Comments
Community 1 Mineral Cultural Woodland	1.7	10.2	62	• Poor floristic quality, minimal natural quality.
Community 2 Buckthorn Deciduous Shrub Thicket	1.1	5.1	64	• Poor floristic quality, minimal natural quality.

Vegetation Community	Mean CoC	FQI	% Native Species	Comments
Community 3 Meadow Marsh	1.8	3.5	100	• Poor floristic quality, minimal natural quality.
Community 4 Native Shrub Deciduous Hedgerow	1.4	4.9	67	• Poor floristic quality, minimal natural quality.

4.5.1 Faunal Site Investigations

Avifauna

Breeding bird surveys were completed on June 6 and June 23, 2022, guided by the protocols outlined in the Ontario Breeding Bird Atlas (OBBA) (Cadman *et al*., 2007). As point counts are designed for repeat surveying and long-term monitoring, a combination of wandering transects (area searching) and 5-minute listening intervals in all vegetation communities were used to more adequately characterize the breeding bird communities on the Subject Lands. Surveys were completed between 5:00am and 10:00am. The number of individuals and the highest level of breeding evidence were recorded for all avian species observed.

There was one Barn Swallow individual observed during the surveys. However, there is no suitable breeding habitat for this species present within the Subject Land (barns, structures, culverts). No other Protected avian species or SOCC were identified within the Subject Lands during breeding bird surveys.

No Partners in Flight Species of Continental or Regional Concern were identified within the Subject Lands (Partners in Flight, 2016).

A complete list of bird species observed is provided in Appendix H.

Amphibians

Targeted surveys for calling anurans (frogs and toads) were completed in suitable habitat (e.g., wetland) on the Subject Lands and immediately adjacent lands according to the protocols of the Marsh Monitoring Program (Bird Studies Canada, 2009). Survey dates were organized by early spring (April 1-15), mid-spring (May 1-15), and late-spring (June 1-15) visits and scheduled when nighttime temperatures during these survey periods were above 5°C, 10°C, and 17°C respectively. Surveys began no earlier than 30 minutes after sunset and were completed before midnight.

Amphibian call surveys were completed on April 13, May 12 and June 14, 2022, guided by the Marsh Monitoring Program (MMP) protocol. One station was established on the Subject Lands and all calls that were heard within a 100m listening radius were recorded.

Station 1 was located in the north area of the Subject Lands, facing south towards the small wetland area. Four American Toads were heard from within the Station 1 radius in April 2022, most likely coming from the small wetland feature. One Gray Treefrog was heard calling from Community 1, within the Station 1 radius, in June 2022. One American Toad heard calling outside of the 100 m radius in June 2022. Field sheets are provided in Appendix I.

Table 6: Amphibian Call Count Code Results

Species	Station 1 (100m detection radius)		
	April 2022	May 2022	June 2022
American Toad	1-4	-	-
Gray Treefrog	-	-	1-1

Bats

Candidate bat maternity roost trees were identified using guidance from the *Survey Protocol for Species at Risk within Treed Habitats: Little Brown Myotis, Northern Myotis & Tri-coloured Bat* (MNRF, 2017). This protocol involves assessing trees based on: Species, diameter at breast height (DBH), height, presence of loose/peeling bark, cavity and cavity height, decay class, open canopy, and proximity of other snags. A review of candidate bat maternity roost trees was undertaken on May 4, 2022.

Three candidate maternity trees (i.e., trees with cracked/ peeling bark, holes, etc.) were identified in Community 1 that may provide suitable roosting habitat for Little Brown Myotis [END] or Northern Myotis [END]. Maternity roost survey data can be found in Appendix GJ Density of candidate roost trees is much less than 10/ha, the site is small with few roost options and isolated from more likely habitat and water supply.

Mammal Burrows

A groundhog was observed in its burrow under a pile of concrete rubble within the Subject Lands during field investigations. No American Badger [END] burrows are present given the lack of evidence of large burrows with lateral claw marks or soil piles within the Subject Lands (Ontario American Badger Recovery Team, 2010).

Reptiles

A concrete pile and a foundation area near the parking lot on the northern area of the Subject Lands was identified as potential hibernacula. Two snake emergence surveys were conducted in suitable habitat in April and May 2022 and no snakes were observed during these visits. Snake emergence survey data can be found in Appendix K.

Terrestrial Crayfish

No Terrestrial Crayfish burrows were observed in or around the wetland community identified on within the Subject Lands.

4.5.2 Aquatic Habitat

There is no aquatic habitat present within the Subject Lands.

4.5.3 Incidental Observations

An active Red-tailed Hawk (RTHA) nest was observed within the Subject Lands during field investigations within a tree along the southern boundary of Community 1. During spring surveys, the adult RTHA behaviour was agitated and aggressive when MTE staff were in proximity to the nest. One juvenile (unfledged) RTHA was observed on June 6, 2022, and a fledged RTHA was observed with adults during the second site visit on June 23, 2022. While Common in Ontario and not considered Significant Wildlife Habitat, Red-tailed Hawk is a protected raptor under the *Fish and Wildlife Conservation Act, 1997* (O.Reg. 669/98, Schedule 7) which is administered by the Ministry of Northern Development, Mines, Natural Resources and Forestry.

4.6 Significant Wildlife Habitat Evaluation

Candidate features noted earlier 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.

No snakes were observed during targeted spring surveys or as incidental observations during other spring surveys, therefore SWH for reptile hibernaculum is confirmed absent from the Subject Lands.

Results of the evaluation of significance for SWH are presented Appendix G.

5.0 NATURAL HERITAGE POLICY CONSIDERATIONS

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

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

- the 2020 Provincial Policy Statement, Section 2.1, issued under the Planning Act, 1990.
- These have been reviewed in conjunction with the Natural Heritage Reference Manual (NHRM) (OMNR, 2010),
- the London Plan, Section 6 – Environmental Policies (May 28, 2021),
- the City of London Environmental Management Guidelines (2007),
- 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.

5.1 Provincial Policy

5.1.1 Provincially Significant Wetlands

The Provincial Policy Statement (2020) defines a Significant Wetland as an area identified as provincially significant by OMNRF using evaluation criteria established by the Province (Ontario Wetland Evaluation System (OWES) MNR, 2014).

There are no Provincially Significant Wetlands identified on LIO mapping within or adjacent to the Subject Lands (2021).

Unmapped and unevaluated wetlands on the Subject Lands are too small and not specialized habitat for provincial consideration. The wetland will be discussed in the municipal review in Section 5.2.1, below.

5.1.2 Provincially Significant Woodlands

The Provincial Policy Statement (2020) defines a Significant Woodland as “an area which is ecologically important in terms of features such as species composition, age of trees and stand history; functionally important due to its contribution to the broader landscape because of its location, size or due to the amount of forest cover in the planning area; or economically important due to site quality, species composition, or past management history”. To assist in the identification of significant woodlands, planning authorities are encouraged to develop a set of evaluation criteria based on the factors and characteristics provided in the Natural Heritage Reference Manual (MNR, 2010). The City of London’s criteria for evaluating Significant Woodlands are provided in the Environmental Management Guidelines (City of London, 2021) and referenced in the London Plan.

There are no mapped Significant Woodland communities identified within the Study Area on Map 5 of the London Plan (2021a). Unmapped woodlands will be evaluated in accordance with municipal policy in Section 5.2.2, below.

5.1.3 Provincially Significant Valleylands

The Provincial Policy Statement (2020) defines a Significant Valleyland as a natural area occurring in a valley or other landform depression with flowing or ephemeral water that is ecologically important in terms of features, functions, representation, or amount. This feature should contribute to the quality and diversity of the natural heritage system. The identification and evaluation of Significant Valleylands is the responsibility of planning authorities and is based on recommended criteria from MNR, as provided in the Natural Heritage Reference Manual (MNR, 2010). The London Plan (2021) incorporates these evaluation criteria into Policies 1347 to 1349 for identification and protection of Significant Valleylands.

There are no Significant Valleyland communities identified within the Study Area on Map 5 of the London Plan 2021a).

5.1.4 Significant Wildlife Habitat

Candidate Significant Wildlife Habitat (SWH) is based on ELC communities that were identified in Section 4.3.1. Confirmed SWH is determined through appropriate field investigations and evaluation of species use in accordance with specific criterion outlined in the Ecoregion Criteria Schedules 7E (MNRF, 2015). As described in Section 4.4, there is no SWH on the Subject Lands or within the larger Study Area.

5.1.5 Areas of Natural and Scientific Interest

ANSIs are defined by the Provincial Policy Statement (2020) as areas of land and water that contain landscapes/features are valuable in terms of life science or earth science with relation to protection, scientific study, or education. Identification of ANSIs is completed by MNR based on frameworks and criteria outlined in the NHRM (MNRF, 2010). Regionally or locally significant ANSIs are not included in the PPS definition, but some municipalities, including the City of London, have provided protection through their official plan policies.

There are no ANSIs within 120 m of the Subject Lands.

5.1.6 Fish Habitat

Fish habitat is defined in the *Fisheries Act, 1985* (amended 2019) as water frequented by fish as well as any other areas fish directly or indirectly carry out life processes (ex: spawning, rearing, foraging, migration). The PPS (2020) uses this definition and the process of identification of fish habitat is outlined in the NHRM (MNRF, 2010).

The Subject Lands do not provide direct Fish Habitat and do no appear to drain toward any natural features.

5.1.7 Habitat of Endangered or Threatened Species

Field investigations identified 6 Butternut trees within Community 1. A BHA confirmed one tree to be a dead Category 1 individual. Samples of the remaining 5 were assessed for hybridity and all 5 trees were confirmed to be hybrids; therefore, these are not protected under the *Endangered Species Act.*

As discussed in Section 4.2.5, three candidate bat maternity roost trees were identified in Community 1 on the Subject Lands. MECP protocols for Treed Habitat (MECP, June, 2022) suggest high quality habitat for bat maternity and day roost is native forests with >=25cm DBH snag trees with 10 or more per hectare in density. Given the Cultural Woodand ELC code and much larger and higher quality native forest habitat in the Dingman Creek Valley system to the west, fragmentation from that higher quality habitat and the lack of water and low number of roost on site, it is expected a timing window for tree removal is all that is required to ensure no contravention of the ESAct for protected bats. MECP has been consulted to confirm this request.

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 wetlands identified within or adjacent to the Subject Lands in the LIO database or on Map 5 of the London Plan (2021a). However, during field investigations a small (0.02 ha) wetland feature was observed within the northwest corner of the Subject Lands.

This wetland does not contribute directly to the hydrological function of the watershed through connection with a surface watercourse, and therefore does not meet the definition of a regulated wetland in the *Conservation Authorities Act, 1990*. Wetlands also do not include areas periodically soaked or wet that are used for agricultural purposes (Conservation

Authorities Act, 1990; London Plan, 2021). The Ontario Wetland Evaluation System (OWES) manual states that the minimum size of a vegetation community for mapping purposes is 0.5 ha unless there is a specialized wetland (e.g., fen, bog, shoreline) as defined by OWES manual Section 1.2.2 (MNR, 2013). The wet areas are of insufficient water depth and hydro-period to support successful amphibian breeding.

Notwithstanding the OWES criteria for identifying wetlands, the London Plan has no minimum size criteria for wetlands. Based on presence of seasonal surface water and the dominance of wetland indicator species in the small wetland area (0.02ha), this feature meets the definition of wetland per the London Plan (wetland less than 0.1 ha). Accordingly, this feature will be treated as a Wetland and carried forward to the assessment of impacts.

5.2.2 Significant Woodlands and Woodlands (1337-1343)

As discussed in Section 5.1.2, there are no mapped Significant Woodlands within or adjacent to the Subject Lands identified on Map 5 of the London Plan (2021a). It is also not mapped in the Southwest Area Plan ((2014). However, Community 1 (CUW1) is a treed vegetation patch larger than 0.5 ha. While it is not of natural origin (trees around a former farmstead (Appendix L)), under the Scoping process with the City, it was to be evaluated using the Significant Woodland Evaluation Guidelines in the London EMG (2021b).

Prior to evaluation, the boundaries of the woodland were reviewed and confirmed in the field with the City of London (Shane Butnari, Ecologist Planner) and assessed in accordance with the Boundary Delineation Guidelines in Section 4.8 of the EMG (London, 2021b). The wetland patch is excluded from the natural heritage feature boundary as it is not contiguous with the woodland, does not strengthen a linkage and is not connected to a permanent or natural watercourse. The shrub thicket projection toward Wellington Road and hedgerow along the northern property boundary are also excluded from the natural heritage feature as they do not provide a linkage within the landscape and are not along a wooded ravine or valley. The small satellite woodland along the northern property limit is included within the natural heritage feature as the tree canopy was within 20m of the main woodland patch (ORMCP, 2017). Following these guidelines, the total woodland area is 0.86 ha [Figure 7].

The EMG (City of London, 2021b) provide a set of evaluation criteria for the determination of woodland significance. Per the London Plan, a woodland is considered significant if it meets a single score of High in any category, or a minimum of five Medium scores.

An evaluation of significance in accordance with the EMG is provided in Table 7 below. Community 1 is not considered a Significant Woodland in accordance with the City of London Environmental Management Guidelines (2021) and the London Plan (2021). The 0.89 ha woodland has no ecologically important characteristics that would indicate quality, diversity, sensitivity, or functional or economic significance. It is also entirely isolated from any other natural heritage feature [Figure 7].

Table 7: City of London EMG (2021b) Woodland Evaluation for Community 1

Evaluation Category	Woodland Characteristics	MTE Assessment (2022)
1.1 Site Protection	• No hydrological features are within the woodland; however, the woodland is approximately 38 m away from unidentified small, unevaluated wetland. This feature has no significant hydrologic function according to the definition under OWES. • Patch present on nearly level, class b slope.	Low
1.2 Landscape Integrity	• Estimates low landscape richness (<7% local vegetation cover within a 2km radius from the patch centroid) due to proximity to other larger vegetation patches to the south and east. The original guideline was targeted to Upland Woodlands as identified on a Patch Map produced by the City (1998). This area is 3.5% patch cover within 2 km radius (Appendix M). • Low linkage and connectivity due to roads and infrastructure. • No woodlands within 250 m.	Low
2.1 Age and Site Quality	• Mid to young-aged community based on cultural origins. • Mean CoC determined to be 1.70 for all species in Community 1 (Low).	Medium
2.2 Size and Shape	• Patch size < 2 ha in size (0.86 ha). • No interior habitat.	Low
2.3 Diversity	• Patch contains 1 ELC codes (CUW1). • One Grey Treefrog heard calling from woodland, but no standing water available for breeding so critical habitat component is absent. • Patch contained <2 ha of conifer communities. • No Fish Habitat available.	Low
4.1 Significant Habitat Threatened or Endangered Species/SAR	• Three trees were identified as suitable candidate bat maternity roost trees within the woodland. Based on the small number of trees in a cultural feature and potential to compensate using artificial roost boxes (MECP standard practice), these trees do not represent significant habitat for threatened or endangered species.	Low
5.1 Distinctive, Unusual or High	• No communities with S-rank lower than S5. • SWH absent. • No rare plants.	Low

Evaluation Category	Woodland Characteristics	MTE Assessment (2022)
Quality Communities	• One tree with DBH of 112cm (Northern Catalpa) was identified. This is a non-native, planted tree as part of the historic homestead and should not be considered a significant feature in the woodland.	
5.2 Distinctive, Unusual or High Quality Landform	• Patch is located on the Till Plain (Figure 3.1 of EMG, London 2021).	Medium
RESULT (High/Medium/Low)		0 High / 2 Medium / 6 Low
Significant Woodland		No

5.2.3 Significant Valleylands and Valleylands (1344-1351)

As discussed in Section 5.1.3, there are no Significant Valleylands on the Subject Lands. Furthermore, no Valleylands are identified on Map 5 within or adjacent to the Subject Lands (City of London, 2021a).

5.2.4 Significant Wildlife Habitat (1352-1355)

No SWH is present within the Study Area. An assessment of candidate and confirmed SWH as determined by the provincial Ecoregion 7E Criteria Schedule is provided in Section 4.4.

5.2.5 Fish Habitat (1323-1324)

As noted in Section 5.1.6 there is no suitable fish habitat within the Subject Lands.

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

Refer to Section 5.1.7 for discussion of Endangered and Threatened Species Habitat. Three suitable bat maternity roost trees for Little Brown Myotis [END] and Northern Myotis [END] are present in Community 1 (CUW1). No Butternut were considered retainable (moribund or non-native variety present). Water Resource Systems (1361-1366)

The Subject Lands are not located within a Significant Groundwater Recharge Area (SGRA) or a Highly Vulnerable Aquifer (HVA) (TSRSPC, 2015).

5.2.7 Environmentally Significant Areas (1367-1371)

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

5.2.8 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.

5.2.9 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.

5.2.10 Other Drainage Features (1387)

No drainage features are present within the Study Area.

5.3 Conservation Authority Regulations

5.3.1 Conservation Authority Regulation Limit

The Upper Thames River Conservation Authority (UTRCA) regulations fall across the entirety of the Subject Lands [Figure 5]. As described in Section 5.2.1, the wetland does not meet the definition of a wetland as outlined in the *Conservation Authorities Act, 1990*.; therefore, the wetland is not regulated by the UTRCA.

However, the Subject Lands are located within the Dingman Creek Screening Area and may be regulated as flood hazard lands. The need for a Section 28 Permit from the UTRCA should be discussed in the context of flood hazard management.

5.4 Summary of Identified Features and Functions

Table 7 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.

Table 8: Environmental Considerations for the Study Area

Policy Category	Environmental Consideration	Natural Heritage Feature
Provincial Policy Statement	Habitat of Endangered and Threatened Species	Three candidate bat maternity roost trees for Little Brown Myotis [END] and Northern Myotis [END] are present in Community 1 (CUW1).
The London Plan (2021a)	Wetlands	One wet area present on the Subject Lands is too small to be identified or evaluated as wetlands per the OWES guidelines (2014). However, as there is no minimum size criteria in the London Plan, this area will be considered a Wetland less than 0.1 ha in size.
UTRCA Regulations	Screening Area	UTRCA has mapped the entirety of the Subject Lands as a screening area for further study.

6.0 DESCRIPTION OF THE DEVELOPMENT

2858637 Ontario Inc. (the proponent) is proposing the development of a commercial development with associated parking spaces on the Subject Lands [Figure 8]. The conceptual development plan includes:

- Three retail buildings;
- 479 parking spaces; and
- Landscaped areas within parking area and along the perimeter of the north, east and southern boundaries (0.91ha)

There will be on access point implemented off of Wellington Road South. The widening of Wellington Road South has been accounted for in the development plan.

6.1 Stormwater Management

A preliminary Stormwater Management (SWM) plan has been proposed. Water supply is available via the municipal 300mm watermain on Wellington Road South. Runoff from minor storm events will be collected by local storm sewers prior to out letting to the 600mm Dingman Drive storm sewer. The controlled storm flow will be ultimately conveyed to Wellington Road 900mm storm sewer (MTE, 2024)

7.0 EVALUATION OF IMPACTS AND RECOMMENDED MITIGATION MEASURES

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 8].

Based on the analysis of Section 5.0, natural heritage features identified on or adjacent to the Subject Lands are:

- Wetland less than 0.1 ha
- Candidate Habitat for Endangered of Threatened Species

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 will be discussed in Section 7.2.

7.1 Direct Impacts and Mitigation

7.1.1 Vegetation Removal

Based on the development plan presented in Figure 8, the proposed development will require the removal of cultural vegetation on the Subject Lands. All trees and vegetation (~1.44 ha) are proposed for removal. Trees to be removed include Black Walnut, Manitoba Maple, Norway Spruce, Silver Maple, and hybrid Butternut, many of which would have been planted as landscape trees around the former agricultural homestead.

The protection of individual trees on private land within the City of London is regulated by the City of London Tree Protection By-law CP-1555-252. However, the By-law does not apply to the injury or destruction of trees as a condition of a planning or development permit authorized by regulation made under the Planning Act. Boundary trees, where part of the trunk is located along a property line, are protected under the provincial *Forestry Act, 1990* and cannot be removed without consent of the owner of adjoining land.

Recommendation 1: Boundary trees should be inventoried along the property limits. Prior to the removal of any boundary trees, permission should be sought from the adjacent landowner and forwarded to the City of London for their records.

Tree compensation is required under the London Plan for tree removals (policy 399) as part of the development application. With 0.86 ha of woodland to be removed, the proponent has set aside 1.22 ha for tree planting compensation on site (Figure 10). Compensation Area 1 (0.63 ha) is located within the mapped ER zoning patch and Compensation Area 2 (0.59 ha) is located outside of the ER zoned area. The planted trees will be native species to replace largely non-native and invasive species.

Recommendation 2: A Tree Compensation Plan will be provided through the detailed design phase of the site plan.

7.1.2 Wetlands

One wet area within the Subject Lands has been identified and is considered a Wetland in accordance with the London Plan policy 1130 that defines wetlands as seasonally or permanently covered by shallow water and lands where the water is close to or at the surface. The London Plan Policy 1334 states that for non-provincially significant wetlands, there shall be no net loss of the wetlands' features or functions. In some instances, the City may consider the replacement of wetlands rather than in situ protection where the features and functions of the wetland may be provided elsewhere and would enhance or restore the Natural Heritage System.

Where a wetland is less than 0.1ha, the City may consider replacement on a less than one-to-one land area basis and/or additional measures to achieve no net loss of function. The wetland on the Subject Lands is approximately 0.02ha. Consistent with London Plan policy these wetlands do not need to be protected in situ; however, their removal will require replacement of the wetland functions.

The wetland does not provide hydrogeological, hydrological or habitat functions. No SWH or species of interest were observed in this area and the function as wildlife habitat is limited by the small size and industrial/commercial surroundings. There are no transferable functions to be replicated elsewhere.

7.1.3 Significant Wildlife Habitat

No SWH is present on the Subject Lands, therefore there will be no direct impacts to SWH.

7.1.4 Habitat of Endangered and Threatened Species

Three candidate bat maternity roost trees were identified along the boundary of Community 1 and the Subject Lands. This is very low-quality habitat for bat species and removal of these trees is not expected to impair or eliminate habitat for supporting bat life process provided timing windows for tree removal are respected. However, out of precaution, bat boxes (e.g., rocket boxes) are generally accepted mitigation for limited tree removal (fewer than 10 trees). One rocket box is recommended for every five-candidate bat maternity roost trees.

Recommendation 3: Inform the MECP regarding the planned installation of one bat box (rocket box style) to provide compensation for the removal of the three potential bat maternity roost trees. Typically, one rocket box is required to compensate for every five suitable maternity roost trees, so this recommendation exceeds standard requirements.

Recommendation 4: Tree removal activities should avoid the bat active roosting and rearing season, i.e. the time period when bats are likely to be using treed habitat to support foraging and roosting (generally corresponds to April 1st to September 31st in a given year).

Recommendation 5: No Bank Swallows [THR] were observed within or adjacent to the Subject Lands, however creation of suitable habitat (e.g., soil stockpiles) during construction should be avoided. Best management practices for deterring nesting during construction activities should be implemented (OMNRF, 2017). These measures should include stockpile slope management (i.e., grading stockpiles, eliminating vertical extraction faces, reducing slopes to 70 degrees or less) until at least July 15 of any year.

7.1.5 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), or the wounding or killing of birds, or species protected under the *MBCA, 1994* and/or Regulations under this 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.

The observed Red-tailed Hawks and their nest are protected under the *Fish and Wildlife Conservation Act, 1997*. Removal of the nest is subject to approval by the MNDMNRF. An application for authorization to remove the RTHA nest was submitted to MNDMNRF on September 21, 2022. A response from the MNDMNRF was received on October 5th, 2022, indicating support of the nest removal and stating that authorization to remove the nest could be granted upon approval of the EIS report (Appendix A).

Recommendation 6: Authorization for the removal of the RTHA nest should be obtained from MNDMNRF prior to commencement of any construction related works. Removal of the nest should take place outside the species courtship and nesting period of March to July of any year.

Recommendation 7: Avoid vegetation clearing and site disturbance during the migratory bird breeding season (April 1st - August 31st) to ensure that no active nests will be removed or disturbed, in accordance with the Migratory Birds Convention Act and/or Regulations under that Act. If works are proposed within the breeding season, prior to any vegetation removal or ground disturbances, the area should be thoroughly checked for nesting birds by a qualified professional. If there are any nesting birds, works within the nesting area should not proceed until after August 31st or the nest is confirmed inactive.

Recommendation 8: Make workers aware of potential encounters with wildlife during construction. 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 site, barrier fencing may be used to direct wildlife away from active construction and toward natural areas.

7.2 Indirect Impacts and Mitigation

Natural heritage features may also experience indirect effects during construction, including sedimentation and erosion, or post-construction. An increase in off-site disturbance is not expected as all sides of the site abut roads and/or are currently commercial/industrial use.

7.2.1 Sediment and Erosion Control Measures

Recommendation 9: Sediment and erosion control fencing will be installed according to Guidelines for Erosion and Sediment Control for Urban Construction Sites (OMNR, 1987) and the applicable standards established in the Ontario Provincial Standard/Ontario Provincial Standard Drawings (OPSS/OPSD) documents. City of London Design Specifications and Requirements Manual specifications (2017) will also be followed. During construction, the lands between the sediment and erosion control fencing should be maintained.

Recommendation 10: Sediment and erosion control fencing should be inspected prior to construction to ensure it was installed correctly and during construction to ensure that the fencing is being maintained and functioning properly. Any issues that are identified are to be resolved in the same day.

7.2.2 Construction Site Management

Recommendation 11: Regular cleanup of the Subject Lands must be completed during construction and post-construction to ensure adjacent areas are not degraded.

Recommendation 12: Dust abatement measures (e.g. watering) is recommended if site grading will occur during extended dry weather periods.

Recommendation 13: The lands adjacent to the Subject Lands are residential and commercial. Noise disturbance should be limited to allowable hours per City of London By-law.

Recommendation 14: In order to limit the spread of Common Buckthorn, inspect, clean and remove mud, seeds and plant parts from vehicles and equipment. Clean vehicles and equipment in an area where plant seeds or parts are not likely to spread before travelling to a new area.

7.3 Net Effects

Table 8: Net Effects

Source of Impact	Affected Feature	Potential Impact	Mitigation Strategy	Net Effects	Recommendations for Management and Monitoring
Artificial Lighting	Migratory Birds	Moderate impact - industrial lighting of buildings and parking lots	The majority of the surrounding lands is industrial/commercial. No natural features are within 120m of the Subject Lands. Exterior lighting should be fully shielded and pointed downward to limit skyglow and glare.	No net effect	The lighting plan should specify appropriate fixtures and lighting sources for buildings to assist in later replacement, as required.
Litter and Garbage	Adjacent Lands	Low impact - garbage litter from industrial sources	Garbage bins outside of buildings with appropriate vendor collection. Encourage industrial tenants to “adopt” their parcel and undertake regular litter clean-up.	No net effect	Industrial garbage should be placed in bins outside of buildings. Appropriate vendors used for collection.
Tree damage	Subject Lands	High impact expected - Tree removal	All trees will be removed. An inventory of boundary trees is required if trees along property boundaries are proposed for removal. Prior to removal, permission must be sought from the adjacent landowner and provided to the City of London for their records.	No net effect	
Increased noise	Adjacent Lands	Low impact	No natural features are within 120 m of the Subject Lands. No impacts to natural features due to increased noise are expected.	No net effect	
Disturbance to migratory birds and wildlife during construction	Woodland	High impact - disruption to activities of nearby wildlife will be temporary -Removal of Red-tailed Hawk nest	Restrict timing of habitat and vegetation removal to outside breeding and sensitive periods for birds and other wildlife; 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 un-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.	Negative net effect	Disturbance is temporary and minimal for species within the surrounding lands. Monitoring and reporting protocols for incidental wildlife encounters should be followed.

Source of Impact	Affected Feature	Potential Impact	Mitigation Strategy	Net Effects	Recommendations for Management and Monitoring
			Consult with the MNDMNRF on removal of the Red-tailed Hawk nest.		Authorization from the MNDMNRF is needed prior to removal of Red-tailed Hawk nest.
Decreased infiltration and increased run-off	Subject Lands, Adjacent Lands	Medium impact - impervious surfaces decrease infiltration -temperature of runoff increased	LID measures should be used (ex: rooftop leader discharge and designated surface infiltration areas); sediment and erosion control fencing at edge of development; fencing should remain until SWM facility is operational and disturbed areas are seeded; all issues with sediment and erosion control measures should be resolved the same day.	No net effect	
Increased erosion	Subject Lands, Adjacent Lands	Low impact	Sediment and erosion control fencing installed at development limit; fencing should remain until SWM facility is operational 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.
Air pollution	Adjacent Lands/Natural Heritage System	Low impact	Mixed industrial uses may produce air pollution with the ability to travel across the Natural Heritage System features; however, no natural features are within 120m of the Subject Lands and industrial/commercial uses are already within the vicinity.	No net effect	
Use of heavy machinery – oil, gasoline, grease spill	Subject Lands	Medium impact - machinery can leak or refueling can generate spills	Establish storage/refueling area away from natural features; 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.

8.0 SUMMARY AND CONCLUSIONS

MTE has evaluated the proposal to establish a commercial development with three retail buildings on the Subject Lands. The Subject Lands contain cultural vegetation communities (trees surrounding former farmhouse), which have been evaluated and determined not to meet the criteria for inclusion within the Natural Heritage System. The loss of a small (0.02 ha) wetland is permissible through London Plan policy as it has no ecological or hydrological functions. This EIS has also set out recommendations to protect the natural heritage features from direct and indirect impacts, through compensation and construction mitigation measures (e.g. avoidance windows, erosion, and sediment control measures). Natural heritage features to be protected, mitigated, or avoided within the Subject Lands include impacts to potential Threatened or Endangered species and impacts to migratory birds and wildlife. Recommended mitigation for these features include the use of bat rocket boxes (to be confirmed with MECP) and timing windows for tree removal that would mitigate impacts to Red-tailed Hawk.

Through this EIS, it has been determined that the potential impacts to natural heritage features within the Subject Lands will be avoided and/ or mitigated with the included recommendations for zoning and ultimately the site plan submission process.

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

All of which is respectfully submitted,

MTE Consultants Inc.

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9.0 REFERENCES

Barnett, PJ., Cowan, WR. and Henry, A.P. 1981. Quaternary Geology of Ontario, Southern Sheet; Ontario Geological Survey, Map 2556.

BioLogic. 2008. Scoped Environmental Impact Statement: South Ross Lands.

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

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

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

Canadensys. 2020. Database of Vascular Plants of Canada (VASCAN). Retrieved from https://data.canadensys.net/vascan/search?lang=en

Chapman, L.J. and D. F. Putnam, 1984. The Physiography of Southern Ontario, 3rd Edition. Ontario Geological Survey, Special Volume. Ontario Ministry of Natural Resources. 270pp.

City of London. 2021a. The London Plan. Consolidated May 28, 2021.

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

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

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

City of London. 2008. City of London Classification of Patches at the ELC Community Class Level September 2008.

City of London. 2007a. Environmental Management Guidelines. Revised January 2007.

City of London. 2007b. Status Review of Stoney Creek Subwatershed Study. August 2007. 105pp.

City of London. 2006. Guideline Document for the Evaluation of Ecologically Significant Woodlands. March 2006.

City of London. 2005. Benthic Macroinvertebrate Study. August 2005. 104pp.

City of London. 1998. Stoney Creek Community Plan. June 1998. 43pp.

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

Delcan and Ecotech. 2010b. Detailed Design Report for the Stoney Creek Erosion Control Wetland SWM Facility. Prepared for the City of London. 294pp.

Delcan and Ecotech. 2010b. Environmental Impact Study for the Stoney Creek Trunk Sanitary Sewer and Watermain Crossing Class Environmental Assessment. March 2010. 102pp.

Dillon Consulting Limited and Golder Associates Ltd. (Dillon and Golder). 2004. Middlesex-Elgin

Groundwater Study, Final Report, submitted to Middlesex and Elgin Counties.

Dreimanis, A., 1964. Pleistocene Geology of the St. Thomas Area (West Half), Southern Ontario. Preliminary Geological Map No. 238. Ontario Department of Mines.

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

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

EXP Services Inc. (EXP). 2021a. Final Hydrogeological Assessment. December 2021. 201pp.

EXP Services Inc. (EXP). 2021b. Slope Stability Report.

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

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

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

Gillingwater, Scott. D. 2011. Recovery Strategy for the Queensnake (*Regina septemvittata*) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources, Peterborough, Ontario. vi + 34 pp.

Goff, K and Brown, D.R. 1981. Ground-Water Resources – Summary. Thames River Basin Water

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

Gamman, J.H., Bonifield, R.L., Kim, Y. 1995. Effect of personality and situational factors on intentions to obey rules in outdoor recreation areas. J Leisure Res, 27(4), 326–343.

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

Hewitt D. F. 1972. Paleozoic Geology of Southern Ontario, Ontario Div. Mines, GR105, Map 2254.

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

Johnson, B.R. 1989. Interpretive signs increase effectiveness of brush-pile barriers. Restoration Management Notes 7:103.

Johnson, D.R. and Van de Kamp, M.E. 1996. Extent and control of resource damage due to non-compliant visitor behaviour: a case study from the US National Parks. Nat Area J, 16(2), 134–141.

Kraus, T. 2011. Recovery Strategy for the Eastern Hog–nosed Snake (*Heterodon platirhinos*) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources, Peterborough, Ontario. i + 6 pp + Appendix vi + 24 pp. Adoption of the Recovery Strategy for the Eastern Hog–nosed Snake (*Heterodon platirhinos*) in Canada (Seburn, 2009).

Law Engineering (London) Inc. 2008. Geotechnical Investigation – Proposed Stoney Creek Subdivision. August 2008. 38pp.

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

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

Management Study Technical Report. Ontario Ministry of the Environment, Water Resources Report 14.

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

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

Ministry of the Environment, Conservation and Parks (MECP). 2019. Recovery Strategy for the Spiny Softshell (*Apalone spinifera*) in Ontario. Ontario Recovery Strategy Series. Prepared by the Ministry of the Environment, Conservation and Parks, Peterborough, Ontario. iv + 5 pp. + Appendix. Adoption of the Recovery Strategy for Spiny Softshell (*Apalone spinifera*) in Canada (Environment and Climate Change Canada 2018).

Ministry of the Environment, Conservation and Parks (MECP). 2021a. Queensnake. Retrieved from https://www.ontario.ca/page/queensnake

Ministry of the Environment, Conservation and Parks (MECP). 2021b. Silver Shiner General Habitat Description. Retrieved from https://www.ontario.ca/page/silver-shiner-general-habitat-description

Ministry of Natural Resources (MNR). 2011a. Draft Survey Methodology under the Endangered Species Act, 2007: *Dolichonyx Oryzixorous* (Bobolink). 2pp.

Ministry of Natural Resources (MNR). 2011b. Butternut Assessment Guidelines: Assessment of Butternut Tree Health for the Purposes of the Endangered Species Act, 2007.

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

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

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

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

MTE Consultants (MTE). 2024. Preliminary Site Servicing and Stormwater Management Brief Commercial Development 4452 Wellington Road South. January 2024.

Natural Heritage Information Centre (NHIC). 2021a. Make a Map: Natural Heritage Areas. Retrieved from https://www.lioapplications.lrc.gov.on.ca/Natural_Heritage/index.html?viewer=Natural_Heritage.Natural_Heritage&locale=en-CA

Natural Heritage Information Centre (NHIC). 2021b. All Species Lists. Retrieved from https://www.ontario.ca/page/get-natural-heritage-information

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

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

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

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

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

Ontario Geological Survey website https://www.ontario.ca/data/ontario-geological-survey-geological-maps-and-digital-data-index

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

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

Ontario Ministry of Municipal Affairs and Housing (MMAH). 2020. Provincial Policy Statement. Ontario Ministry of Municipal Affairs, Toronto, Ontario. 50 pp.

Ontario Ministry of Natural Resources (OMNR). 2013. Draft Survey Protocol for Eastern Meadowlark (*Sturnella magna*) in Ontario. Prepared for the Ontario Ministry of Natural Resources, Species at Risk Branch, Peterborough, Ontario. ii + 17pp.

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

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

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

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

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

Oak Ridges Moraine Conservation Plan (ORMCP). 2017. 7 – Identification and Protection of Significant Woodlands.

Paragon Engineering Ltd. 1995. Stoney Creek Subwatershed Study. May 1995.

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

Poisson, G. and Ursic, M. 2013. Recovery Strategy for the Butternut (*Juglans cinerea*) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources, Peterborough, Ontario. v + 12 pp. + Appendix vii + 24 pp. Adoption of the Recovery Strategy for the Butternut (*Juglans cinerea*) in Canada (Environment Canada 2010).

Reznicek, A. A., Voss, E. G. and Walters, B. S. 2011. MICHIGAN FLORA ONLINE. University of Michigan. Web. Retrieved from https://michiganflora.net/species.aspx?id=2799

Sacerdote, A. and R. King. 2014. Direct Effects of an Invasive European Buckthorn Metabolite on Embyro Survival and Development in *Xenopus laevis* and *Pseudacris triseriata*. Journal of Herpetology 48(1): 51-58.

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

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

Toronto and Region Conservation Authority (TRCA). 2019. Erosion and Sediment Control Guide for

Urban Construction. 236 pp.

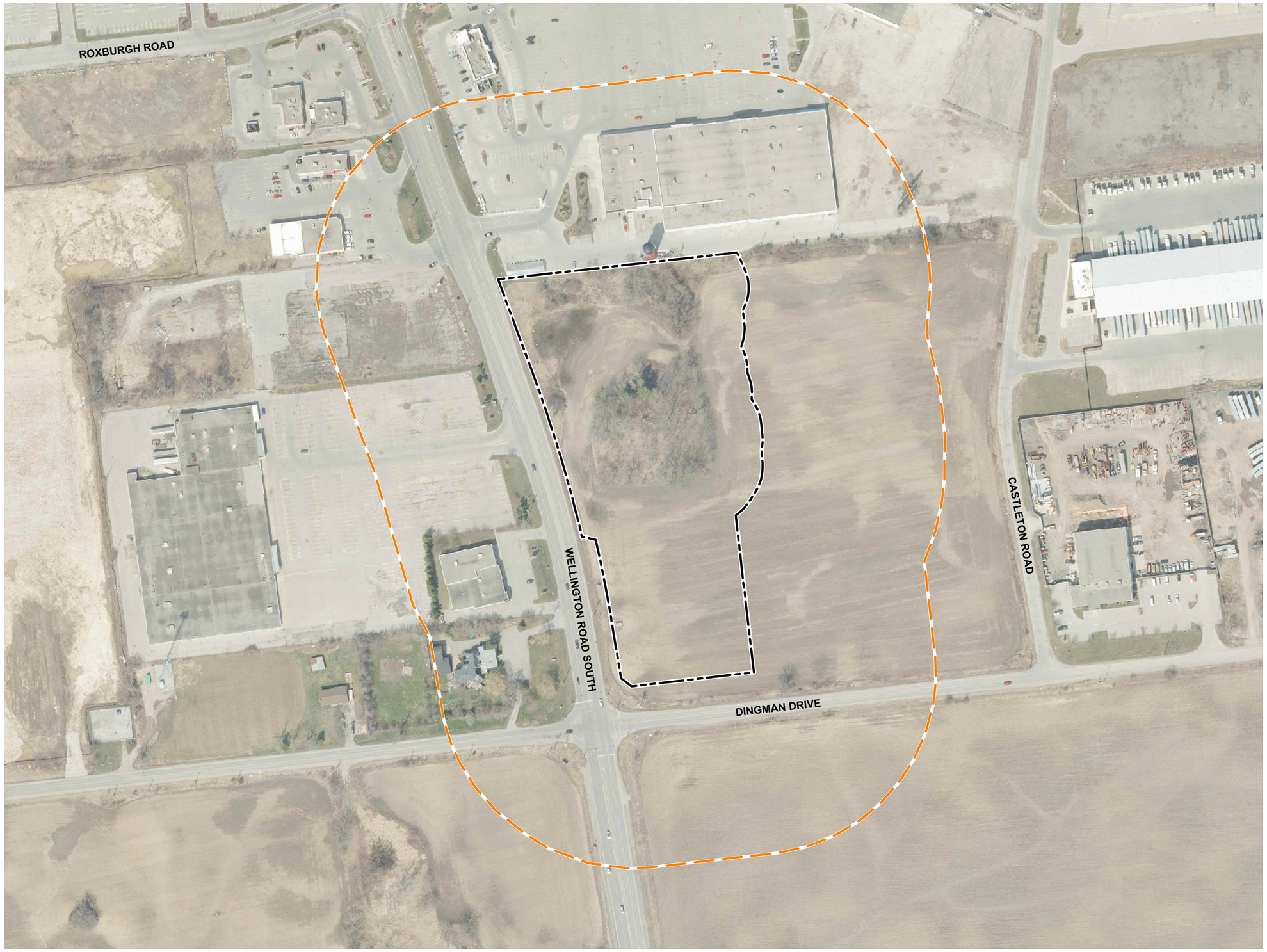
UTRCA. 2021a. Trees, Shrubs and Plants to Plant. Retrieved from http://thamesriver.on.ca/watershed-health/native-species/recommended-trees-and-shrubs/

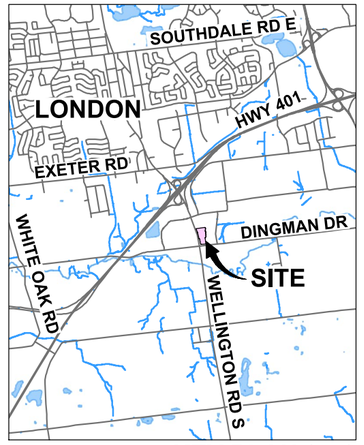
UTRCA. 2021b. Invasive Non-Native Plants in the Upper Thames River Watershed. Retrieved from https://thamesriver.on.ca/wp-content/uploads//Invasive-plants.pdf

UTRCA. 2017. Stoney Creek Watershed Report Card 2017. Retrieved from http://thamesriver.on.ca/wp-content/uploads/WatershedReportCards/RC_Stoney.pdf

UTRCA. 2003. The Middlesex Natural Heritage Study. July 2003. 121pp.

Figures





KEY PLAN (nts)

N

LEGEND

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

REFERENCES

CITY OF LONDON OPEN DATA SET, 2021; AND MHBC, CONCEPTUAL DEVELOPMENT PLAN, FILE No. 21356D, DECEMBER 2023.

NOTES

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

ALL LOCATIONS ARE APPROXIMATE.

0 25 50 75 100m

MTE
Engineers, Scientists, Surveyors

PROJECT
ENVIRONMENTAL IMPACT STUDY UPDATE
4452 WELLINGTON ROAD SOUTH
LONDON, ONTARIO

TITLE
PROJECT LOCATION

Drawn: DCH	Scale: 1:2,500	Figure: 1
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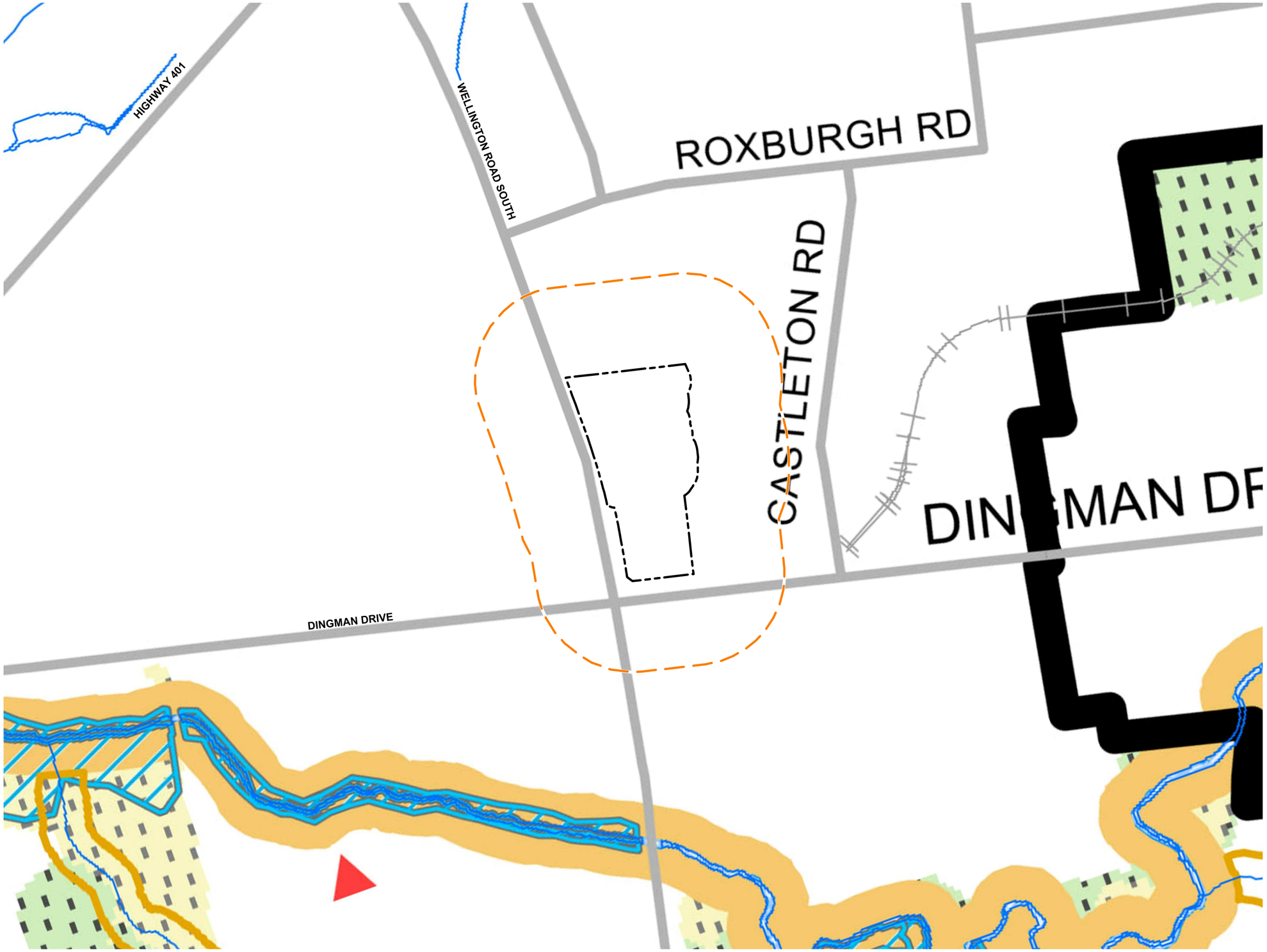
Date: 2023-12-10	Rev No.: 0	



LEGEND

- SITE BOUNDARY
- STUDY AREA (120m Buffer from Subject Site)
- POTENTIAL ESA
- RAIL LINE
- SIGNIFICANT VALLEYLAND
- STREET
- UNEVALUATED VEGETATION PATCHES
- UNEVALUATED WETLAND
- URBAN GROWTH BOUNDARY
- VALLYLAND
- WATERCOURSE/POND

REFERENCES

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

NOTES

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

ALL LOCATIONS ARE APPROXIMATE.

0 50 100 150 200 250m

MTE
Engineers, Scientists, Surveyors

PROJECT
ENVIRONMENTAL IMPACT STUDY UPDATE
4452 WELLINGTON ROAD SOUTH
LONDON, ONTARIO

TITLE
NATURAL HERITAGE

Drawn: DCH	Scale: 1:5,000	Figure: 2
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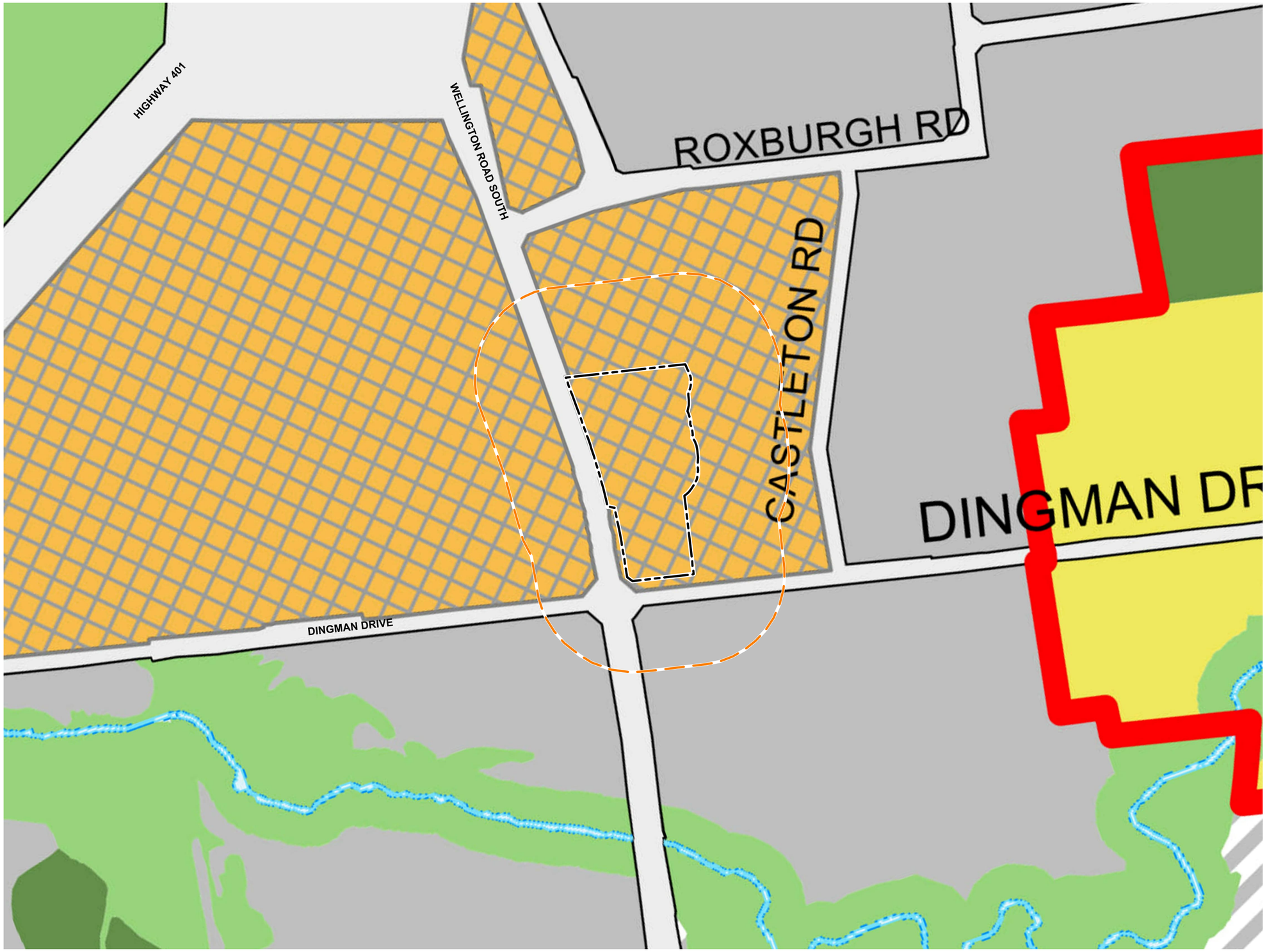
Date: 2023-12-10	Rev No.: 0	



N

LEGEND

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

REFERENCES

CITY OF LONDON OPEN DATA SET, 2021; AND CITY OF LONDON, MAP 1 - PLACE TYPES, MAY 28 - 2021.

NOTES

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

ALL LOCATIONS ARE APPROXIMATE.

0 50 100 150 200 250m

MTE
Engineers, Scientists, Surveyors

PROJECT
ENVIRONMENTAL IMPACT STUDY UPDATE
4452 WELLINGTON ROAD SOUTH
LONDON, ONTARIO

TITLE
PLACE TYPES

Drawn: DCH	Scale: 1:5,000	Figure: 3
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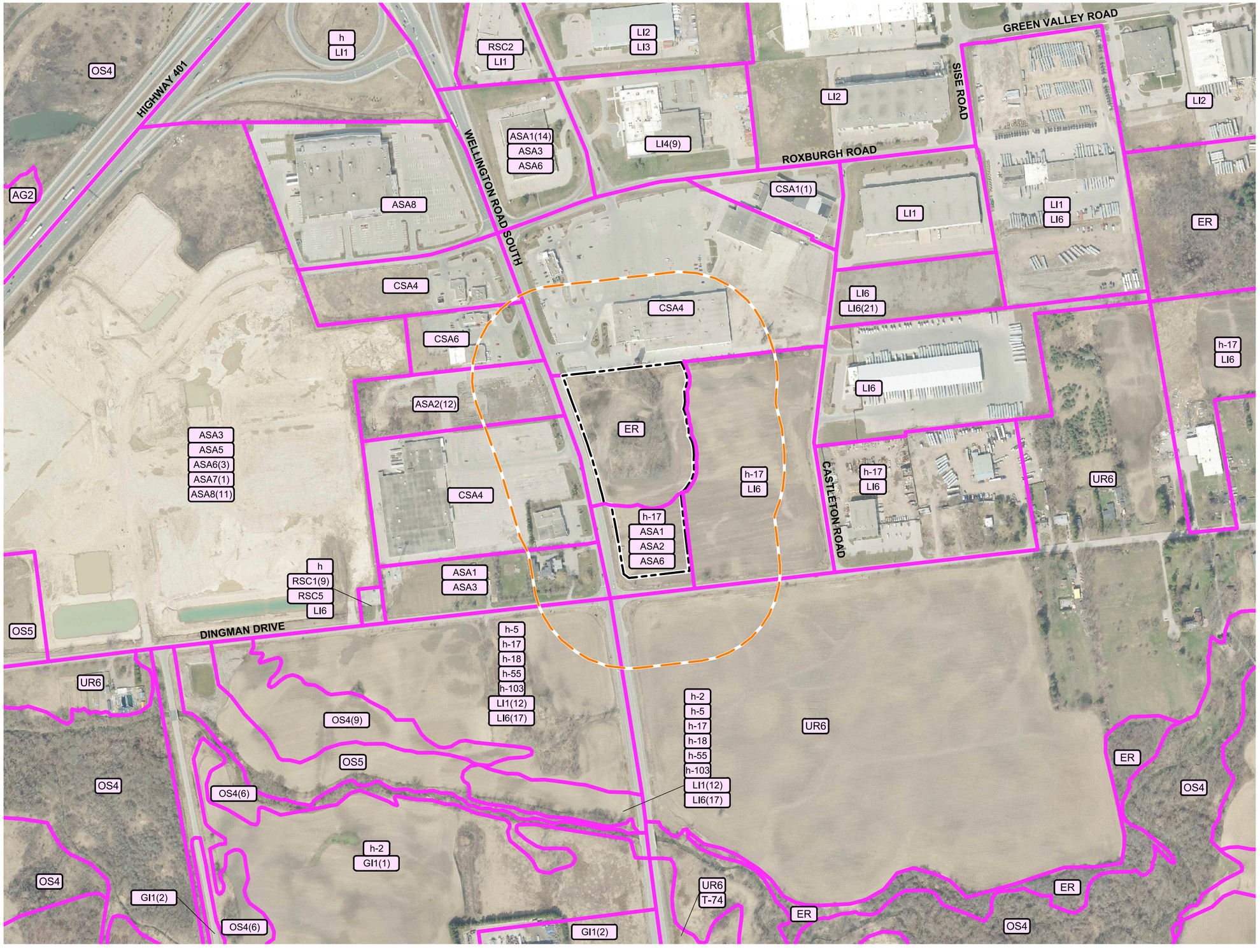
Date: 2023-12-10	Rev No.: 0	



LEGEND

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

- AG AGRICULTURAL ZONE
- ASA ASSOCIATED SHOPPING AREA COMMERCIAL ZONE
- CSA COMMUNITY SHOPPING AREA ZONE
- ER ENVIRONMENTAL REVIEW ZONE
- GI GENERAL INDUSTRIAL ZONE
- h HOLDING ZONE PROVISION
- LI LIGHT INDUSTRIAL ZONE
- OS OPEN SPACE ZONE
- R RESIDENTIAL ZONE
- RSC RESTRICTED SERVICE COMMERCIAL ZONE
- T TEMPORARY ZONE
- UR URBAN RESERVE ZONE

REFERENCES

CITY OF LONDON OPEN DATA SET, 2021; AND CITY OF LONDON, MAP 1 - PLACE TYPES, MAY 28 - 2021.

NOTES

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

ALL LOCATIONS ARE APPROXIMATE.

0 50 100 150 200 250m

MTE
Engineers, Scientists, Surveyors

PROJECT
ENVIRONMENTAL IMPACT STUDY UPDATE
4452 WELLINGTON ROAD SOUTH
LONDON, ONTARIO

TITLE
ZONING

Drawn: DCH	Scale: 1:5,000	Figure: 4
Checked:	Project No.: 49999-100	
Date: 2023-12-11	Rev No.: 0	

N

LEGEND

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

REFERENCES

CITY OF 2021 LONDON PARCEL AND AERIAL IMAGERY, OPEN DATA SET; UPPER THAMES RIVER CONSERVATION AUTHORITY (UTRCA), REGULATED SCREENING MAP, VERSION 2, DECEMBER 2022 AND WATERCOURSE NETWORK.

NOTES

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

ALL LOCATIONS ARE APPROXIMATE.

0 50 100 150 200 250m

MTE
Engineers, Scientists, Surveyors

PROJECT
ENVIRONMENTAL IMPACT STUDY UPDATE
4452 WELLINGTON ROAD SOUTH
LONDON, ONTARIO

TITLE
UTRCA SCREENING AREA

Drawn	Scale	Figure
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Date 2023-12-10	Rev No. 0	

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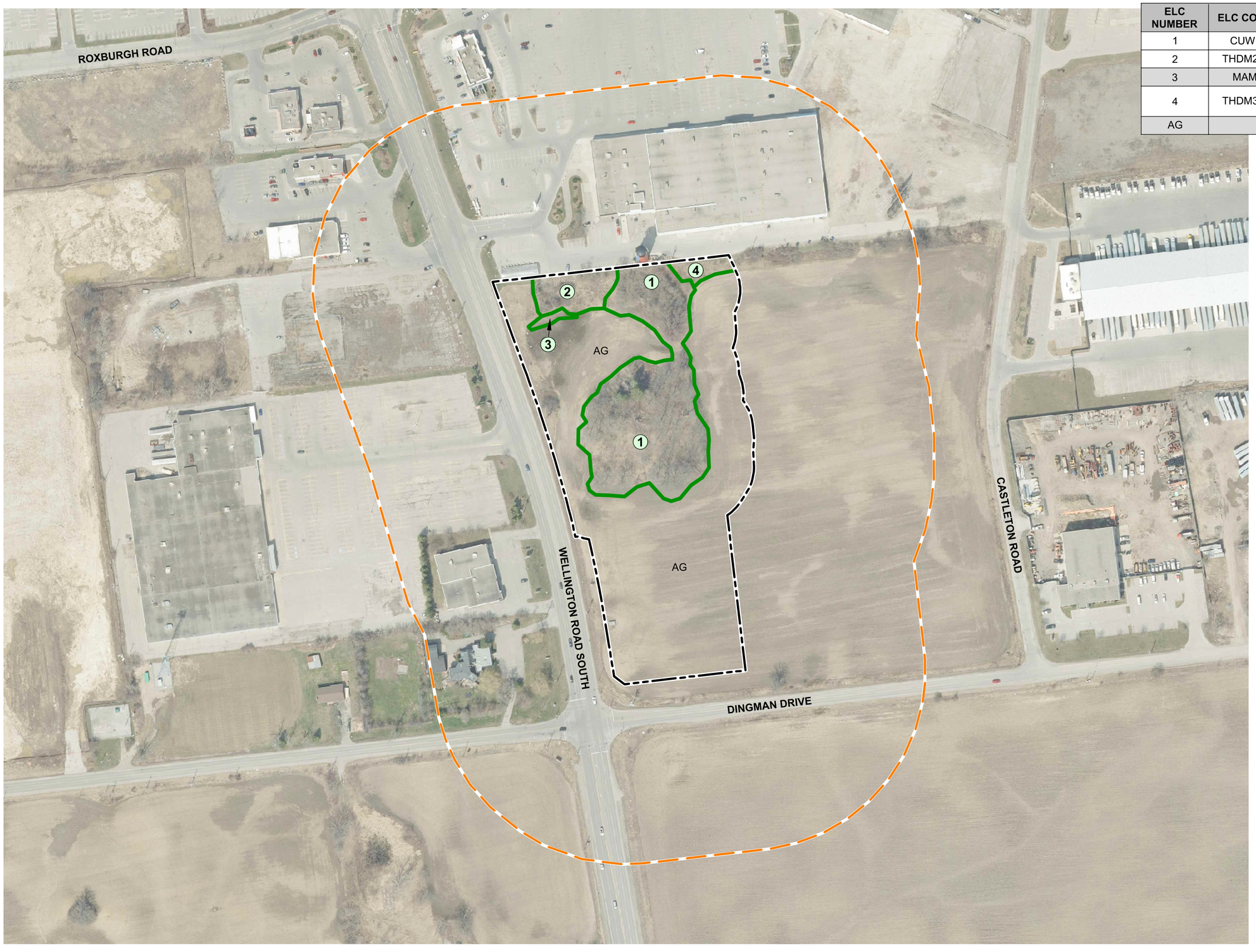

ELC NUMBER	ELC CODE	Description
1	CUW1	Mineral Cultural Woodland (0.86ha)
2	THDM2-6	Buckthorn Deciduous Shrub Thicket (0.13ha)
3	MAM	Meadow Marsh (0.02ha)
4	THDM3-2	Native Shrub Deciduous Hedgerow Type (0.05ha)
AG		Agricultural

N

LEGEND

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

REFERENCES

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

NOTES

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

ALL LOCATIONS ARE APPROXIMATE.

0 25 50 75 100m

MTE
Engineers, Scientists, Surveyors

PROJECT
ENVIRONMENTAL IMPACT STUDY UPDATE
4452 WELLINGTON ROAD SOUTH
LONDON, ONTARIO

TITLE
VEGETATION COMMUNITIES

Drawn	Scale	Figure
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Date 2024-01-29	Rev No. 0	

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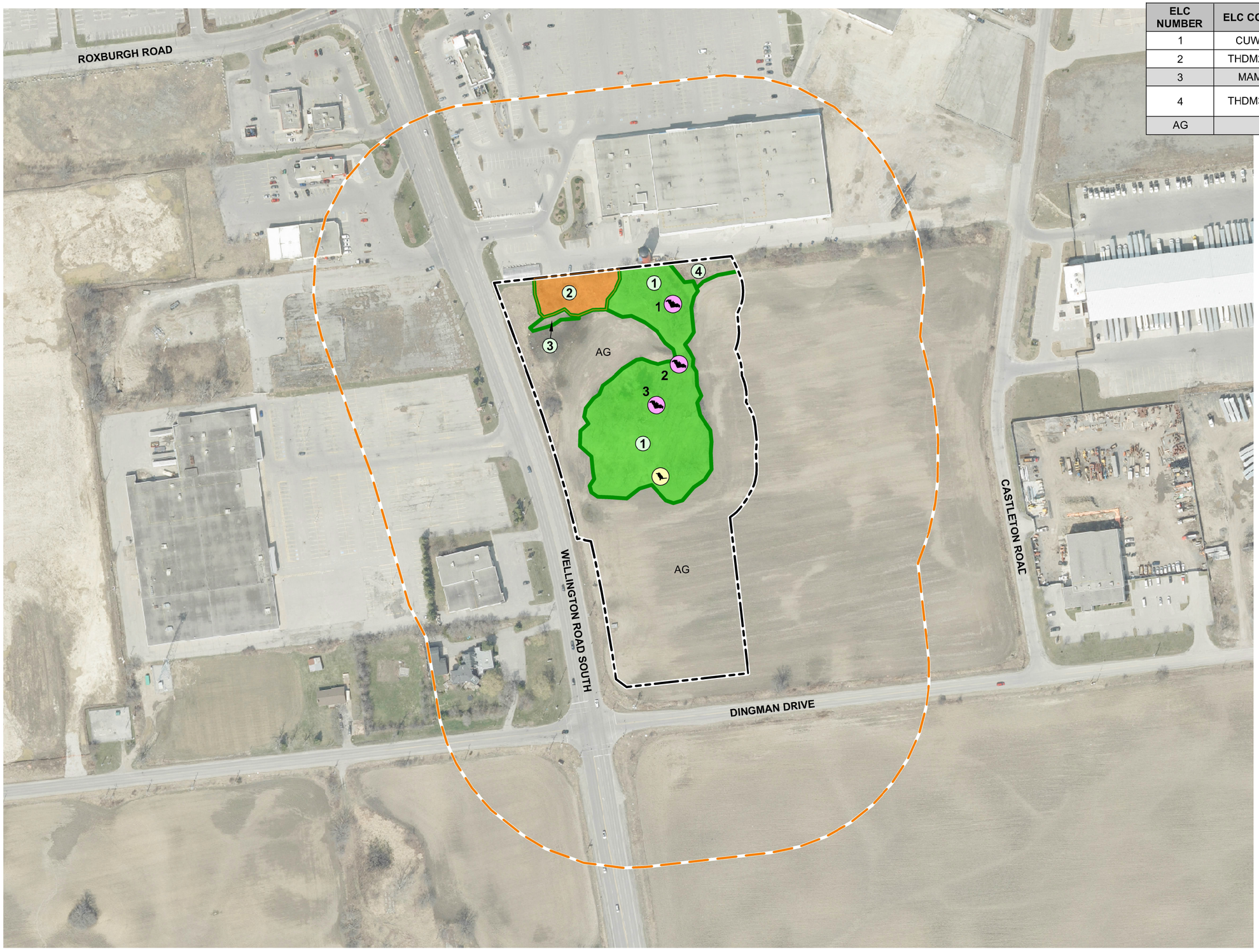

ELC NUMBER	ELC CODE	Description
1	CUW1	Mineral Cultural Woodland (0.86ha)
2	THDM2-6	Buckthorn Deciduous Shrub Thicket (0.13ha)
3	MAM	Meadow Marsh (0.02ha)
4	THDM3-2	Native Shrub Deciduous Hedgerow Type (0.05ha)
AG		Agricultural

N

LEGEND

- SITE BOUNDARY
- STUDY AREA (120m Buffer from Subject Site)
- 1 VEGETATION COMMUNITY
- CANDIDATE MATERNITY ROOST TREE
- RED-TAILED HAWK NEST
- BUCKTHORN DOMINANT
- WOODLAND BOUNDARY

REFERENCES

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

NOTES

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

ALL LOCATIONS ARE APPROXIMATE.

0 25 50 75 100m

MTE
Engineers, Scientists, Surveyors

PROJECT
ENVIRONMENTAL IMPACT STUDY UPDATE
4452 WELLINGTON ROAD SOUTH
LONDON, ONTARIO

TITLE
KEY FINDINGS

Drawn: DCH	Scale: 1:2,500	Figure: 7
Checked:	Project No.: 49999-100	
Date: 2024-01-29	Rev No.: 0	

Figure 8 - Development Plan

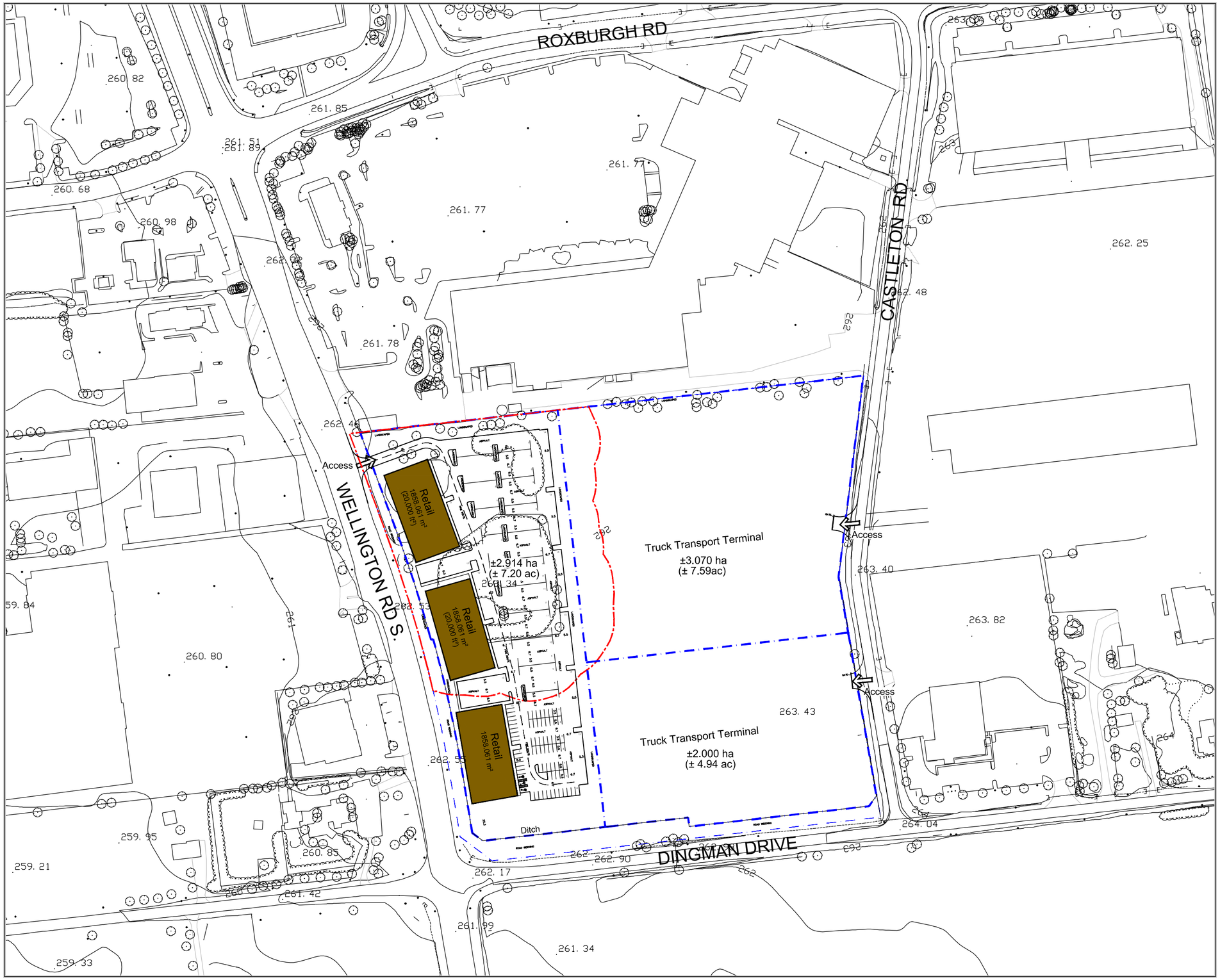

Figure 2
Conceptual Development Plan

4452 Wellington Rd. S.
City of London
Ontario

LEGEND

Subject Lands

Notes:
- For Conceptual Purposes only.
- Future land use to be determined.

DATE:	December 2023
FILE:	21356D
SCALE:	1:2,500
DRAWN:	PL/LC

north

K:\21356D WELLINGTON ROAD S, LONDON\RPT\FIGURE 2 CONCEPTUAL DEVELOPMENT PLAN_DEC 6 2023.DWG

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

ELC NUMBER	ELC CODE	Description
1	CUW1	Mineral Cultural Woodland (0.86ha)
2	THDM2-6	Buckthorn Deciduous Shrub Thicket (0.13ha)
3	MAM	Meadow Marsh (0.02ha)
4	THDM3-2	Native Shrub Deciduous Hedgerow Type (0.05ha)
AG		Agricultural

N

LEGEND

SITE BOUNDARY

1 VEGETATION COMMUNITY

REFERENCES

CITY OF 2021 LONDON PARCEL AND AERIAL IMAGERY, OPEN DATA SET; AND
MHBC, CONCEPTUAL DEVELOPMENT PLAN, FILE No. 21356D, DECEMBER 2023.

NOTES

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

ALL LOCATIONS ARE APPROXIMATE.

0 12.5 25 37.5 50m

MTE
Engineers, Scientists, Surveyors

PROJECT
ENVIRONMENTAL IMPACT STUDY UPDATE
4452 WELLINGTON ROAD SOUTH
LONDON, ONTARIO

TITLE
DEVELOPMENT OVERLAY

Drawn	Scale	Figure
DCH	1:1,250	9
Checked	Project No. 49999-100	
Date 2024-01-29	Rev No. 0	

ELC NUMBER	ELC CODE	Description
1	CUW1	Mineral Cultural Woodland (0.86ha)
2	THDM2-6	Buckthorn Deciduous Shrub Thicket (0.13ha)
3	MAM	Meadow Marsh (0.02ha)
4	THDM3-2	Native Shrub Deciduous Hedgerow Type (0.05ha)
AG		Agricultural

N

LEGEND

- SITE BOUNDARY
- 1 VEGETATION COMMUNITY
- COMPENSATION AREA 1 (0.63ha)
- COMPENSATION AREA 2 (0.59ha)

REFERENCES

CITY OF 2021 LONDON PARCEL AND AERIAL IMAGERY, OPEN DATA SET; AND
MHBC, CONCEPTUAL DEVELOPMENT PLAN, FILE No. 21356D, DECEMBER 2023.

NOTES

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

ALL LOCATIONS ARE APPROXIMATE.

0 12.5 25 37.5 50m

MTE
Engineers, Scientists, Surveyors

PROJECT
ENVIRONMENTAL IMPACT STUDY UPDATE
4452 WELLINGTON ROAD SOUTH
LONDON, ONTARIO

TITLE
COMPENSATION AREAS

Drawn	Scale	Figure
DCH	1:1,250	10
Checked	Project No. 49999-100	
Date 2024-02-23	Rev No. 0	

CAD: P:\49999\100\2_PROD\49999-100-R02 ENVIRONMENTAL IMPACT STUDY UPDATE\49999-100-R02010.DWG
Plot Date: February 23, 2024 - 12:15 PM

Appendix A

Record of Agency Consultation

Melissa Cameron

From: Williamson, Emily <ewilliam@london.ca>
Sent: Friday, January 21, 2022 9:50 AM
To: Melissa Cameron
Cc: Butnari, Shane; Edwards, Kevin
Subject: FW: 4452 Wellington Road S - preliminary findings and EIS scoping
Attachments: 49999-100 - 4452 Wellington Road S - Scoping Checklist - MTE Draft.pdf; 49999-100_4452 Wellington Rd S_preliminary investigation_30112021.pdf

Hi Melissa,

Thanks for your patience in receipt of reply.

We are open to the setback/holding provision approach to proceed with the rezoning in principle (aligned with the 2021 EMGs Focused EIS approach and what we had been accepting under the 2007 version), however the 15 m noted as a setback from the edge of the woodland is insufficient. We would require a minimum of 30 m to proceed in this manner.

Given that Butternut have been found on site, once this goes through the Woodland Evaluation it will meet the 1 high criteria and be designated as a Significant Woodland per London Plan Policies. The minimum buffer requirement around a Significant Woodland is 30 m per the 2021 EMGs.

However, as this project was initiated prior to the adoption of the 2021 EMGs, if the EIS demonstrates that a 15 m buffer around this feature is sufficient to protect the feature and its functions it may be accepted under the 2007 EMGs.

I have availability in the afternoon on the 25th if you have any questions.

Shane and Kevin cc:ed as I continue to transition projects.

Best,

Emily Williamson, M.Sc.
Ecologist | Planner
Long Range Planning, Research & Ecology
Planning & Development
City of London
206 Dundas St., London, ON N6A 1G7
P: 519.661.CITY (2489) x 7602 | Fax: 519.661.5397
ewilliamson@london.ca | www.london.ca

Please note that I will be commencing an extended leave beginning January 30th, 2022 and working 3 day weeks (Tuesday-Thursday) beginning January 3rd 2022.

As part of our ongoing efforts to stop the spread of COVID-19, the City of London has made changes to many City services. Visit our website for the latest information about City services and COVID-19.

From: Melissa Cameron <MCameron@mte85.com>
Sent: Monday, January 17, 2022 7:45 PM

To: Williamson, Emily <ewilliam@london.ca>
Subject: [EXTERNAL] RE: 4452 Wellington Road S - preliminary findings and EIS scoping

Hi Emily,

Happy New Year! I think you're working reduced hours this month, but Have you had an opportunity to review these files for 4452 Wellington Road S? The client and planner for the file are wondering if the City (Ecology specifically) could support an application for the east side of the property while placing a holding provision on the west side where natural heritage features are located.

Thank you and best wishes,

Melissa

Melissa Cameron, M.Sc., M.LA, OALA | Manager, Ecology
MTE Consultants Inc.
123 St George St., London, Ontario N6A 3A1
www.mte85.com | Twitter | LinkedIn | Instagram | Facebook

T: 519-204-6510 x2263 | MCameron@mte85.com
From: Melissa Cameron <MCameron@mte85.com>
Sent: Tuesday, November 30, 2021 4:16 PM
To: Emily Williamson <ewilliam@London.ca>
Cc: 'Scott Allen' <sallen@mhbcplan.com>; Khalid Siddiqui <siddiquikhalid@gmail.com>
Subject: 4452 Wellington Road S - preliminary findings and EIS scoping

Good afternoon Emily,

MTE has completed a preliminary natural heritage study of the property at 4452 Wellington Road S. Please see our attached report to the Proponent which documents our findings and recommendations for next steps. Key natural features identified on the Subject Lands were:

- A ~ 0.5 ha cultural woodland in northwest
- Unevaluated wetland/ditch in northwest corner
- Hedgerow along north property boundary

In discussion with Scott Allen (MHBC) and the Proponent, and given that natural features on the Subject Lands are concentrated within the northwest of the property, we'd like to propose as part of the rezoning application that a holding provision be applied to all lands inside a 15 m buffer from the woodland (and 25 m from Butternut), as shown in

the attached report, which would only be removed pending the outcome of a scoped EIS. This would permit the Proponent to proceed with re-zoning/development on the east portion of the Subject Lands while the EIS is in progress.

Once you've had an opportunity to review the report and this proposal, could you please let me know your availability to discuss if this is something your department could support? I've also attached a scoping checklist for the SLSR/EIS based on your comments in the Record of Pre-Application Consultation (August 10, 2021) and MTE's preliminary site observations from October 27, 2021.

Thank you and best regards,

Melissa

Client First | Right Solution | Work Together
Melissa Cameron, M.Sc., M.LA, OALA
Manager, Ecology
London x2263

Victoria Schveighardt

From: Melissa Cameron
Sent: Thursday, October 6, 2022 4:22 PM
To: 'Hines, Emilee (MNRF)'
Cc: 49999-100
Subject: RE: Nest removal

Thank you very much, Emilee! This is quite helpful. We'll include a copy of your correspondence in the EIS and circle back with you (MNRF) once we have approval to remove the woodland.

Best regards,

Melissa

Client First | **Right Solution** | **Work Together**
Melissa Cameron, M.Sc., M.LA, OALA
Manager, Ecology
London x2263

From: Hines, Emilee (MNRF) <Emilee.Hines@ontario.ca>
Sent: Wednesday, October 5, 2022 2:06 PM
To: Melissa Cameron <MCameron@mte85.com>
Subject: RE: Nest removal

Hi Melissa,

Thank you for additional information below.

We aren't able to issue an authorization prior to the EIS being approved – but I can acknowledge that we do generally support these authorizations when the nest in question is inactive and the work is to be done outside of the breeding window (e.g. courtship to fledging).

Please let me know if I can provide any other information, and when/if the EIS is approved and you have a timeframe of when the work is to be completed.

Thanks,
Emilee

Emilee Hines
Integrated Resource Management (IRM) Technical Specialist
Ministry of Natural Resources and Forestry| Aylmer District
615 John Street N., Aylmer, ON N5H 2S8
☎: 519-619-8695 | Fax: 519-773-9014 | : emilee.hines@ontario.ca
Ontario

From: Melissa Cameron <MCameron@mte85.com>
Sent: October 4, 2022 1:49 PM

To: Hines, Emilee (MNRF) <Emilee.Hines@ontario.ca>
Subject: RE: Nest removal

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Hi Emilee,

Yes, the landowner intends to remove the nest. The project is under review by the City of London so they won't be able to proceed with nest removal until the EIS is approved, however the intent is to remove the entire woodland. It was determined not to be significant in the EIS, although this has not been confirmed with the City. We thought it would be helpful for the City to understand that the nest may be removed with MNRF authorization by consulting with you in parallel.

Please let me know if you require any additional clarification or information.

Thank you,

Melissa

Melissa Cameron, M.Sc., M.LA, OALA | **Manager, Ecology**
MTE Consultants Inc.
T: 519-204-6510 x2263 | MCameron@mte85.com

From: Hines, Emilee (MNRF) <Emilee.Hines@ontario.ca>
Sent: Tuesday, October 4, 2022 1:45 PM
To: Melissa Cameron <MCameron@mte85.com>
Subject: Re: Nest removal

Hi Melissa,

Thank you for your submission and the information below.

Can you confirm the intent is still to remove the nest? The attached indicates that there is still consultation happening as to whether or not the woodlot, and associated nest, would be removed.

Thanks,
Emilee

From: Melissa Cameron <MCameron@mte85.com>
Sent: September 23, 2022 5:57 PM
To: Waite, Janice (MNRF) <Janice.Waite@ontario.ca>
Cc: Dickson, Cheryl (MNRF) <Cheryl.Dickson@ontario.ca>; Khalid Siddiqui <siddiquikhalid@gmail.com>; Victoria Schveighardt <VSchveighardt@mte85.com>; Scott Allen <sallen@mhbcplan.com>
Subject: RE: Nest removal

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Good afternoon Ms. Waite,

Please find a letter sent by MTE Consultants Inc. on behalf of 2858637 Ontario Inc. requesting permission to removal a Red-tailed Hawk nest from a cultural woodland on the property at 4452 Wellington Road South. If you have any questions or require additional information please don't hesitate to reach out.

Best regards,

Melissa

Melissa Cameron, M.Sc., M.LA, OALA | **Manager, Ecology**
MTE Consultants Inc.
T: 519-204-6510 x2263 | MCameron@mte85.com
123 St George St., London, Ontario N6A 3A1
www.mte85.com | Twitter | LinkedIn | Instagram | Facebook

From: MNRF.AYL (NDMNRF) <MNRF.AYL@ontario.ca>
Sent: Wednesday, August 3, 2022 9:24 AM
To: Melissa Cameron <MCameron@mte85.com>
Subject: Nest removal

Good day

We received your email for removal of nest, below is the required information as we do not have an application. send information back to MNRF.AYL@ontario.ca for processing.

Name of Applicant :
Company Name :
Contact Phone Number
Email:
Mailing Address :
Physical Location:
    Coordinates:
    Address:
Day range of when applicant would move/destroy nest :
Company that would be removing nest :

For Janice Waite

Cheryl Dickson (she/her)
Ministry of Natural Resources and Forestry
Resource Clerk- Guelph District
1 Stone Rd West
Guelph, On N1G 4Y2
(905)321-5777
Cheryl.dickson@ontario.ca

As part of providing accessible customer service, please let me know if you have any accommodation needs or require communication supports or alternate formats.


Ontario

Melissa Cameron

From:	Williamson, Emily <ewilliam@london.ca>
Sent:	Wednesday, January 18, 2023 12:09 PM
To:	Melissa Cameron
Cc:	Butnari, Shane
Subject:	RE: 4452 Wellington Road S
Attachments:	pl061036-Jul-24-2008 OMB Woodlands.pdf; cityoflondonwoodlandsexperience.pdf

Hi Melissa,

Happy New Year. I hope that you're well, it's been ages

Wanted to chime in on this. While I don't disagree that the written interpretation of Criterion 1.2.A. is weighted heavily towards Woodland Significance, these are the Guidelines we are currently working with, have been adopted by Council and are in full force and effect. The proponent is responsible for meeting the expectations of the policy climate that they move forward in. The EMGs need to be applied as written until the next review; likely initiated this year. Should the proponent wish to delay their project to wait for a potentially more favorable policy landscape, they are free to do so.

As you know, both the 2007 and 2021 EMGs reference Bergsma 2004. As it was used to develop the original 2007 version, and it was defended beyond the Municipal level, it was carried over from the 2007 version. Initially there was no need to even touch the woodland policies. We ended up making minor revisions to some policies but the understanding at the time, (communicated during meetings that Dave attended with LDI) was that the 2021 EMG version was an improvement, and we could revisit the Woodland Policies during the subsequent biennial updates.

We've been combing through the files to locate Bergsma 2004 – I thought we had it available but have so far been unable to locate it. Long enough ago that it may be saved on a floppy disc which is oh so helpful in this digital age. We have even reached out to Bonnie to see if she can find a copy. Once (or if) we can locate it we will happily forward it along.

Assume this policy will be one of the first items to review when the EMG update comes up (we are currently on hold waiting for the new provincial guidance to resolve). Should we not be able to locate the paper we will of course remove the reference. Assume you'll be picking up where Dave left off representing LDI on that project?

For now, please move forward with applying the Criterion 1.2.A. as written.

Happy to discuss.

Best,

London CANADA

Emily Williamson, MSc.
Ecologist | Planner
Long Range Planning, Research and Ecology
Planning and Economic Development

City of London

300 Dufferin Ave PO Box 5035 N6A 4L9
P: 519.661.CITY(2489) x 5076
ewilliamson@london.ca | www.london.ca

From: Butnari, Shane <sbutnari@london.ca>
Sent: Wednesday, January 18, 2023 11:20 AM
To: Williamson, Emily <ewilliam@london.ca>
Subject: FW: 4452 Wellington Road S

FYI – I think my response needs to be to simply follow the directions outlined in the EMG's which quite clearly state how this criterion is to be evaluated, it really isn't open to be interpreted differently in my opinion. A bad precedent to set if we start excluding evaluation criteria based on consultant interpretation, although it makes it a bit difficult if we don't have the report to back up our justification. There are also other criteria they are trying to ignore based on tree DBH as well.

Just wanted to keep you in the loop.

Shane Butnari
Ecologist Planner
Long Range Planning, Research & Ecology
Planning & Development
City of London

206 Dundas St., London, ON N6A 1G7
P: 519.661.CITY (2489)
sbutnari@london.ca | www.london.ca

From: Melissa Cameron <MCameron@mte85.com>
Sent: Wednesday, January 18, 2023 10:33 AM
To: Butnari, Shane <sbutnari@london.ca>
Cc: '49999-100@mte85.com' <49999-100@mte85.com>
Subject: [EXTERNAL] 4452 Wellington Road S

Good morning!

Just wondering if you've been able to track down Bergsma, 2004 so we can confirm how the thresholds reflecting a cumulative frequency distribution of patches were established in criterion 1.2.A? The more I think about it the more questions I have. Purely calculating percent natural cover within a 2km radius doesn't inform landscape fragmentation or patchiness at all, as one big patch could have the same area as many small patches. Dave Hayman recollects that Bergsma, 2004 related only to upland patches, but we can't confirm.

Simply put, in the absence of Bergsma, 2004 or confirmation of a method that addresses patchiness and explains the thresholds we just can't apply 1.2.A. It would be unfair to the proponent if the feature became significant via a method that couldn't be explained.

Let me know your thoughts. Thanks!

Melissa

Melissa Cameron, M.Sc., M.LA, OALA | Manager, Ecology
MTE Consultants Inc.
T: 519-204-6510 x2263 | MCameron@mte85.com
123 St George St., London, Ontario N6A 3A1
www.mte85.com | Twitter | LinkedIn | Instagram | Facebook

From: Melissa Cameron
Sent: Wednesday, January 11, 2023 9:17 AM
To: Butnari, Shane <sbutnari@london.ca>; 'Williamson, Emily' <ewilliam@london.ca>
Subject: RE: Wellington Road woodland

Thanks for following up so quickly, Shane! And welcome back, Emily!

I feel really skeptical of this interpretation given that the City of London has a tree cover of 25% (2008 data; this is woodlands plus individual trees) and the Dingman Creek watershed is 18% natural cover (UTRCA watershed report card)? Here is a snapshot from the UFOREStudy report (data from Bonnie Bergsma):

Between 2006 and 2008 there were several different estimates of woodland cover using different methods that ranged in value from 14.7% to 21.3%. One method used Official Plan mapping of environmental review and

By the "% cover within 2km" interpretation this would mean that the HIGH threshold (10%) is 5% lower than the average woodland cover in London.

That said, if you would like us to apply this method can you please confirm that we can use the LIO GIS data layer for woodlands (corrected for woodlands that have been removed) to calculate vegetation cover within the 2km radius circle? This is a GIS data set for vegetation cover which is publicly available and suitable for the type of calculation you've requested.

I honestly think the crux of the matter is in the thresholds used for the cumulative frequency distribution, which is a statistical method for counting the frequency of something by groups. We can't properly apply this criterion without the method from Bergsma, 2004. Looking forward to reviewing when available!

Thank you again and hopefully we can wrap up this project soon! I'm going to speak with the client today about area compensation options, in the event this is necessary.

Melissa

From: Butnari, Shane <sbutnari@london.ca>
Sent: Tuesday, January 10, 2023 4:08 PM
To: Melissa Cameron <MCameron@mte85.com>
Subject: RE: Wellington Road woodland

Hi Melissa,

I was able to connect with Emily and her understanding of Criterion 1.2 A is aligned with mine. The total vegetation cover is to be calculated within the 2km circle and the percentage is based on the overall land area. The size of the feature on the subject lands in relation to the vegetation cover in the 2km circle does not factor into the calculation. This is consistent with how this Criterion was always calculated historically as well.

Emily is working on tracking down the referenced (Bergsma, 2004) report and I will share once it is available.

Thanks for the discussion today, let me know if you have any further questions.

Shane Butnari
Ecologist Planner
Long Range Planning, Research & Ecology
Planning & Development
City of London

206 Dundas St., London, ON N6A 1G7
P: 519.661.CITY (2489)
sbutnari@london.ca | www.london.ca

Appendix B

Scoping Checklist

APPENDIX B - Environmental Study Scoping Checklist

Application/Project Name: 4452 Wellington Road South Natural Heritage Support

Proponent: 2858637 Ontario Inc. **Date:** May 16, 2022

Proposed Project Works: Re-designate & re-zone to permit light industrial and future comı

Study Type: SLSR/EIS

Lead Consultant: MHBC Planning (Scott Allen)

Key Contact: MTE (Melissa Cameron) for EIS

Subconsultants: MTE for site engineering/SWM

Technical Review Team:

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

☑ Planner for the File: Melanie Vivian ☐ Province - Other: _____

☑ Conservation Authority: Stefanie Pratt Contact: _____

☐ EEPAC: not currently active ☐ Other: _____

☐ Project Manager, Environmental Assessment: _____

☐ First Nation(s): _____

Subject Lands and Study Area:

Location/Address and Size (ha) of Subject Lands:
4452 Wellington Rd S, London, ON (8.33ha)

Study Area Size (approximate ha): 8.33 ▣ Map (attached): Figure 1

Position of Site in Subwatershed: Dingman Creek Watershed

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: Proposed designation

☐ Green Space ☑ Environmental Review

Other Place Types: Shopping Area, adjacent lands are Light Industrial

Map 4 Active Mobility Network:

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

Map 5 Natural Heritage System:

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

☐ Provincially Significant Wetland Name: _____

☐ Wetlands ☐ Unevaluated Wetlands*

☐ Area of Natural & Scientific Interest Name: _____

☐ Environmentally Significant Area Name: _____

☐ Potential ESAs ☐ Upland Corridors

☐ Significant Woodlands ☐ Woodlands

☐ Significant Valleylands ☐ Valleylands

☐ Unevaluated Vegetation Patches ☐ Potential Naturalization Areas

Patch No. _____

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

Map 6 Hazards and Natural Resources:

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

Dingman screening area

Required Field Investigations:

Aquatic:

☐ Aquatic Habitat Assessment: _____

☐ Fish Community (Collection): _____

☐ Spawning Surveys: _____

☐ Benthic Invertebrate Survey: _____

☐ Mussels: _____

☐ Other: _____

Wetlands:

☑ Wetland Delineation: delineate with City to determine size and extent, UTRCA TBD

☐ Wetland Evaluation (OWES): _____

☑ Other: map wetland(s) as part of ELC

Terrestrial (Wetland, Upland and Lowland):

- ☑ Vegetation Communities (ELC): ELC completed on October 26, 2021
- ☑ Botanical Inventories ☐ Winter ☑ Spring ☑ Summer ☑ Fall
- ☑ Breeding Bird Surveys (type & frequency): To be completed in 2022 studies.
- ☑ Raptor Surveys: stick nest ☐ Shoreline Birds: _____
- ☐ Crepuscular Surveys: _____ ☐ Grassland Surveys: _____
- ☑ Amphibian Surveys (type & frequency): 3 surveys to completed in 2022.
- ☑ Reptile Surveys:
  - ☐ Turtle (type & frequency): _____
  - ☑ Snake (type & frequency): 2 snake emergence surveys, also incidentals
  - ☐ Other (type & frequency): _____
- ☑ Bat Habitat, Cavity & Acoustic Surveys: bat habitat assessment
- ☑ Mammal Surveys: incidental
  - ☐ Winter Wildlife Surveys: _____
- ☑ Butterflies (Lepidoptera): incidental
- ☐ Dragonflies / Damselflies (Odonata): _____
- ☐ Species at Risk Specific Surveys: _____
- ☐ Species of Conservation Concern Surveys: _____
- ☑ Significant Wildlife Habitat Surveys: habitat assess. using ELC & surveys checked abov
- ☐ Other field investigations: _____

Supporting Concurrent Studies/Investigations:

- ☐ Hydrogeological/Groundwater: to be determined
- ☐ Surface Water/Hydrology: _____
- ☑ Water Balance: requested in Record of Site Plan Consultation
- ☐ Fluvial Geomorphological: _____
- ☐ Geotechnical: _____
- ☑ Tree Inventory: requested in Record of Site Plan Consultation
- ☑ Other: SWM

Evaluation of Significance:

Federal:

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

as it applies to MBCA protected species

Provincial:

- ☐ Provincially Significant Wetlands
- ☐ Significant Woodlands
- ☐ Significant Valleylands
- ☑ Significant Wildlife Habitat Ecoregion 7E
- ☐ Areas of Natural & Scientific Interest
- ☐ Fish Habitat
- ☐ Water Resource Systems
- ☑ Species at Risk (*ESA*): Butternut to be assessed for hybridity and health

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 `trigger for Sig. Woodland evaluation`
- ☐ Potential Naturalization Area
- ☐ Other: _____

Impact Assessment:

- ☑ Impact Assessment Required
- ☑ Net Effects Table Required

Environmental Management Recommendations:

- ☑ Environmental Management Plan: Appendix to EIS incorporating recommendations fron
- ☐ Specifications & Conditions of Approval: _____
- ☐ Other: _____

Environmental Monitoring:

- ☐ Baseline Monitoring: _____
- ☑ Construction Monitoring: _____
- ☐ Post-Construction Monitoring: to be determined through EIS

Additional Requirements and Notes:

• A small, unevaluated wetland associated with a roadside ditch. A more detailed investigation during the plant growing season may be required to assess the significance of this feature.
• There were 5 Butternut found within Mineral Cultural Woodland of the Subject Lands. Trees to be assessed for hybrid status and health (if pure Butternut or inconclusive).
• A 0.5 ha woodland feature was found within the northwest corner of the Subject Lands containing a mix of native and non-native species. Classified as a Mineral Cultural Woodland.
• A total of 3 potential maternity roost habitat trees for Little Brown Myotis, Northern Myotis and Tri-coloured Myotis present within woodland.
• Candidate SWH may be present within Subject Lands associated with the wetland and woodland features.

- the City of London has requested that the EIS follows the 2021 EMG's
- refer to Record of Site Plan Consultation Notes (SPC22-024, March 4 2022)
- need for hydrogeology study to be determined
- flood hazard (Dingman Screening Area) to be discussed

OLDER NOTES
• See correspondence with Emily Williamson dated Jan 21, 2022 regarding support for a 30m setback and holding provision to allow development to proceed on east portion of the property
• Correspondence also notes that as the project was initiated prior to the adoption of the 2021 EMGs, proposed buffers may be accepted under the 2007 EMGs

Attachment 1

Project Correspondence

FW: 4452 Wellington Road S - preliminary findings and EIS scoping - Message...

File | Message | Tell me what you want to do...

Ignore | Junk | Delete | Reply | Reply All | Forward | Meeting | More | Move | Rules | Actions | Mark Unread | Categorize | Follow Up | Translate | Find | Related | Select | Zoom | Phish Alert

Delete | Respond | Move | Tags | Editing | Zoom | Report...

Fri 1/21/2022 9:50 AM

Williamson, Emily <ewilliam@london.ca>

FW: 4452 Wellington Road S - preliminary findings and EIS scoping

To Melissa Cameron

Cc Butnari, Shane; Edwards, Kevin

You forwarded this message on 1/21/2022 2:33 PM.

49999-100 - 4452 Wellington Road S - Scoping Checklist - MTE Draft.pdf
1 MB

49999-100_4452 Wellington Rd S_preliminary investigation_30112021.pdf
200 KB

Hi Melissa,

Thanks for your patience in receipt of reply.

We are open to the setback/holding provision approach to proceed with the rezoning in principle (aligned with the 2021 EMGs Focused EIS approach and what we had been accepting under the 2007 version), however the 15 m noted as a setback from the edge of the woodland is insufficient. We would require a minimum of 30 m to proceed in this manner.

Given that Butternut have been found on site, once this goes through the Woodland Evaluation it will meet the 1 high criteria and be designated as a Significant Woodland per London Plan Policies. The minimum buffer requirement around a Significant Woodland is 30 m per the 2021 EMGs.

However, as this project was initiated prior to the adoption of the 2021 EMGs, if the EIS demonstrates that a 15 m buffer around this feature is sufficient to protect the feature and its functions it may be accepted under the 2007 EMGs.

I have availability in the afternoon on the 25th if you have any questions.

Shane and Kevin cc:ed as I continue to transition projects.

Best,

Attachment 2

Figures

Figure 1: Site Location & Vegetation Communities

(NHIC Mapping, 2021)

Scale 1:50,000
Key Plan

Legend:

- 30m Buffer Setback
- 25m Radius
- Butternut
- UTRCA Regulation Limit

A - Agricultural
H - Shrub Hedgerow
W - Wetland Colonizers
1. CUW1 Mineral Cultural Woodland(0.92ha)

* Locations are approximate and should be verified by survey where necessary.
Print on 11X17, Landscape Orientation

0 30

Scale 1:1500
February 2022

MTE Project#: 49999-100

MTE

Victoria Schveighardt

From: Butnari, Shane <sbutnari@london.ca>
Sent: Tuesday, September 20, 2022 3:26 PM
To: Victoria Schveighardt
Cc: Melissa Cameron
Subject: RE: SPC22-024 4452 Wellington Road South Terms of Reference (MTE# 49999-100)

Hi Victoria,

Thank you for providing the revised ESSC. We are satisfied that it meets all requirements for the 4452 Wellington EIS.

Regards,

Shane Butnari
Ecologist Planner
Long Range Planning, Research & Ecology
Planning & Development
City of London

206 Dundas St., London, ON N6A 1G7
P: 519.661.CITY (2489)
sbutnari@london.ca | www.london.ca

From: Victoria Schveighardt <VSchveighardt@mte85.com>
Sent: Tuesday, September 20, 2022 3:13 PM
To: Butnari, Shane <sbutnari@london.ca>
Cc: Melissa Cameron <MCameron@mte85.com>
Subject: [EXTERNAL] RE: SPC22-024 4452 Wellington Road South Terms of Reference (MTE# 49999-100)

Hi Shane,

Thank you for your reply. I have updated the 'Notes' section with that revision. Please find attached.

Best regards,
Victoria

Victoria Schveighardt, M.E.S. | Biologist
MTE Consultants Inc.
T: 519-204-6510 x2230 | VSchveighardt@mte85.com

From: Butnari, Shane <sbutnari@london.ca>
Sent: Tuesday, September 20, 2022 1:52 PM
To: Victoria Schveighardt <VSchveighardt@mte85.com>

Cc: Melissa Cameron <MCameron@mte85.com>
Subject: RE: SPC22-024 4452 Wellington Road South Terms of Reference (MTE# 49999-100)

Hi Victoria,

Thank you for your patience in reply on this one. Just one minor revision to make in the 'notes' section – it is stated that "preference is to use 2021 EMG's". It should be confirmed that the 2021 EMG's will be followed and implemented for this project.

Please make this revision and I will follow up with an approval email.

Thanks,

Shane Butnari
Ecologist Planner
Long Range Planning, Research & Ecology
Planning & Development
City of London

206 Dundas St., London, ON N6A 1G7
P: 519.661.CITY (2489)
sbutnari@london.ca | www.london.ca

From: Victoria Schveighardt <VSchveighardt@mte85.com>
Sent: Tuesday, September 20, 2022 1:35 PM
To: Butnari, Shane <sbutnari@london.ca>
Cc: Melissa Cameron <MCameron@mte85.com>
Subject: [EXTERNAL] FW: SPC22-024 4452 Wellington Road South Terms of Reference (MTE# 49999-100)

Hello Shane,

I hope you are doing well.

I am following up on the previous email regarding the Scoping Checklist for the 4452 Wellington Rd South site. We are planning on submitting our EIS report soon and would appreciate your confirmation.

Thank you and best regards,

Victoria

Victoria Schveighardt, M.E.S. | Biologist
MTE Consultants Inc.
T: 519-204-6510 x2230 | VSchveighardt@mte85.com
123 St George St., London, Ontario N6A 3A1
www.mte85.com | Twitter | LinkedIn | Instagram | Facebook

From: Victoria Schveighardt
Sent: Tuesday, May 31, 2022 11:50 AM
To: 'Butnari, Shane' <sbutnari@london.ca>
Cc: 'mvivian@london.ca' <mvivian@london.ca>; 'Stefanie Pratt' <pratts@thamesriver.on.ca>; Melissa Cameron <MCameron@mte85.com>; '49999-100@mte85.com' <49999-100@mte85.com>
Subject: SPC22-024 4452 Wellington Road South Terms of Reference (MTE# 49999-100)

Hello Shane,

Thank you for meeting with us to discuss the pre-application scoping checklist for 4452 Wellington Road South.

Please find attached the updated scoping checklist. A confirmation of receipt would be greatly appreciated.

Best regards,

Appendix C

Species at Risk Screening

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

Species	SARO Status	Source(s)	Habitat Description	Habitat Suitability in the Subject Lands and 120 m Adjacent Lands	Probability of Species Occurrence or Habitat within the Subject Lands
Acadian Flycatcher	END	OBBA, 2022	Acadian Flycatcher is typically found in mature, shady forests with ravines, or in forested swamps with lots of maple and beech trees. Nest placement is near the tip of a lower limb on a tree. This species only nests in southwestern Ontario, mostly in large forest and forested ravines near the shore of Lake Erie.	There is no suitable breeding habitat (large forests, ravines,) for this species on the Subject Lands or Adjacent Lands.	None
American Badger	END	Added due to under-representation in species records.	American Badger is found in a variety of habitats, such as tall grass prairies, sand barrens and farmland. The range includes Southwestern Ontario, close to Lake Erie in the Norfolk and Middlesex area. American Badgers can travel sizeable distances and occupy large home ranges.	This species has not been identified within the Subject lands and no potential burrows were found during field investigations. While this species can occupy a variety of habitats, no evidence has been found.	None
Barn Swallow	THR	NHIC, 2022	Barn Swallows are found nesting in close association with human rural settlements, in structures such as barns, sheds, and under bridges. Barn Swallows forage for aerial insects in various open habitats including grassy fields, pastures, agricultural fields and farms, lake and river shorelines, wetlands, and clearings. Their range includes southern Ontario and as far north as Hudson Bay.	The Study Area does not suitable nesting habitat for this species. One Barn Swallow individual was observed during Breeding Bird Surveys, foraging over the agricultural lands. Agricultural lands are not protected under the Endangered Species Act.	None

Species	SARO Status	Source(s)	Habitat Description	Habitat Suitability in the Subject Lands and 120 m Adjacent Lands	Probability of Species Occurrence or Habitat within the Subject Lands
Bobolink	THR	NHIC, 2022	Bobolink are found in large, open expansive grasslands with dense ground cover; hayfields, meadows or fallow fields, marshes. This grassland species is widely distributed throughout most of the province south of the boreal forest, but may be found in the north where suitable habitat exists.	There is no suitable grassland habitat within the Subject Lands. No Bobolink were observed during field investigations.	None
Butternut	END	MTE 2022	Butternut primarily occurs in neutral to calcareous soils (pH 5.5-8), and regions with underlying limestone. Optimal abundance in rich well-drained mesic loams in floodplains, streambanks, terraces, and ravine slopes. Butternut is found throughout the southwest, north to the Bruce Peninsula, and south of the Canadian Shield.	A total of six Butternut trees were identified within the Subject Lands. One tree was confirmed to be a dead Category 1 and the remaining five were confirmed to be hybrids.	None
Chimney Swift	THR	OBBA, 2022	Chimney Swifts are commonly found in urban and rural areas near buildings. They nest in hollow trees, crevices of rock cliffs, and chimneys. They are most widely distributed in the Carolinian south and southwest.	There is no suitable habitat (old buildings with chimneys) for this species within the Study Area.	None
Eastern Meadowlark	THR	NHIC, 2022	Eastern Meadowlark breeds mostly in moderately tall grasslands (native prairies and savannahs), also non-native pastures, hayfields, herbaceous fencerows, roadsides, orchards, airports, shrubby overgrown fields, or other open areas.	There is no suitable grassland habitat within the Study Area	None

Species	SARO Status	Source(s)	Habitat Description	Habitat Suitability in the Subject Lands and 120 m Adjacent Lands	Probability of Species Occurrence or Habitat within the Subject Lands
Little Brown Myotis, Northern Myotis, Tri-coloured Bat	END	Added due to under-representation in species records.	These three bat species require habitat for overwintering (hibernacula in caves, mines, wells), roost habitat in the summer (trees with loose bark, cracks, holes, dead foliage), and foraging habitat. Little Brown Myotis is frequently found roosting in anthropogenic structures such as houses, barns, bat boxes, and bridges.	There are three potential cavity trees for bat maternity roosting within the Study Area.	**Suitable habitat present in 3 trees within the cultural woodland**

Appendix D

Butternut Health Assessment

Enclosures:

1. Information from the Ministry of Natural Resources and Forestry about Butternut and the *Endangered Species Act, 2007*
2. Butternut Health Assessor's Report
3. Original data forms
4. Electronic and printed copies of the Excel data spreadsheet (BHA Tree Analysis)

Ministry of Natural Resources and Forestry

Species At Risk
P.O. Box 7000, 300 Water Street
Peterborough ON K9J 8M5

Ministère des Richesses naturelles et des Forêts

Espèces en péril
C.P. 7000, 300, rue Water
Peterborough ON K9J 8M5

The enclosed Butternut Health Assessor's Report documents the results of the Butternut health assessment that was conducted by the designated Butternut Health Assessor (BHA) identified in the top section of the report. If there are other Butternut trees (of any size or age) at the site that may be affected by the activity and they are not identified in the enclosed BHA Report, they too must be assessed by a designated BHA.

Butternut is listed as an endangered species on the Species at Risk in Ontario List, and as such, it is protected under the *Endangered Species Act, 2007* (ESA) from being killed, harmed, or removed. If you are planning to undertake an activity that may affect Butternut, you may be eligible to follow the requirements set out in section 23.7 of Ontario Regulation 242/08 under the ESA, or you may need to seek an authorization under the ESA (e.g., a permit).

Please visit e-laws at the link provided below for the legal requirements of eligible activities under section 23.7 of Ontario Regulation 242/08 and conditions that must be fulfilled. Information about Butternut is also available at: http://www.ontario.ca/environment-and-energy/butternut-trees-your-property.

If you are eligible to kill, harm or take Butternut under section 23.7 of the regulation, your first step is to submit the BHA Report and the original data forms enclosed in this package to the local Ministry of Natural Resources and Forestry (MNRF) District Manager. Note that MNRF cannot accept photocopies or scanned electronic copies of the data forms.

Note regarding changes:

If the enclosed BHA Report does not identify which Butternut tree(s) are proposed to be killed, harmed, or taken in Table 1 (i.e., if "unknown" is indicated in the second last column of Table 1), or, if the information in the last two columns of Table 1 has changed since the date this BHA Report was produced, **do not make any edits to the BHA Report**. Instead, please attach a cover letter that identifies which Butternut tree(s) are proposed to be killed, harmed, or taken (by referencing the tree identification numbers) when you submit the enclosed BHA Report to the local MNRF District Manager.

The BHA Report must be submitted at least 30 days prior to registering an eligible activity to kill, harm, or remove a Butternut tree. During this 30 day period, no Butternut trees (of any category) may be killed, harmed, or removed, and MNRF may contact you for an opportunity to examine the trees. If MNRF chooses to examine the trees, a representative of MNRF will contact you using the information you supplied when you submitted the BHA Report.

If you are eligible to follow the rules in regulation under section 23.7, you may register your activity using the "Notice of Butternut Impact" form on the MNRF Registry **after the 30 day period has elapsed**.

If you are **not** eligible to follow the rules in regulation under section 23.7, please contact the local MNRF district office to determine whether you will need to seek an authorization (e.g., a permit). A link to the directory of MNRF offices is provided below.

Note that municipal by-laws and legislation other than the ESA may also be applicable to the removal or harming of trees.

Please retain this information and a copy of the BHA Report (including copies of all data forms) for your records, along with any other documentation you may receive from MNRF should an examination of the trees occur. If you have any questions, please contact your local MNRF district office.

Links:

Endangered Species Act, 2007:
http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_07e06_e.htm

Ontario Regulation 242/08 (refer to section 23.7):
http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_080242_e.htm

MNRF Office Locations:
https://www.ontario.ca/government/ministry-natural-resources-and-forestry-regional-and-district-offices

Butternut Health Assessor's Report Number: 222-223)

William Huys #222
201-110 Riverside Drive
London, Ontario
N6H 4S5
519-281-5962
whuys@biologic.ca

Navdeep Singh
21 Adastra Place
Brampton, ON
L6P 3B4
jbcan@yahoo.com

Site location: 4452 Wellington Road South

Date(s) of Butternut health assessment: July 27, 2022)
Date BHA Report prepared: August 2, 2022

Map datum used: NAD83

Total number of trees assessed in this BHA Report: 6

The assessed trees were numbered on site using white paint. The numbers at the site correspond to the tree numbers referenced in this report.

This BHA Report includes the following tables:

- Table 1: Butternut Trees Assessed
- Table 2: Trees Determined by BHA to be Butternut Hybrids
- Table 3: Summary of Assessment Results

Table 1: Butternut Trees Assessed

Tree #	UTM coordinates	Category[1] *(1, 2, or 3[2])*	dbh[3] (cm)	Cultivated? *(Y/N)*	Proposed to be: *(enter one: unknown[4], killed, harmed or taken)*	If tree is proposed to be killed, harmed, or taken, indicate reason tree is proposed to be killed, harmed or taken:
4	483076, 4751518	1	10	n	taken	Tree is already dead

[1] The extent to which the tree is affected by Butternut Canker is presented in the Excel document titled, "BHA Tree Analysis" that accompanies this BHA Report.
[2] Category 3 trees are not eligible to be killed, harmed or taken under section 23.7 of Ontario Regulation 242/08.
[3] dbh: diameter at breast height, rounded to nearest cm (if tree is shorter than breast height, enter zero)
[4] In this column, "unknown" indicates that at the time of assessment, there are no proposals to kill, harm or take this tree that are known to the BHA.

Tree #	UTM coordinates	Category[1] *(1, 2, or 3[2])*	dbh[3] (cm)	Cultivated? *(Y/N)*	Proposed to be: *(enter one: unknown[4], killed, harmed or taken)*	If tree is proposed to be killed, harmed, or taken, indicate reason tree is proposed to be killed, harmed or taken:

Table 2: Trees Determined by BHA to be Butternut Hybrids

Tree #	UTM coordinates	Method used (genetic testing or field identification):
1	48305, 4751604	DNA Testing
2	483087, 4751533	DNA Testing
3	483080, 4751520	DNA Testing
4	483076, 4751518	DNA Testing
5	483078, 4751529	DNA Testing
6	483063, 4751526	DNA Testing

Table 3: Summary of Assessment Results

Result:	**Total #:**	**Important information for persons planning activities that may affect Butternut:**
Category 1	1	• A Category 1 tree is one that is affected by butternut canker to such an advanced degree that retaining the tree would not support the protection or recovery of butternut in the area in which the tree is located; and is considered “non-retainable”. • During the 30 day period that follows your submission of this BHA Report to the MNRF District Manager, no Butternut trees (of Category 1, 2, or 3) may be killed, harmed, or taken, and MNRF may contact you for an opportunity to examine the trees. • Category 1 trees may be killed, harmed or taken **after** the 30 day period that follows submission of this BHA Report to the MNRF District Manager, unless the results of an MNRF examination indicate that the assessment has not been conducted in accordance with the document entitled “Butternut Assessment Guidelines: Assessment of Butternut Tree Health for the Purposes of the *Endangered Species Act, 2007*”.
Category 2	0	• A Category 2 tree is one that is not affected by Butternut Canker, or is affected by Butternut Canker but the degree to which it is affected is not too advanced and retaining the tree could support the protection or recovery of butternut in the area in which the tree is located, and is considered “retainable”. • During the 30 day period that follows your submission of this BHA Report to the MNRF

Result:	Total #:	Important information for persons planning activities that may affect Butternut:
		District Manager, no Butternut trees (of Category 1, 2, or 3) may be killed, harmed, or taken, and MNRF may contact you for an opportunity to examine the trees. • Activities that may kill, harm or take up to a **maximum of ten (10)** Category 2 trees may be eligible to follow the rules in section 23.7 of Ontario Regulation 242/08, in accordance with the conditions and requirements set out in the regulation. • Refer to e-Laws for the legal requirements of eligible activities under section 23.7 of Ontario Regulation 242/08 and conditions that must be fulfilled: http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_080242_e.htm • Activities that may kill, harm or take more than ten (10) Category 2 trees are not eligible to follow the rules in section 23.7 of Ontario Regulation 242/08. Contact the local MNRF district office for information on how to seek an ESA authorization (e.g., a permit) or consider an alternative that would be eligible for the regulation.
Category 3	0	• A Category 3 tree is one that may be useful in determining sources of resistance to Butternut Canker, and is considered "archivable". • Category 3 trees are not eligible to be killed, harmed or taken under section 23.7 of Ontario Regulation 242/08. • Contact the local MNRF district office for information on how to seek an ESA authorization, or consider an alternative that will avoid killing, harming or taking any Category 3 trees.
Cultivated	0	• An activity that involves killing, harming, or taking a cultivated Butternut tree that was not required to be planted to fulfill a condition of an ESA permit or a condition of a regulation, may be eligible for the exemption provided by subsection 23.7 (11) of O. Reg. 242/08. • Prior to undertaking the activity, the owner or occupier of the land on which the Butternut is located (or person acting on their behalf) will need to determine whether the exemption for cultivated trees is applicable by determining whether or not the tree was cultivated as a result of the requirements for an exemption under O. Reg. 242/08 or a condition of a permit issued under the ESA. This information can be accessed by contacting the local MNRF district office. • The owner or occupier of the land on which the Butternut is located (or person acting on their behalf) is encouraged to append the details regarding whether the tree was planted to satisfy a requirement (e.g., the permit number or registration number) to this BHA Report for their records.
Hybrid	5	• Hybrid Butternut trees are not protected under the ESA, but their removal may be subject to municipal by-laws and other legislation.

Butternut Health Assessor's Comments:

All trees found and assessed within the study have been genetically tested except for 1 dead tree which was classified as Category 1. The test results have been attached to the end of this report.

This concludes the summary of the BHA Report. A complete BHA Report must also include:

1. All original (hard copy) data forms (i.e., all completed sets of Form 1 and Form 2), and
2. Electronic and printed copies of the Excel data analysis spreadsheet.

BHA Tree Analysis (version: December 2013)

This table is to be completed by a designated Butternut Health Assessor (BHA).

BHA Report #	222-223	Assessment Date(s)	27-Jul-22	Total # Butternut Trees in BHA Report	6
BHA ID #	222	BHA Name	William Huys		
Landowner / Client Name			Naveep Singh		
Property Location			4452 Wellington Road South		

input field data										automatic calculations from field data						Categories: 1: non-retainable, 2: retainable, 3: archivable				
			# bole cankers				# root flare (RF) cankers														
Tree #	Live Crown %	Tree dbh (cm)	sooty (S) (will be assigned 2.5 cm per canker)		open (O) (will be assigned 5 cm per canker)				<40 m from cankered tree? (Y or N)	Circ. (cm) = Pi x dbh	total bole canker width (sooty x 2.5 + open x 5)	total RF canker width (sooty x 2.5 + open x 5)	bole canker % of circ.	RF canker % of circ.	total bole & root canker % of 2xCirc	LC% >/= 50 & BC% = 0	LC% >70 & BRC % <20	LC% >70 & BC % <20	Preliminary tree call	FINAL TREE CALL a Cat 2, dbh>20cm <40m from a Cat 1
			S <2 m	S >2 m	O <2 m	O >2 m	RF S	RF O		Circ (cm)	BC (cm)	RC (cm)	BC%	RC%	BRC%					
1	95	17	h	y	b	r	i	d	n	53.38	######	######	#####	#####	#####	####	###	###	##	#######
2	90	26	h	y	b	r	i	d	n	81.64	######	######	#####	#####	#####	####	###	###	##	#######
3	30	18	h	y	b	r	i	d	n	56.52	######	######	#####	#####	#####	####	###	###	##	#######
4	0	10	0	0	0	0	0	0	n	31.4	0.0	0.0	**0.0**	**0.0**	**0.0**	1	1	1	**1**	**1**
5	45	100	h	y	b	r	i	d	n	314	######	######	#####	#####	#####	####	###	###	##	#######
6	95	30	h	y	b	r	i	d	n	94.2	######	######	#####	#####	#####	####	###	###	##	#######

0cm 3cm 15cm

Butternut Data Collection Form 1 - 2010 Edition

Surveyor ID or BHA # 222

(PLEASE USE BLOCK LETTERS)

Date (dd/mm/yyyy) 27 - 07 - 2022

Shaded fields are mandatory for Butternut Health Assessments

Surveyor Contact

First WILL Last HUYS

Email WHuys@mte85.Com

Telephone (226) 234-9458 Telephone Other ( ) - X

Property Owner (check if same as surveyor) ☐

First NAVDEEP Last SINGH

or Company 2858637 ONTARIO INC

Email Jbcan@yahoo.com

Telephone ( ) - Telephone Other ( ) - X

Property Owner's Mailing address

Address 21 ADASTRA PLACE Postal Code L6P3B4 Prov. ON

City BRAMPTON

Tree Location (if different from mailing address)

Address/(911#) 4452 WELLINGTON RD SOUTH

Township Lot Con

City LONDON

Directions

☐ Yes ☐ No Can Share Location Information with other Butternut Recovery Organizations?

☐ Yes ☐ No Site visits OK? (prior arrangments will always be made for a site vist)

> (Greater than)
< (Less than)

Butternut Trees Tally by Diameter Class

(Do a dot tally in blank space; write total# in box for each)

Tree Condition	< 3 cm	3-15 cm	16-30cm	>30 cm
Vigorous: > 50% Live Crown Minor or no cankers				
Poor Vigor: <50% Live Crown or >50% Live Crown + heavily cankered stem				
Dead				

Historically, do some trees produce seeds? ☐ Y ☐ N ☐ Unkown

Estimated area containing butternut for properties > 1 acre (0.4 hectares): ☐ Acres ☐ Hectares

Overall Property Description (area(s) containing Butternut)

☐ Rolling Upland ☐ Bottomland
☐ Valley Slope ☐ Variable
☐ Tableland ☐ Unknown

Vegetation Community/ies

☐ Open ☐ Fencerow
☐ Shrubland ☐ Roadside
☐ DeciduousForest ☐ Quary
☐ ConiferForest ☐ UrbanYard
☐ MixedForest ☐ UrbanPark

Other

Soil Drainage

☐ Well Drained
☐ Moderately Drained
☐ Poorly Drained
☐ Unknown

Soil Texture

☐ Clay ☐ Sand
☐ Clay Loam ☐ Variable
☐ Loam ☐ Unknown
☐ Loamy Sand

Soil Depth

☐ > 1metre
☐ 30 - 99cm
☐ < 30cm
☐ Variable
☐ Unknown

Please enter matching numerical page link code on forms 1 and 2

Page Link 483059

(Contact Information follows all applicable privacy policies and guidelines)

Please return forms to:
Forest Gene Conservation Association
Suite 233, 266 Charlotte St.
Peterborough, ON, K9J 2V4
www.fgca.net

49731

Butternut Data Collection FORM 2 (2010 Edition)

(PLEASE USE BLOCK LETTERS)

Shaded fields are mandatory for Butternut Health Assessments

Fill when Form 1 indicates canker is well established. The information opn Form 2 must be filled out for all trees when doing a Butternut Health Assessment.

Site Code(A,B,...Z, AA...) | Surveyor ID or BHA # 227

Surveyor Last Name HUYS

Date (dd/mm/yyyy) 27 - 07 - 2022

Tree ID Numbering: 1,2,3,...Starting from 1 for each site

Tree # 001 | **Zone** 17 | **Easting** 483059 | **Northing** 4751604

Crown Class: 3 | Live Crown %: 095 | Main Stem Length(m) Below crown: 02 | Seed Signs

Twig Dieback ☐ | Branch Dieback ☐ | Defoliation ☐ | Discolouration ☐ | #Stems: 2 | DBH(cm): 017

Butternut Origin: ☒ Natural ☐ Planted ☐ Unknown | Seed Signs: ☐ Male Flowers ☐ Female Flowers ☐ Seed Set ☒ None

Assess below live crown: #Epic-Live 00 | #Epic-Dead 00 | Bark Type | # Callused Wounds 00

	#Open	#Sooty
Root	06	00
=<2m	00	00
>2m	00	00

Metres from badly cankered tree: ☐ < 40 ☐ > 40 ☒ None Found

Competing Species: Acer Neg; Jug Lni G

Tree # 002 | **Zone** 17 | **Easting** 483087 | **Northing** 4751533

Crown Class: 2 | Live Crown %: 090 | Main Stem Length(m) Below crown: 04 | Seed Signs

Twig Dieback ☐ | Branch Dieback ☐ | Defoliation ☐ | Discolouration ☐ | #Stems: 1 | DBH(cm): 026

Butternut Origin: ☒ Natural ☐ Planted ☐ Unknown | Seed Signs: ☐ Male Flowers ☐ Female Flowers ☐ Seed Set ☒ None

Assess below live crown: #Epic-Live 00 | #Epic-Dead 00 | Bark Type | # Callused Wounds 01

	#Open	#Sooty
Root	00	00
=<2m	00	00
>2m	00	00

Metres from badly cankered tree: ☐ < 40 ☐ > 40 ☒ None Found

Competing Species: Jug Lni G; Vitis ripa

Tree # 003 | **Zone** 17 | **Easting** 483086 | **Northing** 4751526

Crown Class: 3 | Live Crown %: 038 | Main Stem Length(m) Below crown: 06 | Seed Signs

Twig Dieback ☐ | Branch Dieback ☐ | Defoliation ☐ | Discolouration ☐ | #Stems: 1 | DBH(cm): 018

Butternut Origin: ☒ Natural ☐ Planted ☐ Unknown | Seed Signs: ☐ Male Flowers ☐ Female Flowers ☐ Seed Set ☒ None

Assess below live crown: #Epic-Live 00 | #Epic-Dead 00 | Bark Type | # Callused Wounds 80

	#Open	#Sooty
Root	00	00
=<2m	00	00
>2m	00	00

Metres from badly cankered tree: ☐ < 40 ☐ > 40 ☐ None Found

Competing Species: Jug Lni G; CAT ASpe; Vitis ripa

Tree # 004 | **Zone** 17 | **Easting** 483076 | **Northing** 4751518

Crown Class: 4 | Live Crown %: 000 | Main Stem Length(m) Below crown: 00 | Seed Signs

Twig Dieback ☐ | Branch Dieback ☐ | Defoliation ☐ | Discolouration ☐ | #Stems: 1 | DBH(cm): 010

Butternut Origin: ☒ Natural ☐ Planted ☐ Unknown | Seed Signs: ☐ Male Flowers ☐ Female Flowers ☐ Seed Set ☐ None

Assess below live crown: #Epic-Live 00 | #Epic-Dead 00 | Bark Type | # Callused Wounds 00

	#Open	#Sooty
Root	00	00
=<2m	00	00
>2m	00	00

Metres from badly cankered tree: ☐ < 40 ☐ > 40 ☐ None Found

Competing Species: Jug Lni G

Tree # 005 | **Zone** 17 | **Easting** 483078 | **Northing** 4751529

Crown Class: 2 | Live Crown %: 045 | Main Stem Length(m) Below crown: 06 | Seed Signs

Twig Dieback ☐ | Branch Dieback ☐ | Defoliation ☐ | Discolouration ☐ | #Stems: 1 | DBH(cm): 100

Butternut Origin: ☒ Natural ☐ Planted ☐ Unknown | Seed Signs: ☐ Male Flowers ☐ Female Flowers ☐ Seed Set ☒ None

Assess below live crown: #Epic-Live 00 | #Epic-Dead 00 | Bark Type | # Callused Wounds 00

	#Open	#Sooty
Root	00	00
=<2m	01	00
>2m	00	00

Metres from badly cankered tree: ☐ < 40 ☐ > 40 ☒ None Found

Competing Species: Jug Lni G

Please enter matching page link code on forms 1 and 2

Page Link 48J059

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Please return forms to:
Forest Gene Conservation Association
Suite 233, 266 Charlotte St.
Peterborough, ON, K9J 2V4
www.fgca.net

49731

Butternut Data Collection FORM 2 (2010 Edition) (PLEASE USE BLOCK LETTERS)

Shaded fields are mandatory for Butternut Health Assessments

Fill when Form 1 indicates canker is well established. The information opn Form 2 must be filled out for all trees when doing a Butternut Health Assessment.

Site Code(A,B,...Z, AA...):

Surveyor ID or BHA #: 224

Date (dd/mm/yyyy): 21-07-2022

Surveyor Last Name:

Tree ID Numbering: 1,2,3,...Starting from 1 for each site

Tree #: 066 | Zone: 17 | Easting: 483063 | Northing: 4751526

Crown Class: 2 | Live Crown %: 095 | Main Stem Length(m) Below crown: 03

☐ Twig Dieback
☐ Branch Dieback
☐ Defoliation
☐ Discolouration

#Stems: 1 | DBH(cm): 038

Butternut Origin: ☒ Natural ☐ Planted ☐ Unknown

Seed Signs: ☐ Male Flowers ☐ Female Flowers ☐ Seed Set ☒ None

Assess below live crown: #Epic-Live: 00 | #Epic-Dead: 00 | Bark Type: | # Callused Wounds: 00

	#Open	#Sooty
Root	00	00
=<2m	00	00
>2m	00	00

Metres from badly cankered tree: ☐ < 40 ☐ > 40 ☐ None Found

Competing Species: JUGLNIG / C[illegible]A / CATASPE

Tree #: | Zone: 1 | Easting: | Northing:

Crown Class: | Live Crown %: | Main Stem Length(m) Below crown:

☐ Twig Dieback
☐ Branch Dieback
☐ Defoliation
☐ Discolouration

#Stems: | DBH(cm):

Butternut Origin: ☐ Natural ☐ Planted ☐ Unknown

Seed Signs: ☐ Male Flowers ☐ Female Flowers ☐ Seed Set ☐ None

Assess below live crown: #Epic-Live | #Epic-Dead | Bark Type | # Callused Wounds

	#Open	#Sooty
Root		
=<2m		
>2m		

Metres from badly cankered tree: ☐ < 40 ☐ > 40 ☐ None Found

Competing Species

Tree #: | Zone: 1 | Easting: | Northing:

Crown Class: | Live Crown %: | Main Stem Length(m) Below crown:

☐ Twig Dieback
☐ Branch Dieback
☐ Defoliation
☐ Discolouration

#Stems: | DBH(cm):

Butternut Origin: ☐ Natural ☐ Planted ☐ Unknown

Seed Signs: ☐ Male Flowers ☐ Female Flowers ☐ Seed Set ☐ None

Assess below live crown: #Epic-Live | #Epic-Dead | Bark Type | # Callused Wounds

	#Open	#Sooty
Root		
=<2m		
>2m		

Metres from badly cankered tree: ☐ < 40 ☐ > 40 ☐ None Found

Competing Species

Tree #: | Zone: 1 | Easting: | Northing:

Crown Class: | Live Crown %: | Main Stem Length(m) Below crown:

☐ Twig Dieback
☐ Branch Dieback
☐ Defoliation
☐ Discolouration

#Stems: | DBH(cm):

Butternut Origin: ☐ Natural ☐ Planted ☐ Unknown

Seed Signs: ☐ Male Flowers ☐ Female Flowers ☐ Seed Set ☐ None

Assess below live crown: #Epic-Live | #Epic-Dead | Bark Type | # Callused Wounds

	#Open	#Sooty
Root		
=<2m		
>2m		

Metres from badly cankered tree: ☐ < 40 ☐ > 40 ☐ None Found

Competing Species

Tree #: | Zone: 1 | Easting: | Northing:

Crown Class: | Live Crown %: | Main Stem Length(m) Below crown:

☐ Twig Dieback
☐ Branch Dieback
☐ Defoliation
☐ Discolouration

#Stems: | DBH(cm):

Butternut Origin: ☐ Natural ☐ Planted ☐ Unknown

Seed Signs: ☐ Male Flowers ☐ Female Flowers ☐ Seed Set ☐ None

Assess below live crown: #Epic-Live | #Epic-Dead | Bark Type | # Callused Wounds

	#Open	#Sooty
Root		
=<2m		
>2m		

Metres from badly cankered tree: ☐ < 40 ☐ > 40 ☐ None Found

Competing Species

Please enter matching page link code on forms 1 and 2

Page Link: 483059

(Contact Information follows all applicable privacy policies and guidelines)

Please return forms to:
Forest Gene Conservation Association
Suite 233, 266 Charlotte St.
Peterborough, ON, K9J 2V4
www.fgca.net

49731

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

September 12, 2022

MTE File No.: 49333-100

Navdeep Singh
21 Adastra Place
Brampton, ON
L6P 3B4
jbcan@yahoo.com

Dear Navdeep:

RE: Butternut Health Assessment Report
4452 Wellington Road South, London, ON

Please find the attached Butternut Health Assessment report for the trees found on your property. Six trees were assessed. One tree was dead and leaf samples from 5 live trees were sent for genetic testing to determine hybridity.

All five tested trees were found to be of hybrid origin.

This report must be submitted to the MECP Species at Risk branch via email SAROntario@ontario.ca

Should you have any questions or concerns please contact me at your convenience.

Yours truly,

MTE Consultants Inc.

Will Huys
Butternut Health Assessor #222
519-204-6510 ext. 2246
whuys@mte85.com

WLH:
Encl. BHA Report 222-223
M:\49999\100\02-Inputs\Biotic\BHA\49999-100 Cover Letter 222-223.docx

12:15

GENERAL SITE INFORMATION FIELD SHEET

Project: 49999-100
Date: July 27/22 Project Manager:
Collector(s): FC, JSh Visit #:
Time started: 1:11 Time finished: 1:41 Combined collectors' hours:
☐ NHIC List ☐ MNR EO's ☐ none ☐ not provided to collector

WEATHER CONDITIONS				
Temp.	Wind:	3	Cloud Cover (%)	Precipitation
24	Direction:	S	100	Today: light rain Yesterday: none

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

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

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

Incidental Observations/Notes:

- 6 samples taken

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

NatureMetrics North America

Customer Terms and Conditions

1. **Definitions and interpretation**

1.1 In these Conditions the following definitions apply:

'Affiliate'	means any entity that directly or indirectly Controls, is Controlled by or is under common Control with, another entity;
'Business Day'	means a day other than a Saturday, Sunday or a statutory holiday in the Province of Ontario or any other day on which the principal chartered banks located in Ontario are not open for business during normal banking hours;
'Conditions'	means NatureMetrics' terms and conditions as set out in this document;
'Confidential Information'	has the meaning given in section 19.1;
'Contaminants'	has the meaning given in section 6.4;
'Contract'	means the agreement between NatureMetrics and the Customer for the supply and purchase of Services incorporating these Conditions and the Order Form and including all their respective schedules, attachments, annexes and statements of work;
'Control'	means the beneficial ownership of more than 50% of the issued share capital of a company or the legal power to direct or cause the direction of the management of the company, and **'Controls'**, **'Controlled'** and **'under common Control'** shall be interpreted accordingly;
'Customer'	means the party which has agreed to purchase the Services from NatureMetrics and whose name and details are set out in the Order Form;
'Data Protection Laws'	means, as binding on either party or the Services: (a) PIPEDA; (b) provincial or territorial privacy statutes that are in force within Canada; and (c) any laws that replace, extend, re-enact, consolidate or amend any of the foregoing;
'Final Report'	means the report provided to the Customer by NatureMetrics detailing the results of the analyses conducted as part of the Services;
'Force Majeure'	means an event or sequence of events beyond a party's reasonable control preventing or delaying it from performing its obligations under the Contract, but excluding the Customer's inability to pay or circumstances resulting in the Customer's inability to pay;
'Intellectual Property Rights'	means copyright, patents, know-how, trade secrets, trademarks, trade names, design rights, rights in get-up, rights in goodwill, rights in software, rights in confidential information, rights to

	invention, rights to sue for passing off, domain names and all other intellectual property rights and similar rights and, in each case: (a) whether registered or not; (b) including any applications to protect or register such rights; (c) including all renewals and extensions of such rights or applications; (d) whether vested, contingent or future; (e) to which the relevant party is or may be entitled, and (f) in whichever part of the world existing;
'IPR Claim'	means any claim made against the Customer for actual or alleged infringement of a third party's Intellectual Property Rights arising out of, or in connection with, the supply of the Services;
'Kit'	means a sampling kit (including instructions) to be provided by NatureMetrics as part of the Services, which the Customer can use to collect Samples;
'Metadata'	has the meaning set out in section 11.2;
'NatureMetrics'	means Nature Metrics North America Ltd., a company incorporated and registered under the laws of Ontario with a registered address at 365 Bay Street, Suite 800, Toronto, Ontario, Canada, M5H 2V1;
'Order Form'	means the order for the Services to be supplied by NatureMetrics, as placed by the Customer;
'Personal Information'	shall mean personal information about an indentifiable individual as those terms are used in PIPEDA;
'Privacy Breach'	shall mean a contravention of a party's obligations under Division 1 of PIPEDA;
'PIPEDA'	means the Personal Information Protection and Electronic Documents Act
'Price'	has the meaning set out in section 3.1;
'Protected Data'	means Personal Information received from or on behalf of the Customer in connection with the performance of NatureMetrics' obligations under the Contract;
'Representatives'	has the meaning set out in paragraph 19.2(a);
'Sample'	means the collection of organisms or a sample of organic/environmental material supplied by the Customer on which NatureMetrics shall perform the genetic analyses relevant to the Services;
'Sample Data'	has the meaning set out in section 11.3;
'Sequence Data'	has the meaning set out in paragraph 11.1(a);
'Services'	means, in general:

(i) the delivery of Kits to the Customer;

(ii) on receipt of Samples back from the Customer, the analysis of those Samples by NatureMetrics for the presence or absence of certain species' DNA within those Samples; and

(iii) the provision of the Final Report to the Customer detailing the results of these analyses;

each as further specified in the Order Form;

'Species List' has the meaning set out in paragraph 11.1(b);

'Sub-Processor' means any agent, sub-contractor or other third party (excluding its employees) engaged by NatureMetrics for carrying out any processing activities on behalf of the Customer in respect of the Protected Data;

'Technical Data' has the meaning set out in paragraph 11.1(c); and

'VAT' means a value-added tax such as the GST, HST or any other similar federal, provincial or territorial sales tax or excise tax applying to the sale of the Services.

1.2 In these Conditions, unless the context requires otherwise:

(a) any section, schedule or other headings in these Conditions is included for convenience only and shall have no effect on the interpretation of the Conditions;

(b) a reference to a 'party' includes that party's personal representatives, successors and permitted assigns;

(c) a reference to a 'person' includes a natural person, corporate or unincorporated body (in each case whether or not having separate legal personality) and that person's personal representatives, successors and permitted assigns;

(d) a reference to a 'company' includes any company, corporation or other body corporate, wherever and however incorporated or established;

(e) a reference to a gender includes each other gender;

(f) words in the singular include the plural and vice versa;

(g) any words that follow 'include', 'includes', 'including', 'in particular' or any similar words and expressions shall be construed as illustrative only and shall not limit the sense of any word, phrase, term, definition or description preceding those words;

(h) a reference to 'writing' or 'written' includes any method of reproducing words in a legible and non-transitory form;

(i) a reference to legislation is a reference to that legislation as amended, extended, re-enacted or consolidated from time to time, and includes all subordinate legislation made from time to time under that legislation; and

(j) a reference to any Canadian action, remedy, method of judicial proceeding, court, official, legal document, legal status, legal doctrine, legal concept or thing shall, in respect of any jurisdiction other than Canada, be deemed to include a reference to that which most nearly approximates to the Canadian equivalent in that jurisdiction.

2. **Application of these Conditions**

2.1 These Conditions apply to and form part of the Contract between NatureMetrics and the Customer. They supersede any previously issued terms and conditions of purchase or supply.

2.2 No terms or conditions endorsed on, delivered with, or contained in the Customer's purchase conditions, order, confirmation of order, specification or other document shall form part of the Contract.

2.3 No variation to the Contract shall be binding unless expressly agreed in writing and executed by a duly authorized signatory on behalf of each of NatureMetrics and the Customer.

2.4 Each Order Form submitted to by the Customer to NatureMetrics shall be an offer to purchase Services subject to the Contract including these Conditions.

2.5 If NatureMetrics is unable to accept an Order Form, it shall notify the Customer as soon as reasonably practicable.

2.6 The offer constituted by an Order Form shall remain in effect and be capable of being accepted by NatureMetrics for ten (10) Business Days from the date on which the Customer submitted the Order Form, after which time it shall automatically lapse and be withdrawn.

2.7 NatureMetrics may accept or reject an Order Form at its discretion. An Order Form shall not be accepted, and no binding obligation to supply any Services shall arise, until the earlier of (i) NatureMetrics' written acceptance of the Order Form, or (ii) NatureMetrics performing the Services.

2.8 Rejection by NatureMetrics of an Order Form, including any communication that may accompany such rejection, shall not constitute a counter-offer capable of acceptance by the Customer.

2.9 NatureMetrics may issue quotations to the Customer from time to time. Quotations are invitations to treat only. They are not an offer to supply Services and are incapable of being accepted by the Customer.

2.10 Marketing and other promotional material relating to the Services are illustrative only and do not form part of the Contract.

2.11 Once an Order Form has been accepted by NatureMetrics, the Customer may only cancel the Order Form if it does so in writing before NatureMetrics has dispatched the Kits to the Customer. NatureMetrics will confirm whether such cancellation attempt has been successful.

3. **Price**

3.1 The price for the Services shall be as set out in the Order Form (the **'Price'**).

3.2 The Price is exclusive of the costs of delivery of the Samples from the Customer to NatureMetrics (including any costs associated with duties, taxes, complying with applicable customs laws, or obtaining the necessary licences, authorizations and/or permissions).

3.3 The Order Form shall set out:

(a) the costs of delivery of the Kits from NatureMetrics to the Customer; and

(b) applicable VAT (or equivalent sales tax).

3.4 The Customer shall pay any applicable VAT to NatureMetrics on receipt of a valid VAT invoice.

4. **Payment**

4.1 NatureMetrics shall invoice the Customer for the Services, partially or in full, at any time following acceptance of the Order Form.

4.2 The Customer shall pay all invoices (i) in full without deduction or set-off, in cleared funds within thirty (30) days of the date of each invoice; (ii) in the currency as specified in each invoice; and (iii) to the bank account nominated by NatureMetrics.

4.3 Time of payment is of the essence. Where sums due under these Conditions are not paid in full by the due date, NatureMetrics may, without limiting its other rights:

(a) charge interest on such sums at five (5) per cent a year above the overnight rate of the Bank of Canada from time to time in force, in which case interest shall accrue on a daily basis, and apply from the due date for payment until actual payment in full, whether before or after judgment; and

(b) withhold provision of the Final Report until such time as complete payment is received from the Customer, including any interest as calculated in accordance with this section 4.3.

5. **NatureMetrics' obligations**

5.1 NatureMetrics shall use its reasonable endeavours to perform the Services in accordance with any timelines or end dates for performance specified in the Order Form. Services which do not have specified commencement or end dates shall be performed by NatureMetrics as soon as possible but, in any event, within a reasonable period of time.

5.2 The Services shall be deemed to have been completed at such time as the Customer is satisfied that the Services have been performed by NatureMetrics in full and in accordance with the terms of this Agreement.

5.3 Subject to section 5.4, if NatureMetrics fails to comply with the provisions of section 5.1 then the Customer may, at its option:

(a) refuse to accept any subsequent attempts to perform the Services and terminate the Contract immediately by written notice to NatureMetrics; and

(b) procure services similar to the Services from an alternative supplier.

5.4 The remedies set out in section 5.3 shall not be available to the Customer if the relevant delay in or failure of performance is caused by (i) the Customer's failure to provide NatureMetrics with adequate instructions for performance, or (ii) Force Majeure.

6. **Customer's obligations**

6.1 The Customer shall collect Samples only using the Kits and only in accordance with the instructions provided by NatureMetrics.

6.2 The Customer is solely responsible for:

(a) ensuring that all necessary safety procedures are in place when collecting Samples using the Kits;

(b) ensuring that individual Samples are of sufficient quality and volume to allow NatureMetrics to perform the relevant genetic analyses;

(c) ensuring that the Samples are sufficiently representative of the wider sampling area, and (if relevant) for all other aspects of experimental and/or sampling design;

(d) storing and packing the Samples in accordance with instructions provided by NatureMetrics, in order to ensure the Samples received by NatureMetrics are of sufficient condition to allow NatureMetrics to perform the relevant genetic analyses;

(e) submitting the Metadata to NatureMetrics (in either paper form or via NatureMetrics' dedicated software application) in accordance with NatureMetrics' instructions; and

(f) providing to NatureMetrics such further information about the Samples as is reasonably required by NatureMetrics in order to provide the Services, as requested by NatureMetrics from time-to-time.

6.3 If the Customer is not the intended end-user of the Services (for example, where the Customer is a distributor of NatureMetrics' Services):

(a) the Customer is required to procure written agreement from the end-user(s) of the Services to the provisions of these Conditions, and to draw the end-user(s) particular attention to the provisions of sections 9 to 13 (inclusive); and

(b) the Customer shall be liable for any breach of the Contract by the end-user(s) as if such breach had been occasioned by the Customer itself.

6.4 The following provisions shall apply if the Customer becomes aware of the occurrence (or potential occurrence) of toxic or hazardous materials, or biological pollutants (**'Contaminants'**) in the Samples or at the location from which Samples were taken:

(a) The Customer will, at its own cost, immediately provide to NatureMetrics all information as NatureMetrics deems necessary with regard to such Contaminants.

(b) NatureMetrics reserves the right to suspend the Services in the event Contaminants are present. Following consultation with the Customer, NatureMetrics may propose safety measures and adjustments to the Price to address the presence of Contaminants, and NatureMetrics shall re-commence the Services on receipt of the Customer's written acceptance of the proposed safety measures and adjustments to the Price. The Customer shall be liable for all costs, losses and expenses incurred by NatureMetrics as a result of such suspension and re-commencement of the Services.

(c) Samples which are known or suspected of containing Contaminants – to the point where they may be considered harmful to health or to the environment – may not be submitted to NatureMetrics for analysis without the prior written consent of NatureMetrics. As a condition of providing its consent, NatureMetrics may require the Customer to accurately quantify (at its own cost, using a third-party provider as necessary) the nature and concentration of the suspected Contaminants, and provide this information to NatureMetrics.

(d) In all cases, NatureMetrics reserves the right to decline to accept, or to decline to carry out the Services, which in NatureMetrics' reasonable opinion will present an unacceptable risk of harm to any person involved in the provision of the Services.

7. Delivery of Kits to the Customer

7.1 The Kits shall be delivered by NatureMetrics, or its nominated carrier (i) to the location, and (ii) in accordance with the timelines specified in, the Order Form. The Kits shall be deemed delivered on their arrival at such location.

7.2 Time of delivery is not of the essence. NatureMetrics shall use its reasonable endeavours to meet delivery dates but such dates are indicative only.

7.3 NatureMetrics shall not be liable for any delay in or failure of delivery caused by:

(a) the Customer’s failure to make the specified delivery location available;

(b) the Customer’s failure to provide NatureMetrics with adequate instructions for delivery; or

(c) Force Majeure.

7.4 Risk in the Kits shall pass to the Customer on delivery. Title to the Kits shall pass to the Customer once NatureMetrics has received payment in full and cleared funds for the Kits.

8. **Delivery of Samples to NatureMetrics**

8.1 Unless otherwise agreed between the parties, NatureMetrics shall arrange for the transport of the Samples to NatureMetrics' laboratory, at the Customer's cost.

8.2 Risk in the Samples shall pass to NatureMetrics on delivery. Following which, in the event that a Sample is lost or damaged while the responsibility of NatureMetrics, NatureMetrics' liability shall be limited to providing the Customer with a refund for any Services the adequate provision of which depended on the lost or damaged Sample.

9. **Reliance on Final Report**

The Customer acknowledges that the Services (including the Final Report) do not purport to identify with complete certainty whether a species is present or absent at a particular location at a particular point in time. Rather, the nature of the technology underpinning the Services is such that any Species List (or equivalent) provided to the Customer can only indicate, by reference to expressed probabilities, the likelihood of a species being present or absent. As such, the Species List and the Final Report are by their nature informational only and are not intended to be advisory. Interpretation of the Final Report and any consequential decision-making are the sole responsibility of the Customer, and NatureMetrics does not accept any responsibility or liability in respect of actions taken by the Customer in reliance on the content of the Final Report.

10. **Intellectual property rights - general**

10.1 Other than as explicitly set out in these Conditions, no Intellectual Property Rights are transferred or licensed (whether implied or otherwise) to the Customer as a result of the Contract. In particular, all processes, techniques and know-how of NatureMetrics shall remain the property of NatureMetrics.

10.2 In the event that the Services requested by the Customer require the development by NatureMetrics of new assays or processes, then (i) NatureMetrics may charge costs additional to the Price in order to cover the costs of such development, and (ii) the Customer shall have no rights in or claim to those new assays or processes.

11. **Intellectual property rights in Sample Data and Final Report**

11.1 The following types of data are generated by NatureMetrics in the course of providing the Services:

(a) raw DNA sequence data, expressed in 'ACGT' format, derived from sequencing the DNA extracted from the Samples submitted by the Customer (**'Sequence Data'**);

(b) a list of species detected in each Sample, including for each species the number of DNA sequences present in each Sample (**'Species List'**); and

(c) other technical data generated during analysis of each Sample, for example data regarding DNA concentrations, number of PCR replicates, total read numbers, etc. (**'Technical Data'**).

11.2 The following types of data (together, the **'Metadata'**) are generated by the Customer in the course of receiving the Services:

(a) the location/coordinates where each Sample was collected;

(b) data regarding the weather conditions at the time and place each Sample was collected; and

(c) data regarding the topographical conditions at the place each Sample was collected.

11.3 The Sequence Data, Species List, Technical Data, and Metadata shall together be referred to as the **'Sample Data'**. Which constituent elements of the Sample Data are actually compiled and/or provided to the Customer as part of the Services depends on the specific Services requested by the Customer, as set out in the Order Form.

11.4 Subject to section 11.7, in consideration of the Price payable under the Contract, and conditional on receipt of the Price and all other sums due from the Customer in respect of the Services, NatureMetrics hereby assigns, by way of present, and where appropriate, future assignment, to the Customer absolutely with full title guarantee and free of any encumbrances or moral rights all the present and future Intellectual Property Rights in the Sample Data and the Final Report.

11.5 NatureMetrics hereby waives (and shall ensure all of its relevant personnel have waived) all rights to be identified as the author of any work, to object to derogatory treatment of that work and all other moral rights in the Intellectual Property Rights assigned to the Customer pursuant to section 11.4.

11.6 Subject to section 11.4, the Customer grants NatureMetrics and its Affiliates a perpetual, irrevocable, royalty-free, worldwide, non-exclusive licence to utilize the Sample Data, including the specific right to do or have done any or all of the activities set out in section 12.2.

11.7 The Customer acknowledges that in certain jurisdictions, applicable law may dictate that local governmental and/or regulatory institutions have rights in or to the Sample Data, and that such rights may, in full or in part, take precedence over or supersede the rights in the Sample Data expressed herein as belonging to the Customer and/or NatureMetrics.

12. **Use of Sample Data outside provision of the Services**

12.1 This section 12 sets out the various ways in which the Sample Data may be used by NatureMetrics and third parties, outside the scope of NatureMetrics delivering the Services to the Customer.

12.2 Pursuant to the licence granted to it in section 11.6, NatureMetrics shall be permitted to:

(a) remove the Customer's name from the Sample Data, and aggregate it with data from other of NatureMetrics' customers;

(b) use the Sample Data (whether aggregated with other data or not) for:

(i) purposes internal to NatureMetrics, including tracking and auditing of errors that occur during analysis of samples; and

(ii) purposes external to NatureMetrics, including:

(1) analyzing the Sample Data algorithmically to better understand, for example, ecosystem quality;

(2) creating geographical maps of biodiversity risk; and

(3) taking the Sample Data, making them available to third parties and/or the wider public, either commercially or without charge and with or without restrictions on the way such results may be used by those third parties;

(iii) any other purpose related to the business activities of NatureMetrics and its Affiliates at any time, including any future business activities; and

(iv) making such back-up or archive copies of the Sample Data as NatureMetrics reasonably requires.

12.3 For the avoidance of doubt, in exercising its rights under section 12.2, NatureMetrics shall:

(a) at all times comply with its obligations of confidentiality pursuant to section 19; and

(b) subject to section 19, not publish or otherwise make available to third parties the Final Report in substantially the form prepared for the Customer.

12.4 NatureMetrics will store the Sequence Data indefinitely, and at any time the Customer can request further analysis to be performed on the Sequence Data for an additional fee and at NatureMetrics' sole discretion.

12.5 The Customer acknowledges that NatureMetrics may report to relevant authorities the presence or absence of certain species (whether NatureMetrics does so as a result of its legal and regulatory obligations, or on a voluntary basis). This reporting may cover, for example: (i) invasive non-native species (e.g. Japanese Knotweed and North American Signal Crayfish); (ii) various agricultural pests and diseases (e.g. various forms of potato blight); and (iii) insects, aquatic macroinvertebrates, and vertebrates which are classified according to the IUCN Red List.

12.6 The Sample Data and/or the Final Report may contain information on the presence or absence in certain locations of at-risk species. Both NatureMetrics and the Customer acknowledge the potential negative impact on those species that publishing this information may have (with regards to, for example, poaching risk), and so will act responsibly when deciding if and by what means to transmit this information outside of their respective businesses (with regard to, for example, NatureMetrics' rights to do so pursuant to clause 12.2(b)(ii)(3)).

13. **Ongoing use and storage of Sample-extracted DNA**

13.1 Immediately following completion of the provision of the Services pursuant to section 5.2:

(a) ownership of any remaining DNA material extracted from the Samples shall automatically be transferred from the Customer to NatureMetrics; and

(b) NatureMetrics shall be free to use such remaining DNA material for any purpose, including further research and development, and the Customer shall have no right or interest in any data or intellectual property right resulting from such additional use by NatureMetrics.

13.2 For the avoidance of doubt, the Intellectual Property Rights in the Metadata associated with any such remaining DNA material shall be licensed to NatureMetrics in accordance with section 11.6.

13.3 Subject to section 13.4 and unless otherwise agreed, NatureMetrics shall store the Samples for a period of one (1) year from receipt. During this period the Customer can request further analysis to be performed on the extracted DNA for an additional fee and at NatureMetrics' sole discretion. Following the expiration of this period, NatureMetrics shall be free to retain or dispose of the Samples at its own discretion. NatureMetrics' full DNA storage policy is available upon request.

13.4 In relation to Samples comprising soil: once NatureMetrics has extracted from the Samples the DNA required to perform the Services, NatureMetrics shall only retain such soil Samples for a period of ten (10) Business Days following provision of the Final Report to the Customer. If the Customer wishes the soil Samples to be preserved for longer than this period, it must advise NatureMetrics as such before this period expires and make arrangements with NatureMetrics to take back possession of the soil Samples.

14. **Vampire sampler**

If, as part of the Services, the Customer is hiring a vampire sampler device from NatureMetrics, the provisions of Schedule 1 shall apply.

15. **Warranty**

15.1 NatureMetrics warrants that, at the time of performance:

(a) it has the right, power and authority to enter into this Agreement and grant to the Customer the rights (if any) contemplated in these Conditions and to perform the Services;

(b) the Services shall conform in all material respects to their description in the Order Form and shall be free from material defects; and

(c) any regulated tests it provides (including, for example, the great crested newt eDNA test) are conducted in accordance with the guidance provided by the applicable regulator and are 'fit for purpose' as designated by the regulator.

15.2 NatureMetrics makes no representation or warranty, either expressed or implied, that any of the Services based on any testing not prescribed by a regulator will be fit for any particular purpose.

15.3 The Customer warrants that it has provided NatureMetrics with all relevant, full and accurate information as to the Customer's business and needs.

15.4 As the Customer's sole and exclusive remedy, NatureMetrics shall, at its option, remedy, re-perform or refund the Services that do not comply with section 15.1, provided that:

(a) the Customer serves a written notice on NatureMetrics not later than ten (10) Business Days from performance in the case of defects discoverable by a physical inspection, or within a reasonable period of time from performance in the case of latent defects; and

(b) such notice specifies that some or all of the Services do not comply with section 15.1 and identifies in sufficient detail the nature and extent of the defects; and

(c) the Customer gives NatureMetrics a reasonable opportunity to examine the claim of the defective Services.

15.5 The provisions of these Conditions shall apply to any Services that are remedied or re-performed with effect from performance of the remedied or re-performed Services.

15.6 Except as set out in this section 15, NatureMetrics:

(a) gives no warranties and makes no representations in relation to the Services; and

(b) shall have no liability for their failure to comply with the warranty in section 15.1,

and all warranties and conditions, whether express or implied by statute, common law or otherwise are excluded to the extent permitted by law.

16. **Limitation of liability**

16.1 The extent of the parties' liability under or in connection with the Contract (regardless of whether such liability arises in tort, contract or in any other way and whether or not caused by negligence or misrepresentation) shall be as set out in this section 16.

16.2 Subject to sections 16.4 and 16.5, NatureMetrics' total liability shall not exceed the sum of the Price payable by the Customer pursuant to the Contract.

16.3 Subject to sections 16.4 and 16.5, NatureMetrics shall not be liable for consequential, indirect or special losses.

16.4 The extent of a party's liability in respect of any indemnities given by it under the Contract shall not exceed five (5) times the sum of the Price payable by the Customer pursuant to the Contract.

16.5 Notwithstanding any other provision of the Contract, the liability of the parties shall not be limited in any way in respect of the following:

(a) death or personal injury caused by negligence;

(b) fraud or fraudulent misrepresentation; or

(c) any other losses which cannot be excluded or limited by applicable law.

17. **IPR indemnity**

17.1 NatureMetrics shall at all times, on written demand, indemnify, and keep indemnified, the Customer from and against all losses, damages, liability, costs (including legal fees) and expenses incurred by the Customer as a result of or in connection with an IPR Claim.

17.2 The Customer agrees that:

(a) it will notify NatureMetrics in writing of any IPR Claim; and

(b) it will not, without first consulting with NatureMetrics, make any admission relating to the IPR Claim.

17.3 If an IPR Claim is made, or NatureMetrics anticipates that an IPR Claim might be made, NatureMetrics may, at its own expense and sole option, either:

(a) procure for the Customer the right to continue using the relevant Service which is subject to the IPR Claim; or

(b) replace or modify the relevant Service with non-infringing substitutes provided that:

(i) the performance and functionality of the replaced or modified item is at least equivalent to the performance and functionality of the original item;

(ii) there is no additional cost to the Customer; and

(iii) the provisions of the Contract shall apply to the replaced or modified Service.

18. **Customer's indemnity**

The Customer shall at all times, on written demand, indemnify, and keep indemnified, NatureMetrics from and against all losses, damages, liability, costs (including legal fees) and expenses incurred by NatureMetrics as a result of or in connection with:

(a) the Customer’s breach of any of the Customer’s obligations under the Contract; and

(b) any claim made against NatureMetrics for actual or alleged infringement of a third party's Intellectual Property Rights arising out of, or in connection with, the use of the Metadata.

19. **Confidentiality**

19.1 Each party undertakes that it shall keep any information that is confidential in nature concerning the other party including, any details of its business, affairs, customers, clients, suppliers, plans or strategy (**'Confidential Information'**) confidential and that it shall not use or disclose the other party’s Confidential Information to any person, except as permitted by section 19.2. For the avoidance of doubt, any geographic maps of biodiversity risk created by NatureMetrics using the Sample Data (pursuant to clause 12.2(b)(ii)(2)) shall not constitute Confidential Information of the Customer.

19.2 A party may:

(a) subject to section 19.4, disclose any Confidential Information to any of its employees, officers, representatives or advisers (**'Representatives'**) who need to know the relevant Confidential Information for the purposes of the performance of any obligations under this Agreement, provided that such party must ensure that each of its Representatives to whom Confidential

Information is disclosed is aware of its confidential nature and agrees to comply with this section 19 as if it were a party;

(b) disclose any Confidential Information as may be required by law, any court, any governmental, regulatory or supervisory authority (including any securities exchange) or any other authority of competent jurisdiction to be disclosed; and

(c) subject to section 19.4, use Confidential Information only to perform any obligations under this Agreement.

19.3 This section 19 shall remain in force for a period of five (5) years from the date of the Contract or, if longer, for a period of three (3) years from the date of termination of the Contract.

19.4 To the extent any Confidential Information is Protected Data such Confidential Information may be disclosed or used only to the extent such disclosure or use does not conflict with the provisions of section 20.

20. **Processing of personal information**

20.1 The parties acknowledge that: (i) the subject-matter of processing and the nature and purpose of processing are the provision of the Services pursuant to the terms of the Contract; (ii) the duration of processing is for the duration of the provision of Services and for three (3) years following cessation of the provision of Services; (iii) the types of Personal Information will be personal and company information (for example name, job title, contact details, office address, site address) and as otherwise evident from the nature of the Services and the terms of any relevant Order Form; and (iv) the categories of data subjects will include Representatives of the Customer, in particular those commissioning the Services from NatureMetrics.

20.2 The Customer shall at all times comply with all Data Protection Laws in connection with its processing of Protected Data pursuant to the Contract. The Customer shall ensure all instructions given by it to NatureMetrics in respect of Protected Data (including the terms of the Contract) shall at all times be in accordance with Data Protection Laws.

20.3 NatureMetrics shall process Protected Data in compliance with the obligations placed on it under Data Protection Laws, the terms of the Contract, and the privacy notice which is available on NatureMetrics' website (as may be amended from time-to-time).

20.4 NatureMetrics shall only process the Protected Data in accordance with this section 20 and the Contract (including when making any transfer to which section 20.9 relates), except to the extent:

(a) that alternative processing instructions are agreed between the parties in writing; or

(b) as otherwise required by applicable law (and it shall inform the Customer of that legal requirement before processing, unless applicable law prevents it doing so on important grounds of public interest).

20.5 NatureMetrics shall implement and maintain appropriate technical and organizational measures protect the Protected Data against accidental, unauthorized or unlawful destruction, loss, alteration, disclosure or access.

20.6 NatureMetrics shall:

(a) not permit any processing of Protected Data by any Sub-Processor without the prior specific written authorization of the Customer;

(b) prior to the relevant Sub-Processor carrying out any processing activities in respect of the Protected Data, appoint each Sub-Processor under a written contract containing materially the same obligations as under this section 20 (including those relating to sufficient guarantees

to implement appropriate technical and organizational measures) that is enforceable by NatureMetrics and ensure each such Sub-Processor complies with all such obligations;

(c) remain fully liable to the Customer under the Contract for all the acts and omissions of each Sub-Processor as if they were its own; and

(d) ensure that all persons authorized by NatureMetrics or any Sub-Processor to process Protected Data are subject to a binding written contractual obligation to keep the Protected Data confidential.

20.7 NatureMetrics shall notify the Customer to the extent it appoints Sub-Processors.

20.8 The Customer shall not unreasonably withhold, delay or condition any authorization requested by NatureMetrics pursuant to paragraph 20.6(a).

20.9 NatureMetrics shall not process and/or transfer, or otherwise directly or indirectly disclose, any Protected Data in or to any country or territory outside Canada or the United Kingdom without the prior written authorization of the Customer.

20.10 NatureMetrics shall, in accordance with Data Protection Laws, make available to the Customer such information that is in its possession or control as is necessary to demonstrate NatureMetrics' compliance with the obligations placed on it under this section 20 and to demonstrate compliance with the obligations on each party imposed by the Data Protection Laws, and allow for and contribute to audits, including inspections, by the Customer (or another auditor mandated by the Customer) for this purpose (subject to a maximum of one (1) audit request in any 12-month period under this section 20.10).

20.11 NatureMetrics shall notify the Customer without undue delay and in writing on becoming aware of any Privacy Breach in respect of any Protected Data.

21. **Termination**

21.1 Either party may terminate the Contract at any time by giving notice in writing to the other party if:

(a) the other party commits a material breach of Contract and such breach is not remediable;

(b) the other party commits a material breach of the Contract which is capable of being remedied and such breach is not remedied within fourteen (14) days of receiving written notice of such breach;

(c) the Customer has failed to pay any amount due under the Contract on the due date and such amount remains unpaid within thirty (30) days after NatureMetrics has given notification that the payment is overdue; or

(d) any consent, licence or authorization held by the other party is revoked or modified such that the other party is no longer able to comply with its obligations under the Contract or receive any benefit to which it is entitled.

21.2 NatureMetrics may terminate the Contract at any time by giving notice in writing to the Customer if the Customer has failed to pay any amount due under the Contract on the due date and such amount remains unpaid within thirty (30) days after NatureMetrics has given notification that the payment is overdue.

21.3 Subject to section 21.4, either party may terminate the Contract at any time by giving notice in writing to the other party if that other party:

(a) stops carrying on all or a significant part of its business, or indicates in any way that it intends to do so;

(b) is unable to pay its debts or if the non-defaulting party reasonably believes that to be the case;

(c) becomes the subject of a voluntary or involuntary petition into bankruptcy under the *Bankruptcy and Insolvency Act* R.S.C., 1985, c. B-3 or other applicable legislation;

(d) has a receiver, manager, administrator or administrative receiver appointed over all or any part of its undertaking, assets or income;

(e) has a resolution passed for its winding up;

(f) has a petition presented to any court for its winding up or an application is made for an administration order, or any winding-up or administration order is made against it;

(g) is subject to any procedure for the taking control of its goods that is not withdrawn or discharged within seven (7) days of that procedure being commenced;

(h) has a freezing order made against it; or

(i) is subject to any events or circumstances analogous to those in paragraphs 21.3(a) to (h) in any jurisdiction.

21.4 The right of a party to terminate the Contract pursuant to section 21.3 shall not apply to the extent that the relevant procedure is entered into for the purpose of amalgamation, reconstruction or merger (where applicable) where the amalgamated, reconstructed or merged party agrees to adhere to the Contract.

21.5 Termination or expiry of the Contract shall not affect any accrued rights and liabilities of either party at any time up to the date of termination.

21.6 The following sections of these Conditions shall survive termination, howsoever caused: section 4 (*Payment*); 9 (*Reliance on Final Report*); 10 (*Intellectual property rights - general*); 11 (*Intellectual property rights in Sample Data and Final Report*); 12 (*Use of Sample Data outside provision of the Services*); 13 (*Ongoing use and storage of Sample-extracted DNA*); 15 (*Warranty*); 16 (*Limitation of liability*); 17 (*IPR indemnity*); 18 (*Customer's indemnity*); 19 (*Confidentiality*); 20 (*Processing of personal information*); 21.5 and this section 21.6 (*Effect of termination*); 24.10 (*Severance*); 24.11 (*Waiver*); 24.15 (*Third-party rights*); 24.16 (*Governing law*); and 24.17 (*Jurisdiction*); together with any other provision of these Conditions which expressly or by implication is intended to survive termination.

22. **Anti-bribery**

22.1 Each party shall comply with applicable law with regard to bribery and anti-corruption, including ensuring that it has in place adequate procedures to prevent bribery and ensure that:

(a) all of that party's personnel;

(b) all others associated with that party; and

(c) all of that party's sub-contractors;

involved in performing the Contract so comply.

22.2 Without limitation to section 22.1, neither party shall make or receive any bribe or other improper payment, or allow any such to be made or received on its behalf, either in Canada or elsewhere, and shall implement and maintain adequate procedures to ensure that such bribes or payments are not made or received directly or indirectly on its behalf.

22.3 The Customer shall immediately notify NatureMetrics as soon as it becomes aware of a breach by the Customer of any of the requirements in this section 22.

23. **Anti-slavery**

23.1 NatureMetrics and the Customer shall comply with all anti-slavery legislation that is applicable to their operations and their performance of their obligations under this Agreement.

23.2 The Customer confirms and agrees that it has implemented due diligence procedures to ensure compliance with any and all applicable anti-slavery legislation in its business and supply chain, and those of its officers, employees, agents or subcontractors, which will be made available to NatureMetrics on request at any time throughout the Contract.

23.3 The Customer shall notify NatureMetrics immediately in writing if it becomes aware or has reason to believe that it, or any of its officers, employees, agents or subcontractors have breached or potentially breached any of the Customer's obligations under section 23.2. Such notice to set out full details of the circumstances concerning the breach or potential breach of the Customer's obligations.

24. **General provisions**

24.1 **Force majeure.** Neither party shall have any liability under or be deemed to be in breach of the Contract for any delays or failures in performance of the Contract which result from Force Majeure. The party subject to the Force Majeure event shall promptly notify the other party in writing when such the event causes a delay or failure in performance and when it ceases to do so. If the Force Majeure event continues for a continuous period of more than nine (9) calendar months, either party may terminate the Contract by giving thirty (30) days' prior written notice to the other party.

24.2 **Notices.**

(a) Notices under this Agreement shall be in writing and sent to:

(i) in the case of NatureMetrics, either by email to eDNA-lab@naturemetrics.co.uk, or by post to 590 Hanlon Creek Boulevard, Unit 11, Guelph, Ontario, N1G 3M5; and

(ii) in the case of the Customer, either by email to the email address as set out in the Order Form, or by post to the Customer's registered office address as set out in the Order Form.

(b) Notices may be given, and shall be deemed received:

(i) by first-class post: two Business Days after posting;

(ii) by hand: on delivery; and

(iii) by e-mail: 24 hours from delivery if sent to the correct email address and no notice of delivery failure is received, or on receipt of confirmation of receipt from the recipient.

(c) This section 24.2 does not apply to notices given in legal proceedings or arbitration.

24.3 **Further assurance.** Each party shall at the request of the other party, and at the cost of the requesting party, do all acts and execute all documents which are necessary to give full effect to the Contract.

24.4 **Entire agreement.** The parties agree that the Contract constitutes the entire agreement between them and supersedes all previous agreements, understandings and arrangements between them, whether in writing or oral in respect of its subject matter. Each party acknowledges that it has not entered into the Contract in reliance on, and shall have no remedies in respect of, any representation or warranty that is not expressly set out in the Contract or any documents entered

into pursuant to it. No party shall have any claim for innocent or negligent misrepresentation on the basis of any statement in the Contract. Nothing in these Conditions purports to limit or exclude any liability for fraud.

24.5 **Variation.** No variation of the Contract shall be valid or effective unless it is in writing, refers to the Contract and these Conditions and is duly signed or executed by, or on behalf of, each party.

24.6 **Assignment.** The Customer may not assign, subcontract or encumber any of its rights or obligations under the Contract, in whole or in part, without the prior written consent of NatureMetrics. NatureMetrics may assign, subcontract or encumber any of its rights or obligations under the Contract, in whole or in part, without the prior written consent of the Customer.

24.7 **Set off.** NatureMetrics shall be entitled to set-off under the Contract any liability which it has or any sums which it owes to the Customer under the Contract.

24.8 **No partnership or agency.** The parties are independent persons and are not partners, principal and agent or employer and employee and the Contract does not establish any joint venture, trust, fiduciary or other relationship between them, other than the contractual relationship expressly provided for in it. None of the parties shall have, nor shall represent that they have, any authority to make any commitments on the other party's behalf.

24.9 **Equitable relief.** The Customer recognises that any breach or threatened breach of the Contract may cause NatureMetrics irreparable harm for which damages may not be an adequate remedy. Accordingly, in addition to any other remedies and damages available to NatureMetrics, the Customer acknowledges and agrees that NatureMetrics is entitled to the remedies of specific performance, injunction and other equitable relief without proof of special damages.

24.10 **Severance.** If any provision of the Contract (or part of any provision) is or becomes illegal, invalid or unenforceable, the legality, validity and enforceability of any other provision of the Contract shall not be affected.

24.11 **Waiver.** No failure, delay or omission by NatureMetrics in exercising any right, power or remedy provided by law or under the Contract shall operate as a waiver of that right, power or remedy, nor shall it preclude or restrict any future exercise of that or any other right, power or remedy. No single or partial exercise of any right, power or remedy provided by law or under the Contract by NatureMetrics shall prevent any future exercise of it or the exercise of any other right, power or remedy by NatureMetrics.

24.12 **Compliance with law.** Each party shall comply and shall (at its own expense unless expressly agreed otherwise) ensure that in the performance of its duties under the Contract it will comply with all applicable law, provided that neither party shall be liable for any breach of this section 24.12 to the extent that such breach is directly caused or contributed to by any breach of the Contract by the other party.

24.13 **Conflicts within contract.** If there is a conflict between any of the provisions of these Conditions, the Schedules, and/or the Order Form, the following descending order of priority applies:

(a) the terms of section 20 of these Conditions (*Processing of personal information*);

(b) the terms of the Order Form; and

(c) all other provisions of these Conditions.

24.14 **Costs and expenses.** Each party shall pay its own costs and expenses incurred in connection with the negotiation, preparation, signature and performance of this Agreement (and any documents referred to in it).

24.15 **Third-party rights.**

(a) Except as expressly provided for in paragraph 24.15(b), a person who is not a party to the Contract shall not have any rights to enforce any of the provisions of the Contract.

(b) Any Affiliate of NatureMetrics shall be entitled to enforce any of the provisions of the Contract. The consent of any such Affiliate is not required in order to rescind or vary the Contract or any provision of it.

24.16 **Governing law.** The Contract and any dispute or claim arising out of, or in connection with, it, its subject matter or formation (including non-contractual disputes or claims) shall be governed by, and construed in accordance with, the laws of the Province of Ontario and the federal laws of Canada applicable therein.

24.17 **Jurisdiction.** The parties irrevocably agree that the courts of the Province of Ontario shall have exclusive jurisdiction to settle any dispute or claim arising out of, or in connection with, the Contract, its subject matter or formation (including non-contractual disputes or claims).

24.18 **English Language.** It is the wish of the parties that this Agreement and all related documents, including notices and other communications, be drawn up in the English language only. Il est la volonté expresse des parties que cette convention et tous les documents s'y rattachant, y compris les avis et les autres communications, soient rédigés et signés en anglais seulement.

Schedule 1
Vampire Sampler – Terms of Hire

1 NatureMetrics hires out vampire samplers to its customers in order to assist them with collecting samples from water.

2 The following charges apply to the hiring of a vampire sampler by the Customer:

2.1 One-off commissioning fee: CA$165 + VAT.

2.2 Deposit (refundable on return): CA$665 + VAT.

2.3 Daily fee: CA$20 + VAT.

3 The Customer is at all times liable for any loss of or damage to a hired vampire sampler. NatureMetrics reserves the right to retain the deposit amount referred to above in the event of loss of or damage to a vampire sampler hired by the Customer.

4 During the hire period, the Customer shall operate, clean and maintain the vampire sampler in accordance with instructions provided by NatureMetrics and/or the manufacturer. NatureMetrics reconditions each hired vampire sampler returned to it, before hiring it out again.

5 The Customer acknowledges that NatureMetrics is not the manufacturer of the vampire sampler, and so is unable to offer technical support or maintenance services. If for whatever reason a vampire sampler ceases to function properly, NatureMetrics will use its reasonable endeavours to provide the Customer with a replacement vampire sampler.

6 The Customer should be aware that each vampire sampler is fitted with a GPS tracking device, in order to allow NatureMetrics to identify the physical location of a vampire sampler in the event it gets lost. NatureMetrics does not store this historical location data or share it with third parties.

7 If the Customer desires, it may purchase a vampire sampler from NatureMetrics, at a price to be agreed. NatureMetrics does not provide any warranties in relation to vampire samplers it sells.

The terms and conditions which apply to and govern this Order Form are the Conditions. The parties agree that all other terms and conditions are expressly excluded.

Signed by (*print name*) Will Huys .....
Signature of director/authorized signatory

for and on behalf of (*print company name*)

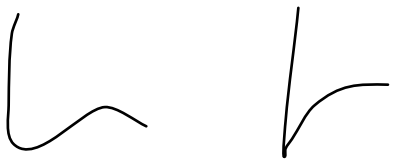
MTE Consultants Inc.
(the Customer)

Date July 28, 2022

Signed by (*print name*) _____ .....
Signature of director/authorized signatory

for and on behalf of
Nature Metrics North America Ltd.

Date _____



Please send back completed form to your business development contact

	MTE Consultants Inc.
	William Huys
	49999-100, Wellington St. S.
	whuys@mte85.com
	5
	DNA Testing

*Use these to distinguish samples from one another, ideally with discernable identifiers followed by numerical suffix relating to sample number: e.g., NMNA1, NMNA2,	*Country in which the sample was collected: e.g.,	*Please put latitude where sample was collected in format:	*Please put longitude where sample was collected in format:	*Input date sample was collected in the	*Include names or initials of individuals that collected the	*Please indicate the amount of water filtered through this	*Select from the drop down menu for	*Select from the drop down menu for	*Select from the drop down menu for	*Select from the drop down menu for	*Select from the drop down menu for	*Add any additional notes for lab processing. E.g., field blanks, turbid water, any issues with sampling/filter,
49999-100 BH1	Canada	42.91686718	-81.20756409	7/27/2022	WH, TC							
49999-100 BH2	Canada	42.91622843	-81.20721889	7/27/2022	WH, TC							
49999-100 BH3	Canada	42.91611121	-81.20730426	7/27/2022	WH, TC							
49999-100 BH5	Canada	42.91619221	-81.20732903	7/27/2022	WH, TC							
49999-100 BH6	Canada	42.91616486	-81.20751272	7/27/2022	WH, TC							

Extend as necessary

Please select
Fish
Vertebrates
Unionid mussels
Venerid mussels
Mammals
Jefferson salamander (Ambystoma jeffersonianum)
Blanding's turtle (Emydoidea blandingii)
Lake Sturgeon (Acipenser fulvescens)

Brown trout (Salmo trutta)
Rainbow trout (Onchorynchus mykiss)
Round whitefish (Prosopium cylindraceaum)
Burbot (Lota lota)
Redside dace (Clinostomus elongatus)
Silver shiner (Notropis photogenis)
Other (please specify)

BUTTERNUT HYBRIDITY TESTING **RESULTS**

Order number:	NA-SO00086
Report number:	NM-BWY553
Company:	MTE Consultants Inc.
Contact:	William Huys
Project:	49999-100, Wellington St. S.
BC Project:	49999-100, Wellington St S
Sample type:	Plant tissue (leaf)
Date of report:	18 August 2022
Number of samples:	5

Thank you for sending your samples for analysis by NatureMetrics. Your samples have been **analysed** following our **Butternut RFLP (Restriction Fragment Length Polymorphism)** pipeline supplemented by **Sequence Characterized Amplified Region (SCAR)** codominant marker.

Butternut (*Juglans cinerea* L.) is considered an **endangered (EN)** tree species in Ontario. This report contains biodiversity information that may be sensitive, particularly with respect to endangered or protected species. It is the responsibility of the client to ensure that due consideration is given to the data and that the information is shared in a responsible way.

Disclaimer: Provided test only detects the occurrence of a hybridization event between butternut (*J. cinerea* L.) and Japanese Walnut (*J. ailantifolia* Carr.) similar to the previous OFRI test derived from the publication by Zhao and Woeste (2011).

Here we present an overview of the key results, followed by a more detailed report that starts with the taxonomic composition of the samples followed by a more detailed look at the steps taken to extract, amplify, sequence, and analyse your DNA. A glossary for terms in **bold** is provided at the end of the report to define key terms used within the report.

OVERVIEW OF YOUR RESULTS

- A total of 0 **butternut** samples and 5 **hybrid** samples (see **Disclaimer**) were identified.
- All laboratory **controls** performed as expected.

FULL REPORT

Sample composition

A total of 0 butternut samples and 5 hybrid samples were identified (**Table 1, Figure 2**).

High-quality PCR products were obtained from all four tested markers with corresponding restriction enzyme profiles, where applicable.

All laboratory controls performed as expected.

Table 1. The concentration of extracted DNAs and summary of RFLP and SCAR results.

Customer ID	Barcode	Date arrived	DNA (ng/µl)	trnT R RFLP	ITS RFLP	15R 8 RFLP	22 5 SCAR	Identification
49999-100 BH1	NAS-01-H0061	29-July-22	0.526	*J. ailantifolia*	*J. cinerea*	Hybrid	Hybrid	Hybrid
49999-100 BH2	NAS-01-H0062	29-July-22	0.498	*J. ailantifolia*	*J. ailantifolia*	*J. ailantifolia*	Hybrid	Hybrid
49999-100 BH3	NAS-01-H0063	29-July-22	0.624	*J. ailantifolia*	Hybrid	*J. cinerea*	*J. cinerea*	Hybrid
49999-100 BH4	NAS-01-H0064	29-July-22	2.08	*J. ailantifolia*	Hybrid	Hybrid	Hybrid	Hybrid
49999-100 BH5	NAS-01-H0065	29-July-22	0.81	*J. ailantifolia*	Hybrid	*J. cinerea*	Hybrid	Hybrid

Figure 1. Reference **butternut** PCR for 3 markers with corresponding restriction profiles and 22-5 SCAR marker PCR.

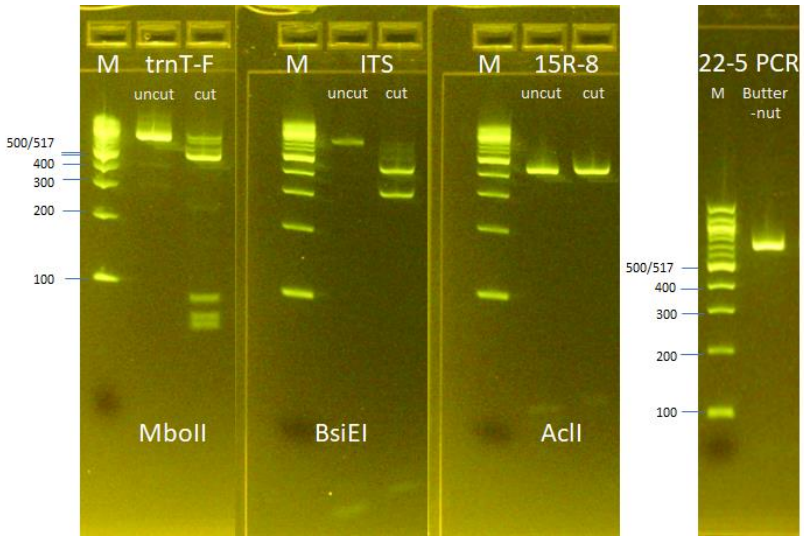
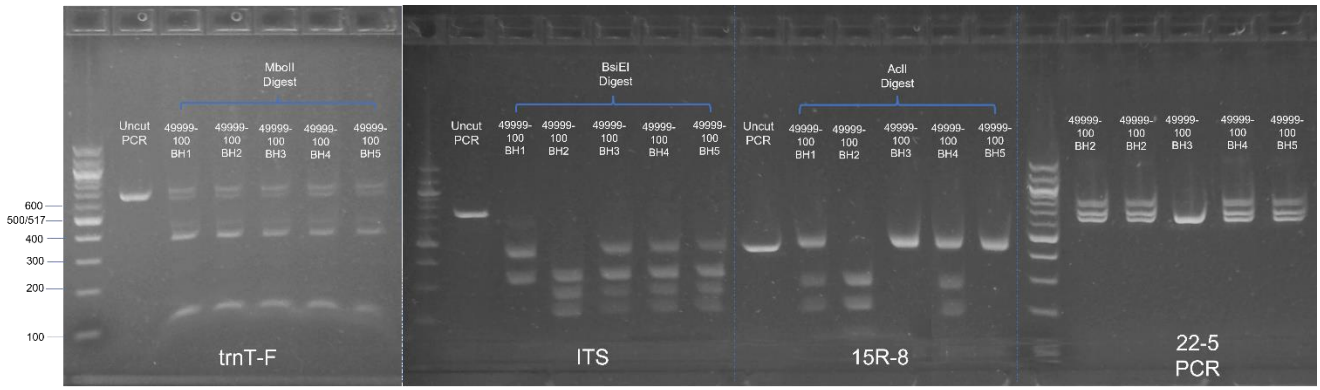


Figure 2. Non-digested (uncut)/digested amplicons and 22-5 SCAR marker PCR profile for submitted samples.



METHODS

DNA from plant samples was extracted using a commercial plant DNA extraction kit with a protocol modified to produce standard DNA yields suitable for PCR and restriction analysis. An extraction blank was also processed for the extraction batch.

Comment: DNA yield was as expected (**Table 1**).

Extracted DNAs for samples and negative extraction control were amplified with **PCR** for four regions: trnT-F, ITS, 15R-8 and 22-5.

All PCRs were performed using pre-validated PCR mixes in the presence of both a **negative DNA extraction control** and a **negative PCR control.** Amplification and restriction enzyme digestion products were analyzed by **gel electrophoresis**.

Markers and corresponding restriction digests:

Assay #1) PCR amplification of chloroplast gene trnT-F, followed by restriction digest with enzyme MboII.

Assay #2) PCR amplification of ITS region of ribosomal nuclear DNA, followed by restriction digest with enzyme BsiEI.

Assay #3) PCR amplification of random nuclear fragment called "15R-8", followed by restriction digest with enzyme AclI.

Assay #4) PCR amplification of SCAR marker 22-5 without restriction digest.

Comment: PCR reactions were consistently successful for all four markers for 5 samples. Electrophoresis bands were strong and of the expected size and no PCRs required repeating. No bands were observed on electrophoresis gels for the extraction blank or negative controls.

END OF REPORT

Report issued by: **May Mei**

Report reviewed by: **Natalia Ivanova**

Contact: team@naturemetrics.co.uk

REFERENCES

Zhao, P. & Woeste, K. E. (2011). DNA markers identify hybrids between butternut (*Juglans cinerea* L.) and Japanese walnut (*Juglans ailantifolia* Carr.). Tree Genetics & Genomes, 7, 511-533.

GLOSSARY

Butternut	*Juglans cinerea* L. hybrid event between butternut (*J. cinerea* L.) and Japanese Walnut (*J. ailantifolia* Carr.)
Extraction Blank	A DNA extraction with no sample added to assess potential contamination during the DNA extraction process.
Gel Electrophoresis	The process in which DNA is separated according to size and electrical charge via an electric current, while in a gel. The process is used to confirm the successful amplification of a specific size fragment of DNA.
Inhibitors/inhibition	Naturally-occurring chemicals/compounds that cause DNA amplification to fail, potentially resulting in false negative results. Common inhibitors include tannins, humic acids and other organic compounds. Inhibitors can be overcome by either diluting the DNA (and the inhibitors) or by additional cleaning of the DNA, but dilution carries the risk of reducing the DNA concentration below the limits of detection. At NatureMetrics, inhibition is removed using a commercial extraction/purification kit.
Hybrid	In this report – hybrid between butternut (*J. cinerea* L.) and Japanese Walnut (*J. ailantifolia* Carr.).
IUCN Red List	The IUCN (International Union for the Conservation of Nature) is a global union of government and civil organisations that disseminates information to assist conservation. The IUCN Red List of Threatened Species is an inventory of the conservation status of over 100,000 species worldwide. The Red List evaluates data such as population trends, geographic range and the number of mature individuals in order to categorise species based on their extinction risk: **Extinct (EX)** - No individual of this species remains alive. **Extinct in the Wild (EW)** - Surviving individuals are only found in captivity. **Critically Endangered (CE)** - species faces an extremely high risk of extinction in the wild. e.g. Population size estimated at fewer than 50 mature individuals. **Endangered (EN)** - species faces a very high risk of extinction in the wild. e.g. Population size estimated at fewer than 250 mature individuals. **Vulnerable (VU)** - species faces a high risk of extinction in the wild. e.g. Population size estimated at fewer than 10,000 mature individuals and declining. **Near Threatened (NT)** - species is below the threshold for any of the threatened categories (CE, E, V) but is close to this threshold or is expected to pass it in the near future. **Least Concern (LC)** - species is not currently close to qualifying for any of the other categories. This includes widespread and abundant species. **Data Deficient (DD)** - There is currently insufficient data available to make an assessment of extinction risk. This is not a threat

	category - when more data becomes available the species may be recategorised as threatened.
Negative Control	Used to determine if PCR reactions are contaminated.
PCR	Short for Polymerase chain reaction. A process by which millions of copies of a particular DNA segment are produced through a series of heating and cooling steps. Known as an 'amplification' process. One of the most common processes in molecular biology and a precursor to most sequencing-based analyses.
RFLP	Short for Restriction Fragment Length Polymorphism which is a difference in homologous DNA sequences that can be detected by the presence of fragments of different lengths after digestion of the DNA samples in question with specific restriction endonucleases.
Positive Control	Used to determine whether the assay is working correctly.
Primers	Short sections of synthesised DNA that bind to either end of the DNA segment to be amplified by PCR. Can be designed to be totally specific to a particular species (so that only that species' DNA will be amplified from a community DNA sample), or to be very general so that a wide range of species' DNA will be amplified. Good design of primers is one of the critical factors in DNA-based monitoring.
SCAR	Short for Sequence Characterized Amplified Region. SCARs are DNA fragments amplified by the PCR using specific 15-30 bp primers, designed from nucleotide sequences established from cloned RAPD fragments linked to a trait of interest. Obtaining a codominant marker may be an additional advantage of converting RAPDs into SCARs, although SCARs may exhibit dominance when one or both primers partially overlap the site of sequence variation. Length polymorphisms are detected by gel electrophoresis.
Taxon (s.) / **taxa** (pl.)	Strictly, a taxonomic group. Here we use the term to describe groups of DNA sequences that are equivalent to species. We do not use the term species because we are unable to assign complete identifications to all of the groups at this time due to gaps in the available reference databases.
Taxonomy	**species** (s./pl.) - A group of individuals capable of interbreeding. This is the most important taxonomic unit defined by scientists and the population trends of individual species are a key indicator in judging the effect of conservation programs. Related species are grouped together into progressively larger taxonomic units, from genus to kingdom. *Homo sapiens* (human) is an example of a species. **genus** (s.) / **genera** (pl.) - A group of closely related species. Each genus can include one or more species. *Homo* is an example of a genus. **family** (s.) / **families** (pl.) - A group of closely related genera. *Homo sapiens* is in the family Hominidae (great apes). **order** (s.) / **orders** (pl.) - A group of closely related families. *Homo sapiens* is in the order Primates. **class** (s.) / **classes** (pl.) - A group of closely related orders. *Homo sapiens* is in the class Mammalia.

Appendix E

Ecological Land Classification Information

ELC

SITE: 49999-100			POLYGON: 1
SURVEYORS:	WILL HUYS		
DATES: 10/26/2021			
UTMZ:	UTME:	UTMN:	

POLYGON DESCRIPTION

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

SITE	
	OPEN WATER
	SHALLOW WATER
X	SURFICIAL DEP.
	BEDROCK

COVER	
	OPEN
	SHRUB
X	TREED

STAND DESCRIPTION

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>>MUCH GREATER THAN; >GREATER THAN; =ABOUT EQUAL TO)
1	CANOPY	2	3	CATASPE=JUGLNIG>PICEABI
2	SUB-CANOPY	3	2	JUGLNIG>>POPUTRE>JUGLCIN>QUERMAC
3	UNDERSTORY	4	3	CATASPE=LONITAT=VIBUOPU=CORNRAC
4	GRD. LAYER	5	4	ALLIPET

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

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

STAND COMPOSITION:	BA:	
0		

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

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

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

SOIL ANALYSIS:

TEXTURE:		DEPTH TO MOTTLES/GLEY	g=		G=		
MOISTURE:		DEPTH OF ORGANICS:					
HOMOGENOUS		VARIABLE		DEPTH TO BEDROCK:			

COMMUNITY CLASSIFICATION: **ELC CODE**

COMMUNITY CLASS:	CULTURAL	CU
COMMUNITY SERIES:	WOODLAND	CUW
ECOSITE:	MINERAL	CUW1
VEGETATION TYPE:		
INCLUSION:		
COMPLEX:		

NOTES:

ELC

SITE: 49999-100			POLYGON: 2
SURVEYORS:	WH		
DATES: 10/26/2021			
UTMZ:	UTME:	UTMN:	

POLYGON DESCRIPTION

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

STAND DESCRIPTION

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>>MUCH GREATER THAN; >GREATER THAN; =ABOUT EQUAL TO)
1	CANOPY	2	2	ACERNEG=MORUALB
2	SUB-CANOPY			
3	UNDERSTORY	3	3	RHAMCAT=CORNRAC=RHUSTYP
4	GRD. LAYER	4	3	SYMPSPP=SOLICAN>BROMINE>PHALARU

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

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

STAND COMPOSITION:	BA:	
0		0

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

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

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

SOIL ANALYSIS:

TEXTURE:		DEPTH TO MOTTLES/GLEY	g=		G=		
MOISTURE:		DEPTH OF ORGANICS:					
HOMOGENOUS		VARIABLE		DEPTH TO BEDROCK:			

COMMUNITY CLASSIFICATION: **ELC CODE**

COMMUNITY CLASS:	THICKET	TH
COMMUNITY SERIES:	DECIDUOUS	THD
ECOSITE:	DRY-FRESH SHRUB	THDM2
VEGETATION TYPE:	BUCKTHORN DECIDUOUS SHRUB THICKET	THDM2-6
INCLUSION:		
COMPLEX:		

NOTES:

ELC

SITE: 49999-100			POLYGON: 3
SURVEYORS:	WH		
DATES: 10/26/2021			
UTMZ:	UTME:	UTMN:	

POLYGON DESCRIPTION

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

SITE	
	OPEN WATER
X	SHALLOW WATER
X	SURFICIAL DEP.
	BEDROCK

COVER	
X	OPEN
	SHRUB
	TREED

STAND DESCRIPTION

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>>MUCH GREATER THAN; >GREATER THAN; =ABOUT EQUAL TO)
1	CANOPY			
2	SUB-CANOPY			
3	UNDERSTORY			
4	GRD. LAYER	6	3	XANTSTR=ALISSUB>JUNCEFF

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

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

STAND COMPOSITION: 0	BA:	0

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

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

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

SOIL ANALYSIS:

TEXTURE:		DEPTH TO MOTTLES/GLEY	g=		G=		
MOISTURE:		DEPTH OF ORGANICS:					
HOMOGENOUS		VARIABLE		DEPTH TO BEDROCK:			

COMMUNITY CLASSIFICATION: **ELC CODE**

COMMUNITY CLASS:	MARSH	MA
COMMUNITY SERIES:	MEADOW	MAM
ECOSITE:		
VEGETATION TYPE:		
INCLUSION:		
COMPLEX:		

NOTES TINY WET AREA AT THE EDGE OF AGRICULTURAL FIELD. RESULTING FROM POOR OUTLET AT WELLINGTON RD. HARDLY A COMMUNITY

ELC

SITE: 00000-000		POLYGON: 4
SURVEYORS:		
DATES: 10/26/2021		
UTMZ:	UTME:	UTMN:

POLYGON DESCRIPTION

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

STAND DESCRIPTION

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>>MUCH GREATER THAN; >GREATER THAN; =ABOUT EQUAL TO)
1	CANOPY	2	2	ACERNEG>ULMUAME
2	SUB-CANOPY			
3	UNDERSTORY	3	3	CORNRAC=RHUSTYP>CRATSPP
4	GRD. LAYER	2	4	SYMPSPP=SOLICAN>BROMINE>PHALARU

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

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

STAND COMPOSITION:	BA:	
0		0

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

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

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

SOIL ANALYSIS:

TEXTURE:		DEPTH TO MOTTLES/GLEY	g=		G=		
MOISTURE:		DEPTH OF ORGANICS:					
HOMOGENOUS		VARIABLE		DEPTH TO BEDROCK:			

COMMUNITY CLASSIFICATION: **ELC CODE**

COMMUNITY CLASS:	THICKET	TH
COMMUNITY SERIES:	DECIDUOUS	THD
ECOSITE:	DRY-FRESH DECIDUOUS HEDGEROW THICKET	THDM3
VEGETATION TYPE:	NATIVE SHRUB DECIDUOUS HEDGEROW THICKET	THDM3-2
INCLUSION:		
COMPLEX:		

NOTES:

ELC

SITE: 49999-100			POLYGON: 1
SURVEYORS:	WILL HUYS		
DATES: 10/26/2021			
UTMZ:	UTME:	UTMN:	

POLYGON DESCRIPTION

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

SITE	
	OPEN WATER
	SHALLOW WATER
X	SURFICIAL DEP.
	BEDROCK

COVER	
	OPEN
	SHRUB
X	TREED

STAND DESCRIPTION

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>>MUCH GREATER THAN; >GREATER THAN; =ABOUT EQUAL TO)
1	CANOPY	2	3	CATASPE=JUGLNIG>PICEABI
2	SUB-CANOPY	3	2	JUGLNIG>>POPUTRE>JUGLCIN>QUERMAC
3	UNDERSTORY	4	3	CATASPE=LONITAT=VIBUOPU=CORNRAC
4	GRD. LAYER	5	4	ALLIPET

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

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

STAND COMPOSITION: 0	BA:	0

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

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

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

SOIL ANALYSIS:

TEXTURE:		DEPTH TO MOTTLES/GLEY	g=		G=		
MOISTURE:		DEPTH OF ORGANICS:					
HOMOGENOUS		VARIABLE		DEPTH TO BEDROCK:			

COMMUNITY CLASSIFICATION: **ELC CODE**

COMMUNITY CLASS:	CULTURAK	CU
COMMUNITY SERIES:	WOODLAND	CUW
ECOSITE:	MINERAL	CUW1
VEGETATION TYPE:		
INCLUSION:		
COMPLEX:		

NOTES:

ELC

SITE:	49999-100		POLYGON: 1
SURVEYORS:	WILL HUYS		
DATES:	10/26/2021		
UTMZ:	UTME:	UTMN:	

MANAGEMENT / DISTURBANCE

SITE:	49999-100		POLYGON: 1
SURVEYORS:			
DATES:			

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

INTENSITY X EXTENT = SCORE

ELC

SITE:	49999-100		POLYGON: 1
SURVEYORS:	WILL HUYS		
DATES:	10/26/2021		
UTMZ:	UTME:	UTMN:	

SOILS

SITE:	49999-100		POLYGON: 1
SURVEYORS:			
DATES:			

					SLOPE			UTM	
	P/A	PP	DR	POSITIO	ASPECT	%	Z	EASTING	NORTHING
1									
2									
3									
4									
5									

SOIL	1	2	3	4	5
TEXTURE X HORIZON					
A TEXTURE					
COARSE FRAGMENTS					
B TEXTURE					
COARSE FRAGMENTS					
C TEXTURE					
COARSE FRAGMENTS					
EFFECTIVE TEXTURE					
SURFACE STONINESS					
SURFACE ROCKINESS					
DEPTH TO/OF					
MOTTLES					
GLEY					
BEDROCK					
WATER TABLE					
CARBONATES					
ORGANICS					
PORE SIZE DISC #1					
PORE SIZE DISC #2					
MOISTURE REGIME					

ELC

SITE:	49999-100	POLYGON:	1
SURVEYORS:	WILL HUYS		
DATES:	10/26/2021		
UTMZ:	UTME:	UTMN:	

STAND CHARACTERISTICS

SITE:	49999-100	POLYGO	1
SURVEYORS:			
DATES:	0-Jan		

TREE TALLY BY SPECIES:

PRISM FACTOR 2M

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TOTAL	RELATIVE AVERAGE
					0	#DIV/0!
					0	#DIV/0!
					0	#DIV/0!
					0	#DIV/0!
					0	#DIV/0!
					0	#DIV/0!
					0	#DIV/0!
					0	#DIV/0!
					0	#DIV/0!
					0	#DIV/0!
					0	#DIV/0!
					0	#DIV/0!
					0	#DIV/0!
TOTAL	0	0	0	0	0	#DIV/0!
BASAL AREA (BA)	0	0	0	0	0	0
DEAD					0	#DIV/0!

STAND COMPOSITION

Appendix F

Floral Inventory Data

				Floral Invento	
1	2	3	4	**Scientific Name**	**Common Name**
X	X			*Acer negundo*	Manitoba Maple
X				*Acer saccharinum*	Silver Maple
		X		*Alisma subcordatum*	Southern Water-plantain
X	X		X	*Alliaria petiolata*	Garlic Mustard
X	X		X	*Asclepias syriaca*	Common Milkweed
	X			*Bromus inermis*	Smooth Brome
X				*Catalpa speciosa*	Northern Catalpa
X	X		X	*Circaea canadensis*	Broad-leaved Enchanter's Nightshade
X	X			*Cirsium arvense*	Canada Thistle
X				*Convallaria majalis*	European Lily-of-the-valley
X	X			*Cornus racemosa*	Gray Dogwood
X	X		X	*Echinocystis lobata*	Wild Mock-cucumber
X	X			*Euthamia graminifolia*	Grass-leaved Goldenrod
X				*Geum canadense*	White Avens
X	X			*Glechoma hederacea*	Ground Ivy
X	X		X	*Hesperis matronalis*	Dame's Rocket
X	X		X	*Hypericum perforatum*	Common St. John's-wort
X				*Juglans nigra*	Black Walnut
X				*Juglans x bixbyi*	(Juglans ailantifolia X Juglans cinerea)
		X		*Juncus effusus*	Soft Rush
		X		*Juncus tenuis*	Path Rush
X				*Juniperus virginiana*	Eastern Red Cedar
X				*Lonicera tatarica*	Tartarian Honeysuckle
X			X	*Narcissus pseudonarcissus*	Common Daffodil
X	X			*Oenothera biennis*	Common Evening Primrose
X				*Picea abies*	Norway Spruce
X				*Populus tremuloides*	Trembling Aspen
X				*Pyrus communis*	Common Pear
X				*Quercus macrocarpa*	Bur Oak
X	X			*Rhamnus cathartica*	Common Buckthorn
X	X			*Rhus typhina*	Staghorn Sumac
X				*Ribes americanum*	Wild Black Currant
X	X			*Rosa multiflora*	Multiflora Rose
X	X		X	*Rubus occidentalis*	Black Raspberry
X	X		X	*Solidago canadensis*	Canada Goldenrod
X	X			*Symphyotrichum lanceolatum*	Panicled Aster
	X			*Symphyotrichum novae-angliae*	New England Aster
X	X		X	*Symphyotrichum urophyllum*	Arrow-leaved Aster
X				*Tilia americana*	American Basswood
X			X	*Ulmus americana*	American Elm
X				*Viburnum opulus*	Cranberry Viburnum
X	X		X	*Vitis riparia*	Riverbank Grape
		X		*Xanthium strumarium*	Rough Cocklebur

Appendix G

Significant Wildlife Habitat Assessment

ELCs: CUW1, THDM2-6, MAM, THDM3-2

Seasonal Concentration of Animals

Wildlife Habitat	ELC Codes Triggers	Additional Habitat Criteria	Candidate SWH	SWH Defining Criteria	Confirmed SWH
Waterfowl Stopover and Staging Areas (Terrestrial)	None present	- Large fields with abundant sheet water in spring are not present in the Study Area.	No	Studies carried out and verified presence of an annual concentration of any listed species, evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • Any mixed species aggregations of 100 or more individuals required. • The flooded field ecosite habitat plus a 100-300m radius, dependent on local site conditions and adjacent land use is the significant wildlife habitat. • Annual use of habitat is documented from information sources or field studies (annual use can be based on studies or determined by past surveys with species numbers and dates).	No
Waterfowl Stopover and Staging Areas (Aquatic)	None present	- Suitable watercourse features are absent from the Study Area.	No	Studies carried out and verified presence of: • Aggregations of 100 or more of listed species for 7 days, results in >700 waterfowl use days. • Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWH • The combined area of the ELC ecosites and a 100m radius area is SWH • Wetland area and shorelines associated with sites identified within the SWHTG are significant wildlife habitat. • Annual Use of Habitat is Documented from Information Sources or Field Studies (Annual can be based on completed studies or determined from past surveys with species numbers and dates recorded).	No
Shorebird Migratory Stopover Area	MAM	- No seasonal flooding, un-vegetated shoreline, beach areas, bars observed	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	No

Wildlife Habitat	ELC Codes Triggers	Additional Habitat Criteria	Candidate SWH	SWH Defining Criteria	Confirmed SWH
		in Study Area - Marsh communities relatively small and vegetated.		day over the course of the fall or spring migration period). • Whimbrel stop briefly (<24hrs) during spring migration, any site with >100 Whimbrel used for 3 years or more is significant. • The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100m radius area. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”.	
Raptor Wintering Area	CUW	- No combination of forest and large cultural meadow present within the Study Area.	No	Studies confirm the use of these habitats by: • One or more Short-eared Owls or; One of more Bald Eagles or; At least 10 individuals and two of the listed hawk/owl species. • To be significant a site must be used regularly (3 in 5 years) for a minimum of 20 days by the above number of birds. • The habitat area for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”.	No
Bat Hibernacula	None present	- No suitable features present within the Study Area.	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	None present	- Suitable forest habitat is absent within the Study Area	No	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	No

Wildlife Habitat	ELC Codes Triggers	Additional Habitat Criteria	Candidate SWH	SWH Defining Criteria	Confirmed SWH
				Habitats: Guidelines for Wind Power Projects" - No targeted surveys for candidate bat maternity roost trees were completed in adjacent lands.	
Turtle Wintering Areas	None present	- Over-wintering sites are permanent water bodies, large wetlands, and bogs and fens with adequate dissolved oxygen. These are absent from the Study Area.	No	Presence of 5 over-wintering Midland Painted Turtles is significant. • One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significant. • The mapped ELC Ecosite area with the over wintering turtles is the SWH. If the hibernation site is within a stream or river, the deepwater pool where the turtles are over wintering is the SWH. • Over wintering areas may be identified by searching for congregations (Basking Areas) of turtles on warm, sunny days during the fall (Sept-Oct) or spring (Mar-May). • Congregation of turtles is more common where wintering areas are limited and therefore significant.	No
Reptile Hibernaculum	None present	- An old concrete foundation and concrete rubble pile were observed on the Subject Lands which may provide suitable hibernation sites for reptiles.	**Candidate**	Studies confirming: • Presence of snake hibernacula used by a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. • Congregations of a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. Near potential hibernacula (eg. foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct). • Note: If there are Special Concern Species present, then site is SWH. • The feature where the hibernacula is located + 30 m radius area is SWH. - No snakes were observed during field investigations	No

Wildlife Habitat	ELC Codes Triggers	Additional Habitat Criteria	Candidate SWH	SWH Defining Criteria	Confirmed SWH
Colonially-Nesting Bird Breeding Habitat (Bank/Cliff)	None present	- No natural exposed soil banks, cliff faces, sandy hills, borrow pits, steep slopes, or other suitable habitat present in the Study Area.	No	Studies confirming: • Presence of 1 or more nesting sites with 8[cxlix] 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)	None present	- No suitable ecosites present in the Study Area.	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)	MAM	- No islands, peninsulas, or low bushes close to streams/ditches are present in the Study Area. - No evidence of Brewer’s Blackbird nesting in London area since 1981 (OBBA).	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. Use “Bird and Bird Habitats: Guidelines for Wind Power Projects”.	No

Wildlife Habitat	ELC Codes Triggers	Additional Habitat Criteria	Candidate SWH	SWH Defining Criteria	Confirmed SWH
Migratory Butterfly Stopover Areas	None present	- A butterfly stopover area will be >10 ha in size with a combination of forest (FOD) and field (CUM/CUT), and be located within 5 km of Lake Erie or Lake Ontario. Criteria not met due to the large distance from both Lake Erie and Lake Ontario.	No	Studies confirm: • The presence of Monarch Use Days (MUD) during fall migration (Aug/Oct). MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/day, significant variation can occur between years and multiple years of sampling should occur. • Observational studies are to be completed and need to be done frequently during the migration period to estimate MUD. • MUD of >5000 or >3000 with the presence of Painted Ladies or Red Admiral's is to be considered significant.	No
Land Bird Migratory Stopover Areas	None present	- No woodlots >5 ha in size that are within 5 km of Lake Ontario and Lake Erie. Criteria not met.	No	Studies confirm: • Use of the habitat by >200 birds/day and with >35 spp with at least 10 bird spp. recorded on at least 5 different survey dates. This abundance and diversity of migrant bird species is considered above average and significant. • Studies should be completed during spring (Mar to May) and fall (Aug-Oct) migration using standardized assessment techniques. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"	No
Deer Winter Congregation Areas	None present	- No White-tailed Deer wintering areas identified in the Study Area by LIO wildlife values area mapping.	No	Studies confirm: • Deer management is an MNRF responsibility, deer winter congregation areas considered significant will be mapped by MNRF. • Use of the woodlot by whitetailed deer will be determined by MNRF, all woodlots exceeding the area criteria are significant, unless determined not to be significant by MNRF. • Studies should be completed during winter (Jan/Feb) when >20cm of snow is on the ground using aerial survey techniques, ground or road surveys. or a pellet count deer density survey.	No

Rare Vegetation Communities

Wildlife Habitat	ELC Codes Triggers	Additional Habitat Criteria	Candidate SWH	SWH Defining Criteria	Confirmed SWH
Cliffs and Talus Slopes	None present	No cliffs near vertical bedrock >3m in height present within the Study Area.	No	• Confirm any ELC Vegetation Type for Cliffs or Talus Slopes.	No
Sand Barren	None present	No sand barrens present within the Study Area.	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	None present	No alvar habitat present within the Study Area.	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	None present	No heavy mortality or turnover or over-storey trees resulting in mosaic gaps present within the Study Area.	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

Wildlife Habitat	ELC Codes Triggers	Additional Habitat Criteria	Candidate SWH	SWH Defining Criteria	Confirmed SWH
Savannah	None present	No tallgrass prairie habitat with tree cover present within the Study Area.	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	None present	No tallgrass prairie habitat present within the Study Area.	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	None present	No rare vegetation communities present within the Study Area.	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	MAM	Wetlands 0.5 ha or larger or a cluster of 3 small (<0.5 ha) wetlands is not present in the Study Area.	No	Studies confirmed: • Presence of 3 or more nesting pairs for listed species excluding Mallards, or; • Presence of 10 or more nesting pairs for listed species including Mallards. • Any active nesting site of an American Black Duck is considered significant. • Nesting studies should be completed during the spring breeding season (April-June). Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • A field study confirming waterfowl nesting habitat will determine the boundary of the waterfowl nesting habitat for the SWH, this may be greater or less than 120 m from the wetland and will provide enough habitat for waterfowl to successfully nest. - Sufficient nesting to meet SWH criteria was not observed during surveys for the Meadowlily Woods Master Plan (NRSI, 2019.	No
Bald Eagle and Osprey Nesting, Foraging, Perching	-	No lakes, ponds, rivers or wetlands along forested shorelines, islands or structures over water present within the Study Area.	No	Studies confirm the use of these nests by: • One or more active Osprey or Bald Eagle nests in an area. • Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the SWH. • For an Osprey, the active nest and a 300 m radius around the nest or the contiguous woodland stand is the SWH, maintaining undisturbed shorelines with large trees within this area is important. • For a Bald Eagle the active nest and a 400-800 m radius around the nest is the SWH. Area of the habitat from 400-800m is dependent on site lines from the nest to the development and inclusion of perching and foraging habitat. • To be significant a site must be used annually. When found	No

Wildlife Habitat	ELC Codes Triggers	Additional Habitat Criteria	Candidate SWH	SWH Defining Criteria	Confirmed SWH
				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. • Use "Bird and Bird Habitats: Guidelines for Wind Power Projects".	
Woodland Raptor Nesting Habitat	-	No natural or conifer plantation woodland/ forests stands >30 ha with >4 ha of interior habitat present within the Study Area.	No	Studies confirm: • Presence of 1 or more active nests from species list is considered significant. • Red-shouldered Hawk and Northern Goshawk – A 400m radius around the nest or 28 ha area of habitat is the SWH. (the 28 ha habitat area would be applied where optimal habitat is irregularly shaped around the nest) • Barred Owl – A 200m radius around the nest is the SWH. • Broad-winged Hawk and Coopers Hawk,– A 100m radius around the nest is SWH. • Sharp-Shinned Hawk – A 50m radius around the nest is the SWH. • Conduct field investigations from early March to end of May. The use of call broadcasts can help in locating territorial (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search area. - Red-tailed Hawk is not within the list of significant species for nesting woodland raptors	No
Turtle Nesting Areas	-	No exposed mineral soil is present within the Study Area.	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	No

Wildlife Habitat	ELC Codes Triggers	Additional Habitat Criteria	Candidate SWH	SWH Defining Criteria	Confirmed SWH
				land use is the SWH. • Travel routes from wetland to nesting area are to be considered within the SWH as part of the 30-100m area of habitat. • Field investigations should be conducted in prime nesting season typically late spring to early summer. Observational studies observing the turtles nesting is a recommended method.	
Springs and Seeps	-	No seeps or springs are present within the Study Area.	No	Field Studies confirm: • Presence of a site with 2 or more seeps/springs should be considered SWH. • The area of a ELC forest ecosite or an ecoelement within ecosite containing the seeps/springs is the SWH. The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation of the habitat.	No
Amphibian Breeding Habitat (Woodland)	-	- The wetland within the Study Area is below the minimum size to qualify as amphibian breeding SWH.	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)	-	- Wetlands >120 m from woodlands are not present in the Study Area.	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.	No

Wildlife Habitat	ELC Codes Triggers	Additional Habitat Criteria	Candidate SWH	SWH Defining Criteria	Confirmed SWH
				• 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.	
Woodland Area-Sensitive Bird Breeding Habitat	-	- No large mature (>60yrs old) forest stands or woodlots >30 ha are present within or adjacent to the Subject Lands.	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	MAM	The size of the wetland (0.02ha) is too small to support breeding habitat.	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	-	No large grassland areas >30ha present within the Study Area.	No	Field studies confirm: • Presence of nesting or breeding of 2 or more of the listed species. • A field with 1 or more breeding Short-eared Owls is to be considered SWH. • The area of SWH is the contiguous ELC ecosite field areas. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”.	No
Shrub/Early Successional Bird Breeding Habitat	CUW1	No large field areas (>10ha) present within the Study Area.	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

Wildlife Habitat	ELC Codes Triggers	Candidate Habitat Criteria	Candidate SWH	SWH Defining Criteria	Confirmed SWH
Terrestrial Crayfish	MAM	- No chimneys observed during MTE field investigations	No	Studies Confirm: • Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable meadow marsh, swamp or moist terrestrial sites. • Area of ELC ecosite or an eco-element area of meadow marsh or swamp within the larger ecosite area is the SWH. • Surveys should be done April to August in temporary or permanent water. Note the presence of burrows or chimneys are often the only indicator of presence, observance or collection of individuals is very difficult.	No
Special Concern and Rare Wildlife Species (NHIC and MNRF pre-consultation)	-	- NHIC and Citizen Science identified several Special Concern or rare species as potentially present within the area of the Subject Lands.	No	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.	No - SOCC are not anticipated within the Study Area

SOCC Identified During the Species Records Review

Species	SARO Status	Source(s)	Key Habitats Used By Species	Habitat Suitability in the Subject Lands and 120 m Adjacent Lands	Probability of Occurrence on the Subject Lands
Black Tern	SC	OBBA, 2022	This species breeds mainly in shallow marshes, especially in cattails.	There is no suitable marsh habitat for this species within the Study Area.	None
Eastern Wood-pewee	SC	OBBA, 2022	Eastern Wood-pewee lives in mid-canopy layer of forest clearings and the edges of deciduous and mixed forests. It is abundant in middle-aged forests with little understory.	Woodland habitat for Eastern Wood-pewee is present on the Subject Lands, however the species was confirmed absent during breeding bird surveys.	None
Peregrine Falcon	SC	OBBA, 2022	Peregrine Falcons nest on tall, steep cliff ledges close to large bodies of water. They are also adapted to city life, using tall buildings and ledges for nesting.	There are no rock cliffs or tall buildings present within the Study Area.	None
Snapping Turtle	SC	ORAA, 2022	Snapping Turtles spend most of their time in water, preferring shallow waters to hide in soft mud and leaf litter. This species nests in gravelly or sandy areas along streams, taking advantage of man-made structures for nesting sites, including roads, dams, and aggregate pits. Snapping Turtles are limited to the southern part of Ontario.	The Study Area does not contain shallow waters to provide suitable habitat for this species	None
Wood Thrush	SC	OBBA, 2022	Wood Thrush lives in mature deciduous and mixed forests, seeking moist stands with well-developed undergrowth. This species prefers large forests,but will use smaller. The range includes southern Ontario, with the species being less common up north to Lake Superior.	Large moist deciduous forests are not present within the Study Area.	None

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	No triggers	- The site is not near Long Point.	No	• The confirmation criteria and habitat areas for this SWH are still being determined.	No

Appendix H

Breeding Bird Data

AVIFAUNAL SURVEY INFORMATION SUMMARY SHEET

Project Name: 4452 Wellington
MTE File No.: 49999-100
Collector(s): BH

	Date	Start	Finish	Weather
Visit 1	6-Jun-22	5:45	8:50	15-18C, Wind 2, Wind direction S, CC 100%, Rain yesterday a
Visit 2	23-Jun-22			14C, Wind 1-2, Wind direction W, CC 0%, No rain

Species Abbr.	Species Name	Comm. 1				Comm. 2				S Rank	ESA Status	PIF Status	Notes
		Visit 1		Visit 2		Visit 1		Visit 2					
		Code	No.	Code	No.	Code	No.	Code	No.				
TUVU	Turkey Vulture	X								S5			
RTHA	Red-tailed Hawk	NY		FY						S5	-		
KILL	Killdeer	A		H						S5			
SPSA	Spotted Sandpiper	NE		A						S5			
RBGU	Ring-billed Gull	X		X						S5			
ROPI	Rock Pigeon	X								SNA			
MODO	Mourning Dove			H						S5			
BLJA	Blue Jay	H								S5			
NRWS	Northern Rough-winged Swallow	X		X						S4			
BARS	Barn Swallow	X		X						S4	THR		
BCCH	Black-capped Chickadee			FY						S5	-		
HOWR	House Wren	SM								S5			
AMRO	American Robin	SM		SM						S5			
GRCA	Gray Catbird	SM		SM						S4			
EUST	European Starling	H		H						SNA			
CEDW	Cedar Waxwing	H		H						S5			
YWAR	Yellow Warbler			FY						S5			
CHSP	Chipping Sparrow	P		H						S5			
SAVS	Savannah Sparrow			SM						S4		RC	
SOSP	Song Sparrow	A		SM						S5			
NOCA	Northern Cardinal			H						S5			
RWBL	Red-winged Blackbird	A		A						S4			
COGR	Common Grackle	A		H						S5			
BHCO	Brown-headed Cowbird			H						S4			
AMGO	American Goldfinch	H		H						S5			

Evidence Codes:
Breeding Bird - Possible

Species Abbr.	Species Name	Comm. 1				Comm. 2				S Rank	ESA Status	PIF Status	Notes
		Visit 1		Visit 2		Visit 1		Visit 2					
		Code	No.	Code	No.	Code	No.	Code	No.				

SH=Suitable Habitat SM=Singing Male

Breeding Bird - Probable

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

Breeding Bird - Confirmed

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

Other Wildlife Evidence

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

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

Appendix I

Amphibian Breeding Survey Data

GENERAL SITE INFORMATION FIELD SHEET

Project: 49999-150
Date: April 13/23 Project Manager: MC
Collector(s): VS + AL Visit #:
Time started: 21:50 Time finished: 22:00 Combined collectors' hours: 0.25
☐ NHIC List ☐ MNR EO's ☐ none ☐ not provided to collector

WEATHER CONDITIONS				
Temp.	Wind:	19 Km/h	Cloud Cover (%)	Precipitation
15	Direction:	S	100	Today: Yes Yesterday: No

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

DATA FOCUS

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

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

Incidental Observations/Notes:

- Heard some American Toads

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

GENERAL SITE INFORMATION FIELD SHEET

Project: 49999-100 (4452 Wellington)
Date: May 12, 2022 Project Manager:
Collector(s): AL, TC Visit #:
Time started: 10:27pm Time finished: 10:35pm Combined collectors' hours:
☐ NHIC List ☐ MNR EO's ☐ none ☐ not provided to collector

WEATHER CONDITIONS				
Temp.	Wind: 0		Cloud Cover (%)	Precipitation
17°C	Direction: N		5%	Today: No Yesterday: No

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

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

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

Incidental Observations/Notes:

Raccoon
Red-tailed Hawk nest (occupied with baby)

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

AMPHIBIAN MONITORING FIELD SHEET

Project: 49999-100 (4452 Wellington)
Date: May 12, 2022
Collector(s): AL, TC
Project Manager:
Visit #:

WEATHER CONDITIONS					
Temp.	Wind: 0		Cloud Cover (%)	Precipitation	
17°C	Direction: N		50%	☒ None/Dry ☐ Drizzle ☐ Damp/Fog ☐ Rain	

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

CALL LEVEL CODES

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

Reference Site: ☐ No ☐ Yes UTM

Station: 1 (483019 4751618)

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

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

S

NONE

100m 100m

Station Start Time (24 hr): 10:30 PM

Background Noise Code (1-4): 3-4

Background Noise Codes

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

Station:

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

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

100m 100m

Station Start Time (24 hr):

Background Noise Code (1-4):

AMPHIBIAN MONITORING FIELD SHEET

Project: 19999-100 (4452 Wellington)
Date: April 13, 2022 — Project Manager: DH
Collector(s): AL, VS — Visit #:

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

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

CALL LEVEL CODES

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

Reference Site: ☐ No ☐ Yes UTM

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

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

Station: 1 (483031 4751609)

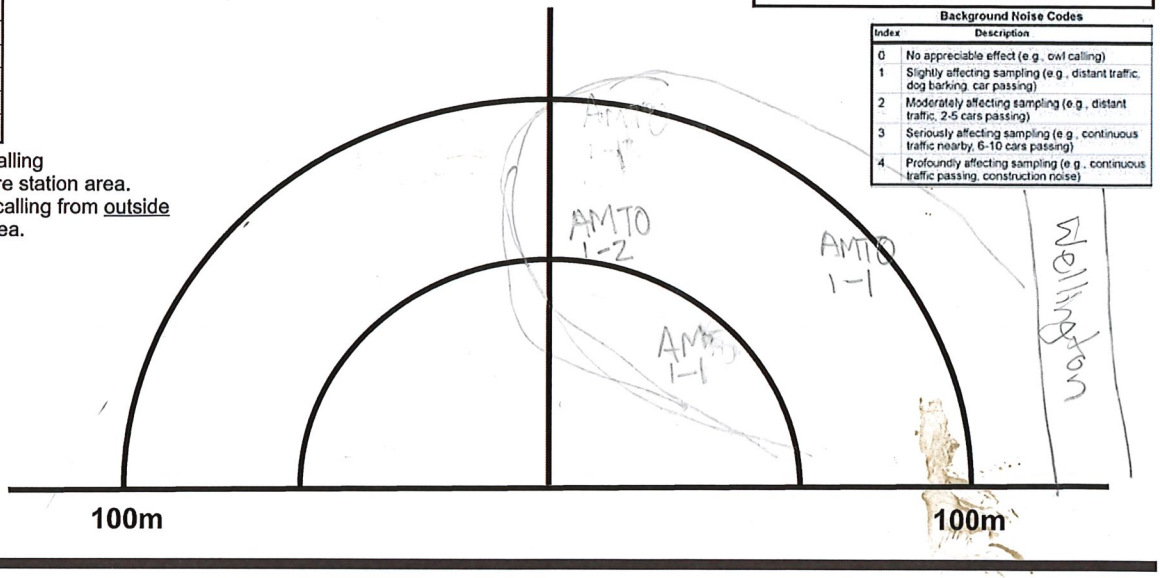
5

Station Start Time (24 hr): 9:53

Background Noise Code (1-4): 3

Background Noise Codes

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



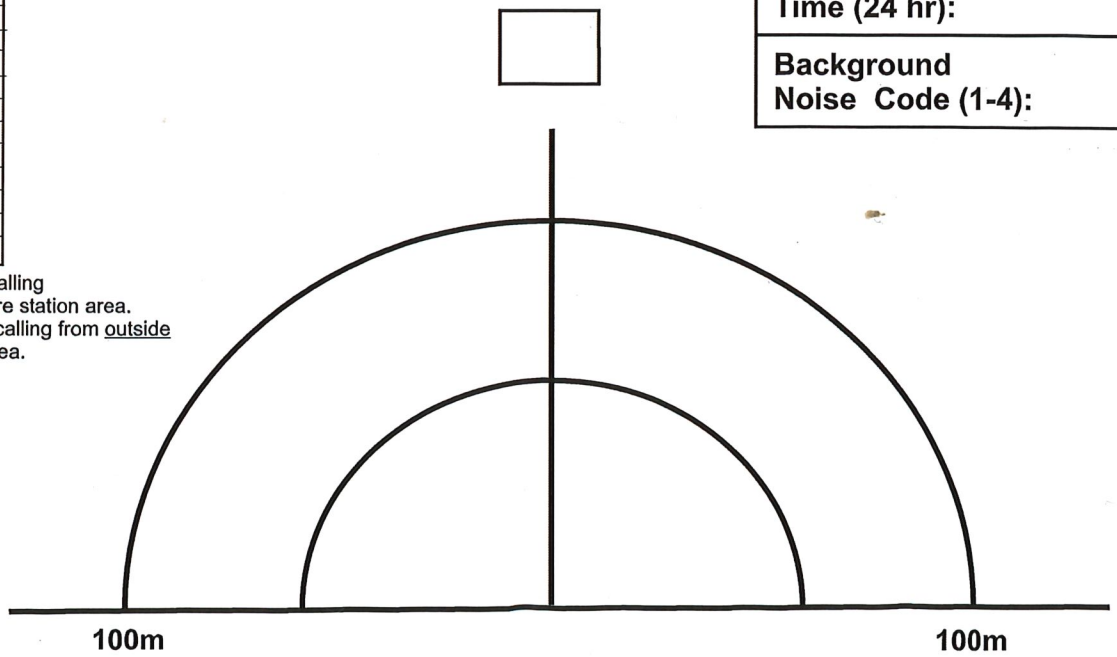
Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

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

Station:

Station Start Time (24 hr):

Background Noise Code (1-4):



GENERAL SITE INFORMATION FIELD SHEET

Project: 49999-100
Date: June 14/22 Project Manager: MC
Collector(s): VS + SW Visit #:
Time started: 1040 Time finished: 1049 Combined collectors' hours: 0.9
☐ NHIC List ☐ MNR EO's ☐ none ☐ not provided to collector

WEATHER CONDITIONS				
Temp.	Wind:	15km	Cloud Cover (%)	Precipitation
21°C	Direction:	E	0%	Today: None Yesterday: Yes

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

DATA FOCUS

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

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

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

AMPHIBIAN MONITORING FIELD SHEET

MTE

Project: H9999-191
Date: Jun 14/22
Collector(s): VS + SW
Project Manager: MC
Visit #: 3

WEATHER CONDITIONS				
Temp.	Wind:	15	Cloud Cover (%)	Precipitation
21°C	Direction:	E	0%	[X] None/Dry [ ] Drizzle [ ] Damp/Fog [ ] Rain

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

CALL LEVEL CODES

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

Reference Site: [ ] No [ ] Yes UTM [ ]

Station: 1

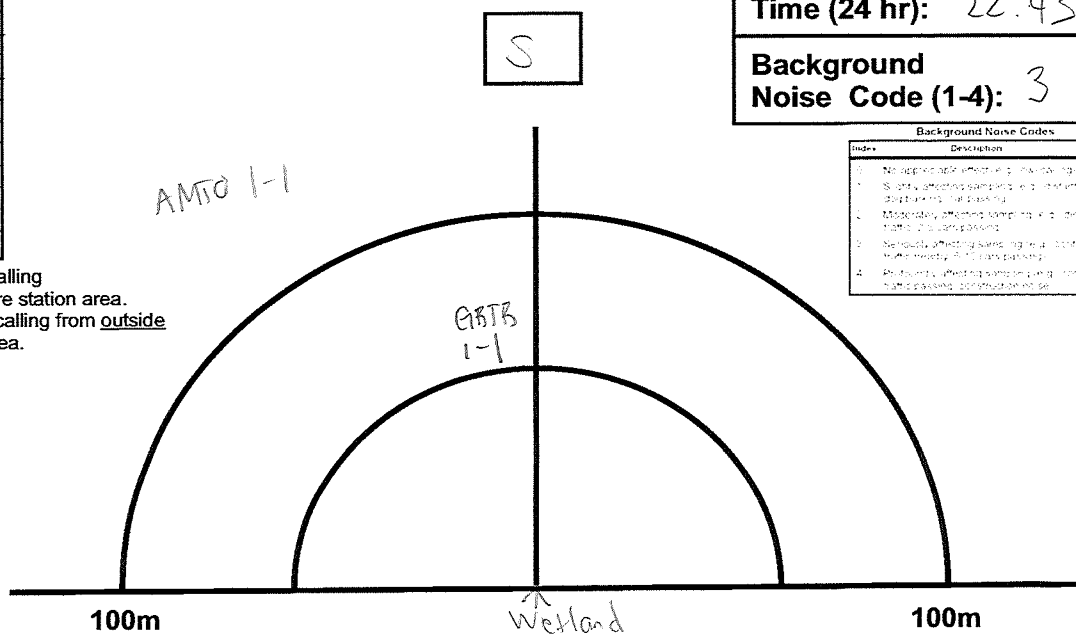
Station Start Time (24 hr): 22:43

Background Noise Code (1-4): 3

Background Noise Codes

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

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



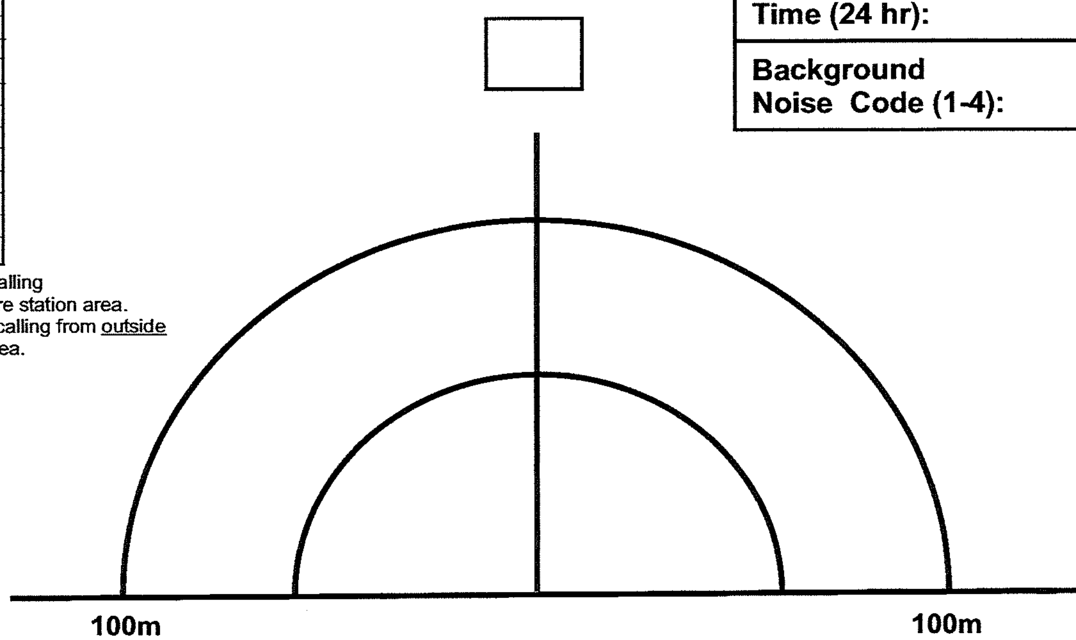
Station:

Station Start Time (24 hr):

Background Noise Code (1-4):

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

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



Appendix J

Bat Habitat Assessment

MATERNITY HABITAT SURVEY (MYOTIS)

Project #: 49999-100 Description: WELLINGTON S
Date: 5/4/2022 Staff: WH,TC

Height Class:	Decay Class:
1=Super-canopy	
2=Canopy	1= Healthy, live tree
3=sub-canopy	2=Declining live tree, part of canopy lost
4=Understorey	3=Recently dead, bark & branches intact

ALL LIVE AND DEAD STANDING TREES >10CM WITH LOOSE OR EXFOLIATING BARK, HOLES, CRACKS, ETC.

TREE #	TREE SPECIES	DBH (CM)	HEIGHT CLASS	SNAG ATTRIBUTES	UTM EASTING	UTM NORTHING	NOTES
1	Acer rubrum RED MAPLE	65 clump	1	[X] CAVITY [ ] LOOSE BARK [ ] CRACK [X] KNOT HOLE [ ] OTHER SNAG WITHIN 10m [ ] DECAY CLASS 1-3	483086	4751593	CLUMP OF SEVERALLARGE STEMS
2	Acer x freemanii SWAMP MAPLE	45	1	[X] CAVITY [ ] LOOSE BARK [ ] CRACK [X] KNOT HOLE [ ] OTHER SNAG WITHIN 10m [ ] DECAY CLASS 1-3	483090	4751553	CLUMP OF SEVERALLARGE STEMS
3	Catalpa speciosa NORTHERN CATAL	112	1	[ ] CAVITY [ ] LOOSE BARK [ ] CRACK [X] KNOT HOLE [ ] OTHER SNAG WITHIN 10m [ ] DECAY CLASS 1-3	483075	4751526	SINGLE TREE
				[ ] 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			
				[ ] 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			
				[ ] 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			

Appendix K

Snake Emergence Survey Data

GENERAL SITE INFORMATION FIELD SHEET

Project: 4999100 (4452 Wellington)
Date: April 12 2022 Project Manager:
Collector(s): ALES Visit #:
Time started: 2:15 Time finished: 3PM Combined collectors' hours:
☐ NHIC List ☐ MNR EO's ☐ none ☐ not provided to collector

WEATHER CONDITIONS				
Temp.	Wind: 2 (13 km/h)		Cloud Cover (%)	Precipitation
14°C	Direction: SW		10%	Today: No Yesterday: Yes

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

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

FEATURES (with GPS co-ordinates where applicable)			Mapped	Follow-up Req'd		
			UTM	Yes	No	Who
Man-made Structures:		☐ None observed				
Yes	No					
☒	☐	Barns/Footings/Wells/other(list) Foundation x2				
☐	☐	Rock Piles				
☐	☐	Garbage				
Natural Vegetation:		☐ None observed				
☐	☐	Fallen Logs outside woods (#'s)				
☐	☐	Brush Piles				
☐	☐	Snags (raptor perch)				
☐	☐	Tree Cavities (nesting)				
☐	☐	Sentinel Trees				
☐	☐	Butternut Identified				
☐	☐	Mast Trees (6E) ☐ Berry Shrubs (6E)				
Wildlife Features:		☐ None observed				
☐	☐	Waterfowl nesting (large #'s, # of species)				
☐	☐	Exposed Banks (nesting swallows)				
☐	☐	Stick Nests				
☒	☐	Animal Burrows (>10cm) Pics				
☐	☐	Heronry				
☐	☐	Crayfish mounds				
☐	☐	Sand/gravel on site				
☐	☐	Marsh/open country/shrub				
☐	☐	Winter Deer yards				
☐	☐	Corridor from pond to woods (ampibian movement)				
☐	☐	Bat corridor (shorelines, escarpments)				
☐	☐	Bat hibernacula (caves, mines, crevices, etc.)				
Aquatic Features:						
☐	☐	Perm. pond in woodland ☐ emergents/submergents/logs ☐ temp.				
☐	☐	Perm. pond in open ☐ emergents/submergents/logs ☐ temp.				
☐	☐	Water in woodland ☐ pools ☐ flowing ☐ dry				
☐	☐	Waterways flowing dry pools				
	☐	natural stream ☐ ☐ ☐				
	☐	swale ☐ ☐ ☐ ☐ None observed				
	☐	open drain ☐ ☐ ☐				
	☐	Seeps/Springs ☐ ☐ ☐				

Incidental Observations/Notes:

Snake emergence

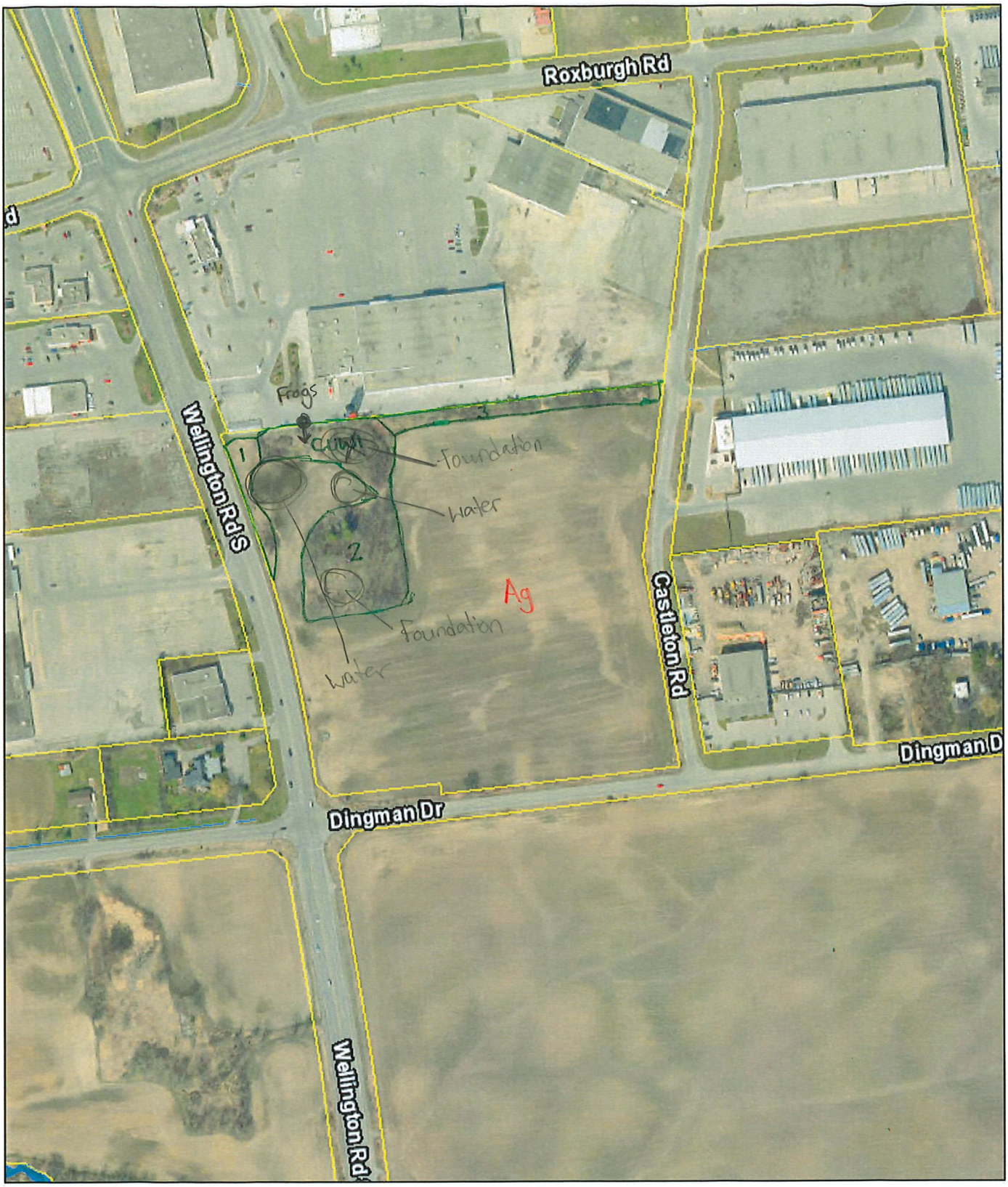
Groundhog burrows in concrete pile (saw groundhog in there)
Saw underground access in foundation area near parking lot
No snakes

2 areas of pooled H_2O (bigger near

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

*One frog station in NW

London City Map



10/21/2021, 2:14:39 PM

1:4,000

0 0.03 0.07 0.13 mi

0 0.05 0.1 0.2 km

4452 Wellington Rd S
(49999-100)

1- WH noted wetland colonizers and roadside drainage issues

2- CUWI (Butternut, debris, residential old foundation)

3- Shrub hedgerow

0..30

GENERAL SITE INFORMATION FIELD SHEET

Project: 49999-100 4452 Wellington Rd
Date: May 5, 2022 Project Manager: _____
Collector(s): TC, JAL Visit #: _____
Time started: 11:44 Time finished: 12:05 Combined collectors' hours: _____
☐ NHIC List ☐ MNR EO's ☐ none ☐ not provided to collector

WEATHER CONDITIONS				
Temp.	Wind:		Cloud Cover (%)	Precipitation
14°C	Direction: 2	E	30	Today: None Yesterday: Light rain

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

DATA FOCUS

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

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

Incidental Observations/Notes:

- Snake emergence
- Flooding in field
- Groundhog burrow found on site

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

Appendix L

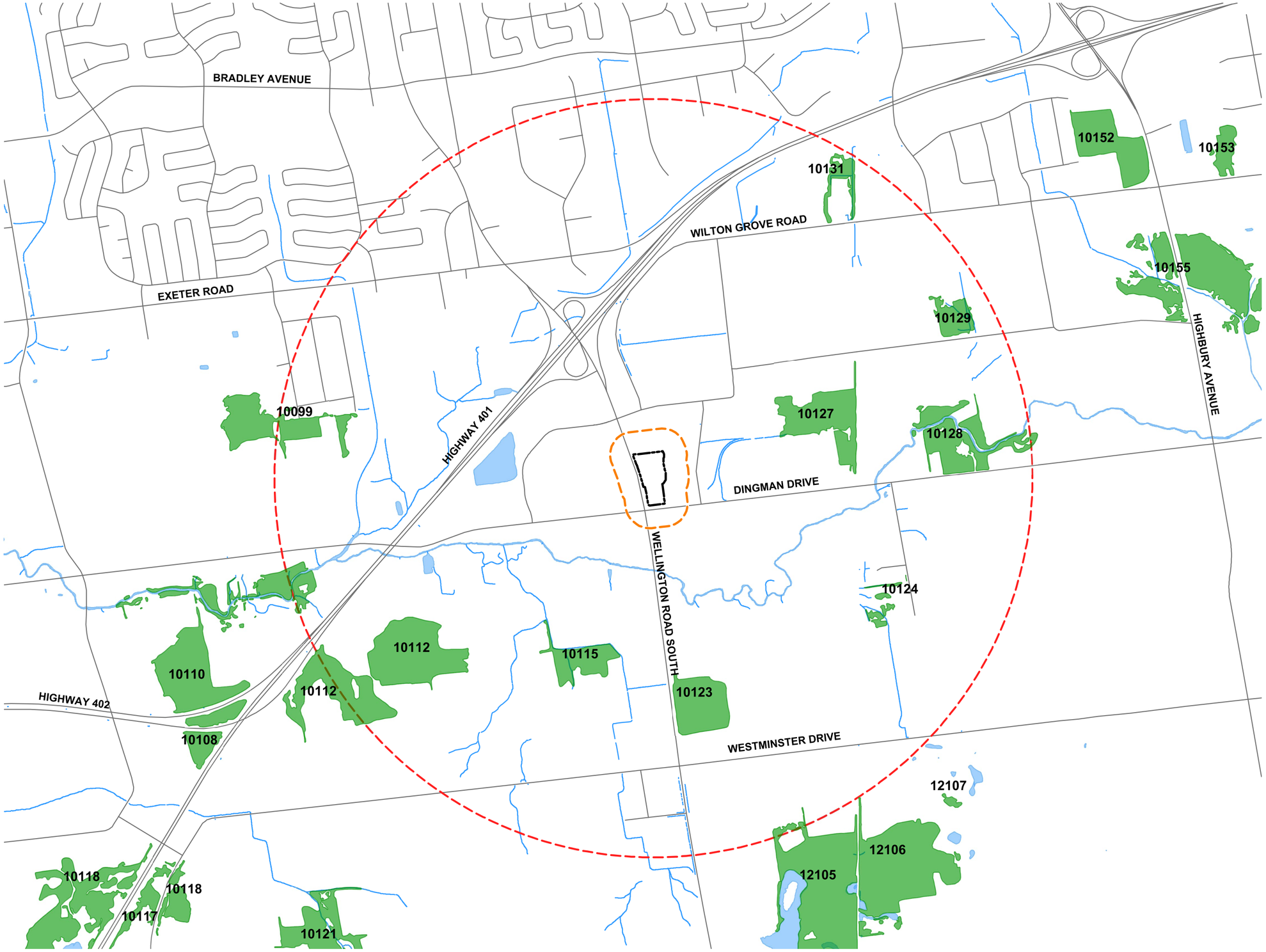
Historical Imagery


Subject Lands
(Approximate)
Wellington Rd S
Castleton Rd
Dingman Dr


(ELECTRIC)
Brock
Subject Lands
(Approximate)
Dingman Dr
Wellington Rd S
Highway 401

Appendix M

London Patch Map



LEGEND

- SUBJECT LANDS
- STUDY AREA (120m Buffer from Subject Lands)
- 2Km RADIUS (from Center of Subject Lands)
- WATERCOURSE
- WOODED PATCH

REFERENCES

CITY OF LONDON OPEN DATA SET, 2021; AND CITY OF LONDON, CANDIDATE ENVIRONMENTALLY SIGNIFICANT AREAS AND SUBWATERSHED FEATURES, AUGUST 1998.

NOTES

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

ALL LOCATIONS ARE APPROXIMATE.

0 200 400 600 800 1,000m

MTE
Engineers, Scientists, Surveyors

PROJECT
ENVIRONMENTAL IMPACT STUDY UPDATE
4452 WELLINGTON ROAD SOUTH
LONDON, ONTARIO

TITLE
LONDON PATCH MAP

Drawn	Scale	Appendix
DCH	1:20,000	**L-1**
Checked	Project No. 49999-100	
Date 2023-12-10	Rev No. 0	