Environmental Impact Study/Natural Heritage Evaluation - 2656 Concession Road 4, Clarington, Ontario

Final Report

January 15, 2026

Prepared for:
Public Works Department
Municipality of Clarington
40 Temperance Street
Bowmanville, ON, L1C 3A6

Prepared by:
Stantec Consulting Ltd.
100-401 Wellington Street West
Toronto, ON M5V 1E7

Project Number:
160951460

Stantec

Revisions

Revision	Description	Author	Quality Check
1	Draft Report	Lauren Cymbaly, M.E.S.	Taco Den Haas, B.Sc., CISEC
		Matthew Chung, B.Sc.	Sean Spisani, B.Sc., ERGC
2	Final Report	Lauren Cymbaly, M.E.S.	Taco Den Haas, B.Sc., CISEC
		Matthew Chung, B.Sc.	Sean Spisani, B.Sc., ERGC

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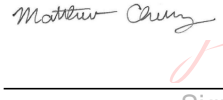
Prepared by:  Digitally signed by Chung, Matthew Date: 2026.01.15 19:06:13 -05'00'

Signature

Matthew Chung, B.Sc.
Intermediate Ecologist

Printed Name and Title

Prepared by:  Digitally signed by Cymbaly, Lauren Date: 2026.01.15 16:27:04 -05'00'

Signature

Lauren Cymbaly, M.E.S.
Senior Ecologist, Associate

Printed Name and Title

Reviewed by:  Digitally signed by Den Haas, Taco Date: 2026.01.16 08:44:09 -05'00'

Signature

Taco Den Haas, B.Sc., CAN-CISEC
Senior Fisheries Biologist, Associate

Printed Name and Title

Reviewed by:  Digitally signed by Spisani, Sean Date: 2026.01.16 10:11:47 -05'00'

Signature

Sean Spisani, B.Sc., ERGC
Senior Ecologist, Principle

Printed Name and Title

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Abbreviations

ANSI	Areas of Natural and Scientific Interest
ARU	Acoustic Recording Unit
CA	Conservation Authority
CAA	Conservation Authorities Act, 1990
Clarington	Municipality of Clarington
CLOCA	Central Lake Ontario Conservation Authority
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
DFO	Fisheries and Oceans Canada
ECCC	Environment and Climate Change Canada
EIS/NHE	Environmental Impact Study/Natural Heritage Evaluation
ELC	Ecological Land Classification
END	Endangered
ESA	Endangered Species Act, 2007
ESC	Erosion and Sediment Control
EXT	Extirpated
GIS	Geographic Information System
GGH	Greater Golden Horseshoe
ha	Hectares
HADD	Harmful Alteration, Disruption or Destruction
HDF	Headwater Drainage Feature
HDFA	Headwater Drainage Feature Assessment
KHF	Key Hydrologic Feature
KNHF	Key Natural Heritage Feature
LIO	Land Information Ontario
m	Metres
MBCA	*Migratory Birds Convention Act, 1994*
MECP	Ministry of the Environment, Conservation and Parks
MMAH	Ministry of Municipal Affairs and Housing
MMP	Mash Monitoring Program

MNR	Ministry of Natural Resources (and used throughout document to refer to this ministry under previous names, i.e., Ontario Ministry of Natural Resources [OMNR], Ministry of Natural Resources and Forestry [MNRF], Ministry of Northern Development, Mines, Natural Resources and Forestry [MNDMNRF], etc.)
NHIC	Natural Heritage Information Centre
NHRM	Natural Heritage Reference Manual
NHS	Natural Heritage System
OLS	Ontario Land Survey
OP	Official Plan
O.Reg.	Ontario Regulation
OWES	Ontario Wetland Evaluation System (MNR 2022)
PSW	Provincially Significant Wetland
PPS	Provincial Planning Statement, 2024
Region	Regional Municipality of Durham
RoW	Right-of-way
SAR	Species at Risk
SARA	Species at Risk Act, 2002
SARO	Species at Risk in Ontario
sm	Square metre
SC	Special Concern
SOCC	Species of Conservation Concern
SWH	Significant Wildlife Habitat
SWM	Storm Water Management
THR	Threatened
ToR	Terms of Reference
VPZ	Vegetation Protection Zone

Glossary

Term	Definition
Subject Lands	Lands associated with municipal address 2656 Concession Road 4 in Clarington, Ontario (as depicted in Figure 1).
Adjacent Lands	Lands within 120m of the Subject Lands.
Study Area	The area used to consider potential impacts to natural heritage features (includes Subject Lands and Adjacent Lands).
The Project	The proposed development on the Subject Lands that have the potential to impact natural heritage features within the Study Area.

1 Introduction

Stantec Consulting Ltd. (Stantec) was retained by the Municipality of Clarington (Clarington) to complete an Environmental Impact Study/Natural Heritage Evaluation (EIS/NHE) for lands associated with municipal address 2656 Concession Road 4, Municipality of Clarington (Clarington), in the Regional Municipality of Durham (Durham), herein referred to as the “Subject Lands” (see Figure 1 in Appendix A for details).

The Subject Lands encompasses approximately 27 ha of land located in a predominantly rural setting. The Subject Lands are currently developed with one residential building and associated gravel access driveway. A public easement associated with an Enbridge natural gas pipeline transects a portion of the Subject Lands at the north end. The remainder of the property is currently under active agriculture (four fields established with annual row crops) or is otherwise undeveloped natural lands established with meadow, thicket, forest and wetland areas.

The Subject Lands are located within the Greenbelt Natural Heritage System (Clarington Official Plan Map H and Greenbelt Plan Schedule 1 – Greenbelt Area) and portions of the Subject Lands have been identified as Environmental Protection Area and Natural Heritage System (Clarington Official Plan Map A1 and D1). The Subject Lands are located within the Soper Creek watershed under the administrative jurisdiction of the Central Lake Conservation Authority (CLOCA). Unevaluated wetlands have been mapped by the province (Land Information Ontario 2025) and CLOCA (CLOCA 2024a) within the treed areas located north, east and west of the existing agricultural fields on the Subject Lands. Unnamed tributaries associated with Soper Creek are present west of Liberty Street North (on Adjacent Lands) and east of the existing agricultural fields on the Subject Lands where developments are proposed.

It is our understanding that Clarington wishes to develop a public works yard and fire training facility on the Subject Lands, including several storage areas, training areas as well as an operations buildings and fire station (herein referred to as the “Project”).

2 Approach

Agency stakeholders were consulted regarding the proposed approach for assessing natural heritage in the Study Area in late summer 2023. A site visit with staff from Clarington and CLOCA took place on October 13, 2023. The purpose of the site visit was to review natural heritage features within the Study Area, discuss permitting requirements and identify natural heritage constraints to the proposed development. It was also the purpose of the meeting to stake the limits of any wetland and woodland features on or adjacent to lands where development works were proposed. Woodlands were observed on the Subject Lands adjacent to the existing residential dwelling and agricultural fields. The feature limits of the woodlands were staked and surveyed. The Ontario Land Survey (OLS) survey completed by Stantec was subsequently circulated to the agency stakeholders. The survey and meeting minutes were acknowledged by Clarington and CLOCA; see agency correspondence records are provided in Appendix B for details.

A formal EIS/NHE Terms of Reference (ToR) was circulated to the Municipality of Clarington on April 11, 2024, for agency circulation, review and comment. The ToR described the scope of the EIS/NHE including the proposed ecology survey field program and associated reporting. The ToR and associated agency correspondence records are provided in Appendix B.

3 Methodology

3.1 Study Area

Stantec completed a review of background information and visited the Subject Lands to characterize the natural heritage resources and functions on and adjacent to the Subject Lands. Lands within a 120 m radius of the Subject Lands were included in the assessment to account for a review of Adjacent Lands as defined by municipal and provincial planning documents. The total lands reviewed as part of the assessment herein, are referred to as the Study Area (Figure 1, Appendix A). The information sources reviewed, and field program undertaken in the Study Area are summarized below in Sections 3.2 and Section 3.3.

3.2 Background Review

Background information was gathered and reviewed as part of the assessment process and prior to completing the field program to inform targeted field surveys. The following sections outline the methodology for completing the various components of the background review.

3.2.1 Policy Review

Given the geographic location of the Study Area, the following documents including associated maps and schedules were reviewed to determine the legislative and policy context of the Project as well as ascertain the presence and location of previously identified natural heritage features and areas within the Study Area:

- Species at Risk Act (2002) (SARA)
- Fisheries Act (1985)
- Migratory Birds Convention Act (1994) (MBCA)
- Canada Wildlife Act (1985) (CWA)
- Endangered Species Act (2007) (ESA)
- Conservation Authorities Act (1990) (CAA)
- Central Lake Ontario Conservation Authority (CLOCA) policies and regulations
- Ontario Fish and Wildlife Conservation Act (1997) (FWCA)
- Provincial Planning Statement (2024) (PPS)
- Greenbelt Plan (2017)
- Envision Durham – Regional Official Plan Consolidation December 13, 2024 (Durham Region 2024)
- Municipality of Clarington Official Plan (Municipality of Clarington 2018)

3.2.2 Geo-mapping and Database Reviews

Additional sources of information such as topographic data, wildlife atlas data, watercourse and natural resource mapping were reviewed prior to commencing the field program.

In addition to mapping resources associated with the documents listed in Section 3.2.1, the following databases and information sources were reviewed as part of the background review:

- Natural heritage and physical feature layers from the Land Information Ontario (LIO) database which includes Ministry of Natural Resources (MNR) resource information (LIO 2024)
- The Natural Heritage Information Centre (NHIC) database available through the MNR's Make a Map: Natural Heritage Areas, including review of Provincially Tracked Species Layer and provincial Aquatic Resource Area (ARA) data (MNR 2024)
- Species at Risk in Ontario List, including provincial range maps, (Ministry of the Environment, Conservation and Parks [MECP] 2024)
- Ontario Breeding Bird Atlas (Second Atlas, 10 km grid), (Cadman et al. 2007)
- Ontario Reptile and Amphibian Atlas (10 km grid), (Ontario Nature 2024)
- eBird Canada Database (eBird Hotspots within the Study Area) (eBird Canada 2024)
- Ontario Butterfly Atlas (10 km grid), (Toronto Entomologists' Association 2024a)
- Ontario Moth Atlas (10 km grid), (Toronto Entomologists' Association 2024b)
- Ontario Odonata Atlas (10 km grid), (NHIC 2020)
- Atlas of the Mammals of Ontario (Dobbyn 1994)
- iNaturalist (iNaturalist 2024)
- Fisheries and Oceans Canada's (DFO) Aquatic Species at Risk Map (DFO 2024)
- CLOCA technical reports including applicable watershed plans databases and geo-cortex mapping resources (CLOCA 2024a)
- Constructed Drains digital dataset (OMAFRA, 2024)
- High resolution satellite imagery of the Study Area (Google Earth Pro 2024, LIO 2024)

The results of these reviews were used to guide field investigations and to identify potential Species at Risk (SAR) and species of conservation concern (SOCC) habitat, aquatic habitats, and other natural heritage features and areas that have the potential to overlap with the Study Area. With the exception of some hotspots (e.g., eBird), many of the wildlife record database resources generally do not provide the exact locations of a species occurrence record; accuracy generally ranges from 1 km² (e.g., NHIC) to 10 km² for most wildlife atlases. As such, the results of the species range map and atlas reviews were used to support the SAR and SOCC habitat screening assessments and identify additional target areas for assessment but were not relied on for accuracy as part of the assessments.

3.2.3 Species Nomenclature

For the purposes of this report, species are described using the NHIC English common names and capitalized for clarity. The species family and scientific names are provided in Appendix C (vascular plants) and Appendix D (wildlife) respectively.

3.3 Field Program

The field program was carried out between 2023 and 2025 and included surveys for vegetation, wildlife and wildlife habitat, and aquatic habitat. Field investigations completed for the Project are summarized in Table 3-1.

Lands outside of the legal boundaries of the Subject Lands but within the Study Area were predominantly evaluated based on secondary sources (as outlined in Section 3.2 and from the edge of the property due to access restrictions on privately owned lands. Where feasible/accessible, Adjacent Lands were visited.

Table 3-1 Field Investigation Summary

Type of Field Work	Date(s) of Field Work	Stantec Personnel
Vegetation Surveys		
Floral inventory and Ecological Land Classification	19-Sept-23	L. Cymbaly
	28-Jun-24	L. Cymbaly
Arborist Tree Inventory	22-Apr-25	G. Grewal
	02-Jun-25	G. Grewal
	11-Aug-25	G. Grewal
Butternut Health Assessments	23-Jun-25	E. Heagle
Feature Delineation[1]		
Natural Heritage Feature and Hazard Land Feature Staking	13-Oct-23	L. Cymbaly/P. Peltekian
Wildlife Surveys		
Breeding Bird Surveys	23-May-24	J. Randall
	12-Jun-24	J. Randall
	04-Jul-24	J. Randall
	11-Jun-25	J. Randall
Amphibian Call Surveys	23-May-24	M. Chung/M. Razzouk
	07-Jun-24	M. Razzouk
	17-Jun-24	J. Brooks/M. Razzouk

Type of Field Work	Date(s) of Field Work	Stantec Personnel
Bat Exit Surveys and Chimney Swift Surveys (residential building)	10-Jun-24	M. Chung/M. Razzouk
	02-Jul-24	E. Padvaiskas/M. Razzouk
Bat Acoustic Surveys (treed areas; woodlands and hedgerows)	22-May-24 to 11-Jun-24	J. Randall
	11-Jun-25 to 30-Jun-25	J. Randall
Wildlife Habitat and Incidental Wildlife Observations	During all field visits	All Staff
Headwater Drainage Feature Assessment		
Visit #1	22-Apr-24	M. Chung/T. Den Haas/M. Razzouk
Visit #2	22-May-24	J. Randall
Visit #3	02-Aug-24	M. Chung

[1] Feature delineation was completed on site by Stantec staff with Ryan Tim (Clarington) and Alex Kissel (CLOCA) as described in Section 2.

3.3.1 Vegetation Survey and Ecological Land Classification

Vegetation community mapping for the Study Area was completed in accordance with the Ecological Land Classification (ELC) system for southern Ontario (Lee et al., 1998) using the updated 2008 coding system to describe community vegetation types. Vegetation communities were delineated based on satellite imagery prior to field surveys and subsequently verified in the field. Lands located greater than 50m from proposed development locations at the north end of the Subject Lands, and lands outside of the legal boundaries of the Subject Lands but within the Study Area were predominantly evaluated based on secondary sources, as outlined in Section 3.2, and from the edge of the property due to access restrictions on privately owned lands. Where feasible/accessible, Adjacent Lands were visited.

Provincial status of vegetation communities was based on the rankings assigned by the NHIC (MNR 2025). A list of vascular plant species observed in the Study Area was compiled during vegetation surveys. The nomenclature and provincial status of all plant species was based on NHIC (MNR 2025). Identification of potentially sensitive native plant species was determined from their assigned coefficient of conservatism (CC) value (Oldham et al. 1995). The CC value ranges from 0 (low) to 10 (high) and is based on a species' tolerance of disturbance and fidelity to a specific natural habitat. Species with a CC value of 9 or 10 generally exhibit a high degree of fidelity to a narrow range of habitat parameters.

3.3.2 Feature Delineation

3.3.2.1 Wetland

Delineation of wetland features followed the methodology outlined in the Ontario Wetland Evaluation System (OWES), Southern Manual prepared by MNR (MNR 2022). Natural heritage features of interest

were reviewed during the site meeting which included ecologist and survey staff from Stantec, CLOCA and Clarington on October 13, 2024. No wetland features on the Subject Lands were staked. A copy of the Ontario Land Surveyor (OLS) survey and CLOCA acknowledgement letter is provided in Appendix B.

3.3.2.2 Woodland

Natural heritage features of interest were reviewed during the site meeting which included staff from Stantec, CLOCA and Clarington on October 13, 2024. The woodland dripline was reviewed and staked by Clarington, CLOCA and Stantec's ecology and survey team on October 13, 2024. A copy of the Ontario Land Surveyor (OLS) survey is provided in Appendix B.

3.3.3 Breeding Bird Surveys

Breeding bird surveys were completed throughout the Subject Lands on May 23, June 12, and July 4, 2024, with supplemental surveys completed at the proposed access road development location off Liberty Street North on June 11, 2025. Surveys consisted of walking systematically through the Study Area, recording all species of birds that were seen or heard within each of the different vegetation communities. Eight point-count stations were established within the Study Area and are shown on Figure 4.1 to Figure 4.2, Appendix A. Point count methods followed Environment and Climate Change Canada's (ECCC) Breeding Bird Survey (ECCC 2023). A tally of each bird species was recorded during the ten-minute survey period that included an approximation of the location and direction of each bird observation within or just beyond a 100 m radius. Breeding evidence codes, as described by the Atlas of the Breeding Birds of Ontario, 2001-2005 (Cadman et al. 2007), were assigned to each of the species based on the field observation. All birds seen or heard in suitable habitat during the breeding season were assumed to be breeding.

Surveys were completed between a half an hour before sunrise and 10:00 a.m. Weather conditions (i.e., precipitation and visibility) were within the parameters required by monitoring programs such as ECCC Breeding Bird Survey (ECCC 2023) and the Ontario Breeding Bird Atlas Guide for Participants (Federation of Ontario Naturalists 2001). Survey effort and weather is summarized in Table 3-2.

Table 3-2 Breeding Bird Survey Dates, Times, and Weather Conditions

Date	Time (24hrs)	Temp. (°C)	Wind (Beaufort)	Cloud (%)	Precipitation (mm)
May 23, 2024	0613 - 0830	15	2	10	0
June 12, 2024	0605 - 0842	10	2	25	0
July 4, 2024	0621 - 0816	19	2	50	0
June 11, 2025	0601 - 0830	15	0-1	100	0

3.3.3.1 Chimney Swift Surveys

A residential building is present on the Subject Lands. Three chimneys are associated with the building. One of the chimneys was observed to be capped. Caps could not be seen associated with the other two chimneys from the ground. As such, in additional to the breeding bird surveys completed for the Subject Lands, the residential building was surveyed to account for potential use by Chimney Swift, as a portion of the building was proposed to be removed.

Survey methodology for Chimney Swift follows guidance from Ontario SwiftWatch (2023), as described below:

- Survey should begin at least 30 minutes prior to sunset
- Surveys should be avoided if heavy rainfall is occurring
- Ideally, the chimney or structure should be observed so that it is silhouetted against the northwest sky
- Surveyors should record the following information:
  - Arrival and departure time to and from site
  - Weather conditions
  - Entry times of first and last birds
  - Net number of Chimney Swifts entering the chimney

Chimney Swift survey timing and methodology generally overlaps with that of bat exit surveys for building habitat assessments. For this reason, Chimney Swift surveys were conducted at the same time as the bat exit surveys; completed on June 10 and July 2, 2024. Surveyors optimized sightlines to target the two uncapped chimneys during the surveys and recorded the location and behaviour of Chimney Swift if observed.

A summary of Chimney Swift survey dates, times and weather is provided in Table 3-3.

Table 3-3 Chimney Swift Survey Dates, Times, and Weather Conditions

Date	Time	Temp. (°C)	Wind (Beaufort)	Cloud (%)	Precipitation
June 10, 2024	20:29 - 21:59	13	2-3	95	None
July 2, 2024	20:33 - 22:00	20	2	75	None

3.3.4 Amphibian Call Surveys

Amphibian call count surveys were completed in accordance with the Marsh Monitoring Program (MMP) protocols established by Bird Studies Canada (Bird Studies Canada 2008). Surveys took place in May and June 2024 under suitable weather conditions with low winds.

Each survey station included a 100-m radius semicircle with the observer located at the center and listening for a three-minute period. Given the size of the Subject Lands, seventeen survey stations were chosen (Figure 4.1 to Figure 4.2, Appendix A).

At each station for each survey, all calling toads and frogs identified over the three-minute time period were recorded. Call levels were described using values of 1, 2, or 3, and, where possible, an estimate of the number of individuals calling. Level 1 indicates that individuals could be counted, and calls were not simultaneous. Level 2 indicates that individual calls were distinguishable with some simultaneous calling, and a reasonable estimate of the number of calling individuals was made. Level 3 indicates a full chorus with continuous and overlapping calls and no estimate of the number of individuals was possible). Toads and frogs calling from outside of the survey station were also noted. A summary of call survey dates, times and weather is provided in Table 3-4.

Table 3-4 Amphibian Call Count Survey Dates, Times, and Weather Conditions

Date	Time	Temp. (°C)	Wind (Beaufort)	Cloud (%)	Precipitation
May 23, 2024	22:09 – 23:11	23	0	15	None
June 7, 2024	20:19 – 21:52	15	1	90	None
June 17, 2024	22:39 – 23:48	23	0	30	None

3.3.5 Bat Assessment

Little Brown Myotis, Northern Myotis, Eastern Small-footed Myotis, Tricolored Bat, Northern Hoary Bat, Silver-haired Bat and Eastern Red Bat are listed as endangered under the provincial ESA. The seven species are collectively referred to as SAR bats. These species generally use maternity roosting habitat in spring/summer and hibernate in caves or other underground structures in the winter. Maternity roosts are typically located in poorly ventilated, dark sites with high temperatures. Maternity roosts may be found in anthropogenic habitats (i.e. buildings, attics) or natural habitats (e.g. trees or shrubs within woodlands). In natural settings, SAR bats may roost in tree cavities or under loose bark or within leaf clusters. Maternity roosts are most likely to occur in cavity trees, which are typically defined as tall, large diameter trees with heart rot, which creates cavities that are large enough to house colonies and provide suitable temperatures for roosting.

3.3.5.1 Maternity Roost Assessment

Buildings

The residential dwelling on the Subject Lands was assessed for its suitability to support bat maternity roosts. The survey followed the *Survey Methodology for the Use of Buildings and Isolated Trees by Species at Risk (SAR) Bats* (MNR 2014).

Each building was assessed, with details recorded for:

- Exterior building material
- State of building repair
- Visible potential roost exits
- Direction where exit faces
- Roof shape
- Attic presence
- Bats observed
- Bat guano observed

Maternity Roost Trees – Snag Survey

A snag survey was completed in early spring 2024 to identify candidate trees that may be suitable for bat maternity roosting in the woodlot located on the Subject Lands. Surveyors assessed trees > 10-cm diameter at breast height (DBH) using methods described in *Survey Protocol for Species at Risk Bats within Treed Habitats – Little Brown Myotis, Northern Myotis & Tri-Colored Bat* (MNR 2017). Trees were assessed prior to leaf-out to enhance visibility for the survey. Trees > 10-cm DBH that included loose bark, cavities or crevices were recorded by location using a hand-held GPS.

Snag trees were identified based on the MNR's criteria, including diameter, relative height, decay classes, canopy openness, and the relative presence, quality, location, and density of cavities, and loose and bark.

3.3.5.2 Bat Exit Surveys

Bat acoustic monitoring surveys were completed to determine whether SAR bats were roosting in the residential dwelling on the Subject Lands. Bat exit surveys were completed on June 10, 2024, and July 2, 2024. Locations of the visual bat exit survey stations were strategically located near the existing buildings taking into account optimal lines of site of each side of the building. Surveys followed the methods described in the *Use of Buildings and Isolated Trees by Species at Risk Bats Survey Methodology* (MNR 2014).

The surveys had three objectives: (1) determine if bats were present in the area using the acoustic detectors, and (2) complete visual surveys to document bats exiting buildings and potential maternity roost trees, and (3) determine the necessity of additional visual exit surveys based on the results of the surveys. The determination of additional surveys was based on the results of the visual assessments of habitat in combination with recording data.

A summary of bat acoustic survey dates, times and weather is provided in Table 3-5.

Table 3-5 Acoustic Survey Dates, Times, and Weather Conditions

Date	Time	Temp. (°C)	Wind (Beaufort)	Cloud (%)	Precipitation
June 10, 2024	20:29 - 21:59	13	2-3	95	None
July 2, 2024	20:33 - 22:03	21	2	60	None

3.3.5.3 Woodland Acoustic Surveys

Bat acoustic surveys were conducted for the woodland feature and hedgerows located on the Subject Lands at fourteen Bat Monitoring Stations in 2024, with an additional two survey locations located at the proposed access road development location off Liberty Street North in 2025. Bat acoustic data was collected using Automated Recording Units (ARUs) deployed at the sixteen bat monitoring stations Figure 4.1 to Figure 4.2, Appendix A). The ARUs used were Wildlife Acoustics Song Meter SM4 and Song Meter Mini Bat detectors. The ARUs were programmed to record individual bat calls from 30 minutes before sunset to 30 minutes after sunset as required by MNR protocols (MNR 2017).

In 2024, the ARU survey occurred over three weeks (between May 22 and June 11, 2024). In 2025, the ARU survey occurred over two weeks (between June 11 and June 30, 2025). Both the 2024 and 2025 surveys occurred for those lengths of time during the bat roosting period to capture ten warm/mild nights (i.e., ambient temperature >10°C) with low wind and no precipitation as required by MNR (2017) protocols.

Data were analyzed using Kaleidoscope Pro software by Wildlife Acoustics. The data processing through Kaleidoscope Pro involves running the software's automatic identification, which screens out noise files and provides a suggested species for each bat call file. The automatic specifies identifications from Kaleidoscope Pro were reviewed by a qualified biologist to confirm the identification by visually assessing the call file spectrographs to identify if the frequency range and shape were consistent with the species assigned by the software. For each ARU, a subset of identified species was reviewed. Calls were only identified to species, where possible, when there were more than 5 pulses present in the recording. For species that can be more difficult to identify, including all Myotis species, all automatically identified species calls were reviewed. Specific call characteristics are required in the recording to determine if a reliable species identification is possible. Where identification to species was not possible, calls are identified as grouped categories, where species with similar looking calls are grouped together. Examples of groupings include Big Brown/Silver-haired bat, Eastern Red/Tri-colored Bat, or Myotis species. For lower quality call recordings, generic categories of High Frequency (>35 kHz) or Low Frequency (<35 kHz) bat are used.

Bat detectors cannot distinguish the number of bats flying within the area, as multiple calls often come from the same individual, as they pass the microphone multiple times, however number of calls can be used as an index of bat activity in a given area. Bat call recordings are summarized in Section 4.3.5.1.

3.3.6 Incidental Wildlife

Wildlife observations and evidence of wildlife were noted during all site visits as detailed in Table 3-1, including visual observations of species, tracks, or scat as well as auditory observations.

3.3.7 Species at Risk Habitat Suitability Assessment

SAR habitat assessments were completed concurrently with vegetation surveys and focused on identifying potential SAR habitat (e.g., SAR snake hibernacula, SAR bat maternity roost trees) or occurrences (e.g., Butternut). SAR habitat assessments were completed for species protected under the ESA that may occur in the area, including species identified in the NHIC database and Ontario wildlife atlases during the background review. If encountered, these features were identified, recorded and assessed for potential use by SAR. Wildlife species observed by sight, sound and/or through distinctive signs (e.g., tracks, scat) were also recorded.

The presence of SAR was determined using targeted surveys for vegetation and breeding birds. For other species, habitat assessments were completed to determine their likelihood of occurrence. SAR with suitable habitat and at least one recent record and/or an overlapping range in the Study Area were considered to have a reasonable probability of occurring.

3.3.8 Wildlife Habitat Assessment

Wildlife habitat is defined as an area where plants, animals and other organisms live, including areas where species concentrate at a vulnerable point in their life cycle and that are important to migratory and non-migratory species. The MNR's Significant Wildlife Habitat Technical Guide (SWHTG) (MNR 2000) describes Significant Wildlife Habitat (SWH) in four categories:

- Seasonal concentration areas
- Rare vegetation communities or specialized habitats for wildlife
- Habitats of SOCC (excluding the habitats of END or THR species)
- Animal movement corridors

Habitats within the Study Area were assessed for candidate SWH, as defined in the Ecoregion 6E Criterion Schedule (MNR 2015). Wildlife observations and evidence of wildlife (e.g., tracks, burrows, vocalizations) were recorded during site visits. SOCC with suitable habitat and at least one existing record and/or an overlapping range within the Study Area were considered to have a reasonable probability of occurring.

3.3.9 Aquatic Habitat Assessment

An unnamed tributary to Soper Creek is mapped within the Subject Lands along the eastern property boundary. An aquatic habitat assessment was completed in this watercourse using select methods of the Ontario Stream Assessment Protocol (OSAP) (Stanfield 2017). Observations were made in regard to:

presence of a channel, channel dimension, bank stability, adjacent land use, presence of flow (visually), substrates, morphology, visual presence of fish, and presence of modifiers such as evidence of tiled drains.

Aquatic habitat in the unnamed tributary to Soper Creek on the west side of the Study Area was not studied in detail due to distance from the Subject Lands (it is located on Adjacent Lands). This watercourse is mapped as fish bearing (MNR 2024). This watercourse and surrounding natural areas are regulated by CLOCA. It is our understanding that no activities are proposed within the regulatory setback associated with this watercourse. Therefore, detailed investigations on this feature were not conducted as part of the assessment.

3.3.10 Headwater Drainage Feature Assessment

Several features were identified for HDF assessments through review of available desktop sources as described in Section 2. Field surveys were completed in accordance with the *Evaluation, Classification and Management of Headwater Drainage Features Guidelines* (TRCA & CVC 2014) (HDF Guidelines) to document conditions and characterize these features.

Three timed site visits were completed in accordance with the HDF Guidelines**.** A summary of the dates, times, weather conditions during the field program is provided in Table 3-6.

Table 3-6 Summary of Aquatic Habitat and HDF Assessment Field Studies

Date	Air Temperature (°C)	Wind (km/hr)	Precipitation	Precipitation 72 Hr Prior (mm)
April 22, 2024	9	15	None	Yes, 0.2 mm
May 22, 2024	26	24	None	Yes; 3.5 mm
August 2, 2024	26	9	None	Yes; 0.6 mm

The field program also included a search for additional HDF on the Subject Lands that were not identified through desktop review. Trace precipitation was recorded by the nearest ECCC weather station during the 72 hours (hr) prior to all three site visits (ECCC 2024). The amount was negligible and did not impact the findings of the third visit.

3.4 Habitat Screening Assessments

3.4.1 Species At Risk and Species of Conservation Concern Habitat Screenings

For the purposes of this report, SAR include species that are listed as Extirpated (EXT), Endangered (END) or Threatened (THR) on the Species at Risk in Ontario list as published in O. Reg. 230/08, under the ESA. Species with these statuses receive both individual and habitat protection under the ESA.

Aquatic SAR also include those that are identified as EXT, END or THR and are afforded protection under both the provincial ESA and the federal SARA.

The Natural Heritage Reference Manual (NHRM) was developed to provide technical guidance for implementing the natural heritage policies of the PPS (MNR, 2010). SWH includes the habitat of SOCC. Species with provincial ranks (Subnational Rank [S-Rank]) of S1 to S3 are tracked by the MNR and are considered SOCC. S-Ranks are defined as follows:

S1: Critically imperiled; usually fewer than 5 occurrences
S2: Imperiled; usually fewer than 20 occurrences
S3: Vulnerable; usually fewer than 100 occurrences
S4: Apparently secure; uncommon but not rare, usually more than 100 occurrences
S5: Secure, common, widespread, and abundant

Species listed as Special Concern (SC) under the ESA, and species identified as nationally END or THR by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), which are not protected under the ESA, are also considered SOCC.

Although SOCC do not receive legal protection under the ESA, their habitat is protected under the PPS (e.g., if it qualifies as SWH), and they may also be afforded protection under the MBCA or Ontario *Fish and Wildlife Conservation Act, 1997*.

SAR and SOCC with recent occurrence records (i.e., within the last 20 years) or with overlapping habitat ranges within the Study Area, were considered in the assessment utilizing the data sources described in Section 3.2. Species with recorded observations of greater than 20 years old were considered historical in accordance with the standard Conservation Status Assessment Methodology (NatureServe 2019). This standard is consistent with what the NHIC uses to evaluate a species' S-Rank.

The potential for SAR and SOCC to occur within the Study Area was assessed by comparing species habitat requirements to the habitat conditions observed on-site during the field program. The following probability assessment criteria was applied to the SAR and SOCC habitat screenings:

Low Probability: Suitable habitat was not observed throughout the field program but there is a known species record in the general area, or potentially suitable habitat was observed during the field program, but the results of a wildlife survey (e.g. breeding bird survey) did not determine species presence.

Medium Probability: The species was not observed during the field program; however, potentially suitable habitat has been identified and there is a known species record in the general area.

High Probability: Good quality habitat was identified (e.g., sufficiently large areas of suitable vegetation and presence of key features such as nesting sites) and there are known species record in the Study Area.

Confirmed: The species was observed in suitable habitat during the 2023-2025 field program.

Absent: Habitat criteria are specialized (e.g. watercourse, caves, alvars, habitat greater than a certain acreage, etc.) and has been confirmed as not present through habitat assessment or wildlife survey.

3.4.2 Significant Wildlife Habitat Screening Assessment

The Study Area was assessed for the presence of candidate SWH features following the Significant Wildlife Habitat Technical Guide (MNR 2000) and in accordance with the evaluation criteria described in the Significant Wildlife Habitat Criteria Schedules appropriate for the Study Area's Ecoregion.

The Study Area is located within the Lake Simcoe-Rideau Ecoregion (Ecoregion 6E). The Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (MNR 2015) contain information and criteria for identifying SWH. SWH is defined by the province as areas that have important ecological features and functions, and which support sustainable populations of plants, wildlife and other organisms within a particular Ecoregion. The MNR generally categorizes SWH into the following five categories:

- Seasonal Wildlife Concentration Areas
- Rare Vegetation Communities
- Specialized Habitat for Wildlife
- Habitats of SOCC
- Animal Movement Corridors

Wildlife occurrence records as described in Section 3.2.2 as well as field data collected throughout the field program as described in Section 3.3 were assessed to inform the presence of SWH within the Study Area based on the habitat criteria identified in the Ecoregion 6E schedules. The following probability assessment criteria was applied to the SWH habitat screenings:

Low Probability: Suitable SWH habitat was not observed throughout the field program but there are known wildlife records in the general area, or potentially suitable SWH habitat was observed during the field program but there are no wildlife records or field observations through survey (e.g. breeding bird survey, amphibian call surveys) for the SWH species group of interest.

Medium Probability: Potential SWH habitat is present in the Study Area and there are known wildlife records in the general area.

High Probability: Good quality SWH habitat has been identified (e.g., sufficiently large areas of suitable vegetation and presence of key features such as nesting or breeding sites) and there are known wildlife records in the general area.

Confirmed: The species (or wildlife group) was observed in suitable habitat during the 2023-2025 field program.

Absent: SWH habitat criteria is specialized (e.g. caves, alvars, habitat greater than a certain acreage, etc.) and has been confirmed as not present.

Where a medium or high probably has been determined, the SWH is considered ‘Candidate SWH’. Specifically, Candidate SWH refers to potential habitats that may meet the habitat criteria but have not been confirmed through additional detailed studies.

4 Results

The results of the background review and field program, as described in Section 3 are outlined below. The species described herein use provincially published English common names (MNR 2025). All common names and associated scientific names and species status are detailed in Appendix C and Appendix D respectively.

4.1 Legislation and Policy Context

Stantec completed a review of relevant legislation and natural heritage policies across tiers of government that are applicable to the Subject Lands in the context of the proposed development. The results of the review are outlined below and further assessed in Section 6.6 and Section 6.7 of this report to document Project conformity based on the required permits and authorization and in light of the implementation of the mitigation measures recommended, as described in Section 6.3 to Section 6.5.

4.1.1 Federal

4.1.1.1 Species at Risk Act, 2002

The federal SARA protects and provides recovery strategies for SAR listed as EXT, END or THR under Schedule 1. This legislation applies to species residing on federal lands, federally regulated projects, species with critical habitat on non-federal lands in specific circumstances, or aquatic species and migratory birds listed on Schedule 1. The Project does not occur on federal lands and is not subject to the SARA regulations with the exception of aquatic species and migratory birds listed on Schedule 1.

4.1.1.2 Fisheries Act, 1985

The federal *Fisheries Act* is the primary legislation governing fish and fish habitat in Canada. The Fisheries Act defines fish habitat as "…*waters frequented by fish and any other areas on which fish depend directly or indirectly in order to carry out their life processes including spawning grounds and nursery, rearing, food supply and migration areas*." The fish and fish habitat protection provisions of the Fisheries Act apply to all fish and fish habitat in Canada. The Act prohibits activities that result in the death of fish or the harmful alteration, disruption or destruction (HADD) of fish habitat unless authorized by the Minister of Fisheries, Oceans and the Canadian Coast Guard. If it is determined that the death of fish or HADD of fish habitat is unavoidable as part of the Project, an authorization under the Fisheries Act may be required.

4.1.1.3 Migratory Birds Convention Act, 1994

The federal MBCA is intended to protect migratory birds, their eggs and their active nests. The MBCA prohibits the possession, destruction and harm of migratory birds and/or their active nests and prohibits the release of harmful substances in areas frequented by migratory birds. Under the MBCA, the nesting period for most migratory birds for Nesting Zone C1 that encompasses the Project Study Area is from

April 1 to August 31, during which time vegetation removal is strongly discouraged to avoid contravention of the MBCA. However, if vegetation clearing must occur during this timing window, active nest searches may be conducted prior to vegetation clearing during this window in simple habitats defined by Environment and Climate Change Canada (ECCC 2025) as “often man-made settings with only a few likely nesting spots or small community of migratory birds”.

4.1.1.3.1 Migratory Birds Regulation, 2022

The objective of the Migratory Birds Regulations is the conservation of migratory birds, including their eggs and nests, in Canada. Implemented in 1918, the regulations were first developed to address the overharvesting and unregulated commerce of migratory birds. The regulation was last amended on August 18, 2024.

The nests of all migratory bird species are protected when they contain a live bird or a viable egg (so generally during the nesting period). The nests of 18 species (listed in Schedule 1 of the regulations, seven of which occur in Ontario), whose nests are reused by migratory birds, continue to have year-round nest protection for a prescribed length of time ranging from 24-36 months, unless they have been shown to be abandoned. To be considered abandoned:

- The Minister must be notified, via an online registration system (the Abandoned Nest Registry), that the nest does not contain a live bird or viable egg, and
- The nest is to remain unused by migratory birds during the designated wait time for that species

4.1.2 Provincial

4.1.2.1 Provincial Planning Statement (2024)

The PPS was issued under Section 3 of the Ontario *Planning Act, 1990*, R.S.O. 1990, c. P.13 and first came into effect on May 22, 1996. The PPS has been updated several times since 1993. The 2024 PPS came into effect on October 20, 2024. Decisions made by municipal planning authorities shall be consistent with the policy statements issued under the Planning Act, such as the PPS, which includes policies on development and land use patterns, resources and public health and safety.

Section 4.1 of the PPS provides direction to regional and local municipalities regarding planning policies specifically for the protection and management of natural heritage features and resources. The NHRM (MNR 2010) is a technical document used to help assess the natural environment to identify natural heritage or significant features and areas. The natural heritage policies outlined in Section 4.1 of the PPS relate to the following features:

- Natural heritage systems
- Natural heritage features and areas
- Significant wetlands
- Significant coastal wetlands

- Significant woodlands
- Significant valleylands
- Significant wildlife habitat
- Significant Areas of Natural and Scientific Interest (ANSIs)
- Fish habitat
- Habitat of endangered and threatened species

Each of the aforementioned features or defined areas are afforded varying levels of protection subject to municipal policies, guidelines, and in some cases, regulations. Habitat of endangered or threatened species are regulated by the MECP if a species is identified on a property through site specific investigation or in some cases, through existing habitat information. Fish habitat is governed by DFO. The remaining features are generally governed by the municipality or other planning authority.

The Study Area falls within Ecoregion 6E. Section 4.1.4 of the PPS, states that development and site alteration shall not be permitted in the following features in Ecoregion 6E:

- Significant wetlands
- Significant coastal wetlands

Section 4.1.5 of the PPS states that development and site alteration shall not be permitted in the following features, unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions:

- Significant woodlands
- Significant valleylands
- Significant wildlife habitat
- Significant areas of natural and scientific interest
- Coastal wetlands that are not subject to policy 4.1.4.b)

Further, Sections 4.1.6 and 4.1.7 state that development and site alteration shall not be permitted in the following features, except in accordance with provincial and federal requirements:

- Habitat of END or THR species
- Fish habitat

The Study Area encompasses undeveloped lands which may support natural features and areas covered under Section 4.1 of the PPS. The PPS also requires natural heritage systems to be identified in various ecoregions, including Ecoregion 6E where the Study Area occurs. Furthermore, the diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of natural heritage systems, should be maintained, restored or, where possible, improved, recognizing linkages between and among natural heritage features and areas, surface water features and ground water features.

Technical guidance documents have been prepared by the Province to support the PPS, including Section 2 of the Stormwater Management Planning and Design Manual (MNR 2003), the Natural Heritage Reference Manual (MNR 2010), the Significant Wildlife Habitat Technical Guide (MNR 2000), the Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (MNR 2015), and the Ontario Wetland Evaluation System, Southern Manual (MNR 2022).

Given the above, the natural heritage policies outlined in the PPS require consideration in the EIS/NHE to move forward with development or site alteration activities on the Subject Lands.

4.1.2.2 Greenbelt Plan (2017)

The Greenbelt Plan is issued under the Greenbelt Act, 2005, S.O. 2005, c. 1. The Greenbelt Plan (2017) was approved by the Lieutenant Governor in Council and came into effect on July 1, 2017. The Greenbelt Plan includes lands within and builds upon the ecological protections provided by the Niagara Escarpment Protection Plan and the Oak Ridges Moraine Conservation Plan , and together with the policies outlined in the previous Growth Plan, builds on the PPS to establish a land use planning framework for the Greater Golden Horseshoe (GGH) that supports a thriving economy, a clean and healthy environment and social equity.

A review of the Greenbelt Plan schedules has identified the following relevant designations concerning the Study Area:

- Schedule 1 (*Greenbelt Area*) identifies the Subject Lands as within the Greenbelt Area. Within the Greenbelt Area, lands within the Study Area are mapped under the Protected Countryside designation.
- Schedule 4 (*Natural Heritage System*) identifies Natural Heritage System of the Protected Countryside present on and directly adjacent to the Subject Lands.

Stantec completed a review of the Greenbelt Plan and provides the following summary of Project relevant information. In some cases, policies overlap. Stantec notes that on page 9 of the Greenbelt Plan (Introduction section), the Greenbelt Plan states that there is a "*need to read the Plan as a whole"* and under Section 5.1 "*The Greenbelt Plan, including the Schedules, together with the text and commentary in Sections 1 to 7, shall be read in its entirety and applied in each situation*." Where conflicts in policy direction were observed, Stantec's interpretation is provided in Section 6.6 (Policy Conformity) of this report.

Greenbelt Protected Countryside

There are four types of geographic-specific policies that apply to specific lands within the Protected Countryside: Agricultural System, Natural System, Parkland, Open Space and Trails and Settlement Areas. As relevant to the Subject Lands, Section 3.2 of the Greenbelt Plan outlines policies relevant to the Natural System.

Under Section 3.2.1, the NHS is made up of core areas and linkage areas of the Protected Countryside that include the highest concentration of the most sensitive and/or *significant* natural features and functions. Section 3.2.2 outlines policies for lands within the NHS.

Natural Heritage System of the Greenbelt Protected Countryside Policies

Under Policy 3.2.2.3:

New development or site alteration in the Natural Heritage System (as permitted by the policies of this Plan) shall demonstrate that:

a) There will be no negative impacts on key natural heritage features or key hydrologic features or their functions,

b) Connectivity along the system and between key natural heritage features and key hydrologic features located within 240 meters of each other will be maintained or, where possible, enhanced for the movement of native plants and animals across the landscape,

c) The removal of other natural features not identified as key natural heritage features and key hydrologic features should be avoided. Such features should be incorporated into the planning and design of the proposed use wherever possible,

d) Except for uses described in and governed by the policies of sections 4.1.2 and 4.3.2,

i. The disturbed area, including any buildings and structures, of the total developable area will not exceed 25 per cent (40 per cent for golf courses); and

ii. The impervious surface of the total developable area will not exceed 10 per cent; and

e) At least 30 per cent of the total developable area will remain or be returned to natural self-sustaining vegetation, recognizing that section 4.3.2 establishes specific standards for the uses described there.

Key Natural Heritage Features and Key Hydrologic Features Policies

Section 3.2 outlines features that are considered Key Natural Heritage Features (KNHF) and Key Hydrologic Features (KHF). Specifically, KNHFs include:

- Habitat of endangered species and threatened species
- Fish habitat
- Wetlands
- Life science areas of natural and scientific interest (ANSIs)
- Significant valleylands
- Significant woodlands
- Significant wildlife habitat (including habitat of special concern species)
- Sand barrens, savannahs and tallgrass prairies

- Alvars

KHFs include:

- Permanent and intermittent streams
- Lakes (and their littoral zones)
- Seepage areas and springs
- Wetlands

Habitat of endangered species and threatened species, fish habitat, wetlands, Significant Woodlands, Significant Wildlife Habitat, and permanent and intermittent streams have been identified on the Subject Lands.

As relevant to the Project, Policy 3.2.5.1 states:

> *Development or site alteration is not permitted in key hydrologic features and key natural heritage features within the Natural Heritage System, including any associated vegetation protection zone, with the exception of … c) Infrastructure, aggregate, recreational, shoreline and existing uses, as described by and subject to the policies of section 4.*

In accordance with the Greenbelt Plan's definitions, *Infrastructure* "means physical structures (facilities and corridors) that form the foundation for development" and "includes: … septage treatment systems, stormwater management systems, … transit and transportation corridors and facilities…"

Section 4 outlines the general policies for lands within the Protected Countryside designation. As relevant to the Project and natural heritage impacts, Section 4.2 speaks specifically to infrastructure.

Policy 4.2.1.1 states:

> *All existing, expanded or new infrastructure subject to and approved under the Canadian Environmental Assessment Act, the Environmental Assessment Act, the Planning Act, the Aggregate Resources Act or the Telecommunications Act or by the National or Ontario Energy Boards, or which receives a similar environmental approval, is permitted within the Protected Countryside, subject to the policies of this section* [S. 4.2.1] *and provided it meets one of the following two objectives:*
>
> *a) It supports agriculture, recreation and tourism, Towns/Villages and Hamlets, resource use or the rural economic activity that exists and is permitted within the Greenbelt; or*
>
> *b) It serves the significant growth and economic development expected in southern Ontario beyond the Greenbelt by providing for the appropriate infrastructure connections among urban centres and between these centres and Ontario's borders.*

Policy 4.2.1.2 states:

> *The location and construction of infrastructure and expansions, extensions, operations and maintenance of infrastructure in the Protected Countryside are subject to the following:*
>
> *a) Planning, design and construction practices shall minimize, wherever possible, the amount of the Greenbelt, and particularly the Natural Heritage System and Water Resource System, traversed and/or occupied by such infrastructure;*
>
> *b) Planning, design and construction practices shall minimize, wherever possible, the negative impacts on and disturbance of the existing landscape, including, but not limited to, impacts caused by light intrusion, noise and road salt;*
>
> *c) Where practicable, existing capacity and co-ordination with different infrastructure services shall be optimized so that the rural and existing character of the Protected Countryside and the overall hierarchy of areas where growth will be accommodated in the GGH established by the Greenbelt Plan and the Growth Plan are supported and reinforced;*
>
> *d) New or expanding infrastructure shall avoid key natural heritage features, key hydrologic features or key hydrologic areas unless need has been demonstrated and it has been established that there is no reasonable alternative;*
>
> *e) Where infrastructure does cross the Natural Heritage System or intrude into or result in the loss of a key natural heritage feature, key hydrologic feature or key hydrologic areas, including related landform features, planning, design and construction practices shall minimize negative impacts on and disturbance of the features or their related functions and, where reasonable, maintain or improve connectivity;*

Policy 4.2.1.3 states:

> *Infrastructure serving the agricultural sector… may need certain elements to be located within the vegetation protection zone of a key natural heritage feature or key hydrologic feature. In such instances, these elements of the infrastructure may be established within the feature itself or its associated vegetation protection zone, but all reasonable efforts shall be made to keep such infrastructure out of key natural heritage features, key hydrologic features and their associated vegetation protection zones.*

Policy 4.2.3.3 states:

> *Stormwater management systems are prohibited in key natural heritage features, key hydrologic features, and their associated vegetation protection zones. The determination of appropriate vegetation protection zones shall be defined in accordance with sections 3.2.5.4 and 3.2.5.5 of this Plan, which consider the area and nature of the feature being protected and the nature of the proposed stormwater management system.*

Policy 3.2.5.5 states:

> *A proposal for new development or site alteration within 120 metres of a key natural heritage feature within the Natural Heritage System or a key hydrologic feature anywhere within the Protected Countryside requires a natural heritage evaluation or a hydrological evaluation which identifies a vegetation protection zone which:*
>
> *a) Is of sufficient width to protect the key natural heritage feature or key hydrologic feature and its functions from the impacts of the proposed change and associated activities that may occur before, during and after construction and, where possible, restore or enhance the feature and/or its function; and*
>
> *b) Is established to achieve and be maintained as natural self-sustaining vegetation.*

Concerning the stormwater management plan (SWM) design, Policies 4.2.3.4 and 4.2.3.5 speak to measures to avoid, minimize and mitigate impacts to existing vegetation, receiving waters and protect aquatic species and their habitat.

4.1.2.3 Endangered Species Act, 2007

The *Endangered Species Act, 2007* (ESA) protects species and their habitats that are listed as threatened, endangered, or extirpated on the Species at Risk in Ontario list (Ontario Regulation [O.Reg.] 230/08) by prohibiting anyone from killing, harming, or possessing protected species, as well as prohibiting any damage or destruction to the habitat of the listed species. Listed species are referred to as Species at Risk (SAR) and are provided with general habitat protection under the ESA aimed at protecting areas that species depend on to carry out their life processes, such as reproduction, rearing, and hibernation or feeding. For some species there are detailed habitat regulations that go beyond the general habitat protection to define specifically the extent and character of protected habitats.

Activities that may impact a protected species or its habitat require the prior issuance of a permit from the Ministry of the Environment, Conservation and Parks (MECP), unless the activities are exempted under O.Reg. 242/08, 830/21 or 829/21. These regulations identify activities which are exempt from the permitting requirements of the ESA and is subject to rigorous controls outside the permit process, including registration of the activity and preparation of a mitigation plan. Activities that are not exempt under these regulations require a complete permit application process.

The new *Species Conservation Act, 2025* will replace the ESA once in enacted by the province, which is expected to be early in 2026. The new Act may include a different authorization process for activities that may impact species at risk and/or their habitat.

4.1.2.4 Conservation Authorities Act, 1998

The *Conservation Authorities Act, 1990* (CAA) (as amended on June 6, 2024) provides for “the organization and delivery of programs and services that further the conservation, restoration, development and management of natural resources” in Ontario. Conservation Authorities are established

under the CAA and have jurisdiction over a designated watershed or watersheds. The Central Lake Ontario Conservation Authority (CLOCA) is the responsible authority for the CAA in the Study Area.

O. Reg. 41/24 of the CAA identifies prohibited activities, exemptions and permits for development activities within regulated areas which include hazardous lands (areas associated with flooding, erosion, dynamic beaches or unstable soil or bedrock), watercourses, and wetlands. Development activities are defined in the regulation, and include construction, site grading, and temporary and permanent stock piling of material. Prior to undertaking development activities in regulated areas, written approval (i.e., a Permit or a Letter of Permission) from the responsible Conservation Authority is required. Prohibited activities do not require a permit if they are part of development authorized under the provincial *Planning Act, 1990* (and it satisfies the conditions and restrictions that may be prescribed in the development authorization).

Under O.Reg. 41/24, “watercourse” means a defined channel, having a bed and banks or sides, in which a flow of water regularly or continuously occurs.

The two unnamed tributaries to Soper Creek in the Study Area (see Section 3.3.9 for details) and shown on Figure 2 are CLOCA regulated watercourses. Specifically, one is located on the west side of Liberty Street North on Adjacent Lands, and one is located at the east end of the Subject Lands, with portions located on Adjacent Lands to the west. No other regulated watercourses were previously mapped or directly observed on the Subject Lands based on the results of the background review and field program, a described in Section 3.

Under O.Reg. 41/24, “wetland” means land that,

> *a) is seasonally or permanently covered by shallow water or has a water table close to or at its surface,*
>
> *b) directly contributes to the hydrological function of a watershed through connection with a surface watercourse,*
>
> *c) has hydric soils, the formation of which have been caused by the presence of abundant water, and*
>
> *d) has vegetation dominated by hydrophytic plants or water tolerant plants, the dominance of which have been favoured by the presence of abundant water.*

Regulated wetlands have been identified on the Subject Lands associated with the unnamed tributary to Soper Creek located at the east end of the Subject Lands. Specifically, the White Cedar Mineral Coniferous Swamp (SWCM-1)/Meadow Marsh (MAM) located east of the agricultural fields and White Cedar Coniferous Forest on the Subject Lands is considered a CLOCA regulated wetland; see Figure 4.2 for details.

4.1.2.4.1 Central Lake Ontario Conservation Authority

The decision-making policies for permits under the CAA are contained within the Policy and Procedural Document for Land Use Planning and Regulation (CLOCA 2024b). Section 8.4 describes CLOCA's approach to mapping requirements under O.Reg. 41/24:

> *Extensive mapping of the approximate regulated area has been undertaken by CLOCA in support of Ontario Regulation 41/24 and will be updated annually pursuant to the regulation. The approximate, or conceptual extent, of the regulated area is delineated by mapping and identifies the area where the regulation is expected to apply. It is not a development setback, land use designation, zone, or a specific development limit. The regulated area includes flooding and erosion hazards associated with riverine systems and the Lake Ontario shoreline, hazard lands, along with wetlands and areas of interference around the wetlands.*

4.1.2.5 Fish and Wildlife Conservation Act, 1997

The provincial FWCA provides protection of wildlife in Ontario including fish, furbearing mammals, game wildlife and specially protected wildlife through regulations for hunting, trapping, and fishing practices. Game and specially protected mammals, birds, reptiles, amphibians, and invertebrates are listed on Schedules 1-11 of the FWCA. Definitions provided for hunting including capturing or harassing wildlife (Section 5) include activities that collect or handle wildlife for inventories or other scientific purposes, or to relocate wildlife out of harm's way (e.g., during construction activities), including individuals and eggs. Section 7 and Section 8 also provide protection for nest and eggs of specified bird species including raptors, and dens of bears and furbearing animals, and beaver damns. Under the FWCA, the Minister has the authority to authorize activities that would otherwise be prohibited such as the safe capture of wildlife and removal of nests, dens, and dams, and impose conditions on an authorization.

4.1.3 Municipal

4.1.3.1 Durham Regional Official Plan (1993)

As of July 1, 2024, the *Planning Act, 1990* was amended to designate Durham Region as an upper tier-municipality without planning responsibilities. The Municipality of Clarington has adopted the Official Plan for the Regional Municipality of Durham (ROP or Envision Durham; 2024, as amended), and as such, is now considered a local Official Plan of Clarington. Envision Durham will be consolidated into the Municipality of Clarington Official Plan (the OP; Municipality of Clarington 2018), and remains in effect until Clarington appeals, revokes or amends it. While it's being consolidated into the OP, Envision Durham continues to guide growth and development in the Clarington.

The Protected Greenlands System is outlined in Chapter 7 of Envision Durham and components mapped on Map 2. Map 2 indicates the Subject Lands are in the Regional Natural Heritage System (Map 2a). The Regional Natural Heritage System is comprised of key natural heritage features and key hydrologic areas and features, which includes:

Natural Heritage Features:

- Wetlands
- Significant Woodlands
- Significant Valleylands
- Habitat of endangered and threatened species
- Fish habitat
- Areas of Natural and Scientific Interest (ANSI)
- Rare vegetation communities, including sand barrens, savannahs tallgrass prairies, and alvars.
- Significant Wildlife Habitat (including habitat of special concern species)

Hydrologic Areas and Features:

- Wetlands
- Lakes and their littoral zones
- Permanent and intermittent Streams
- Kettle lakes
- Seepage areas and springs
- Lake Simcoe Shoreline
- Natural areas abutting Lake Simcoe

Policy 7.4.11 prohibits “development or site alteration in key natural heritage features and/or key hydrologic features, including any associated vegetation protection zone” with the exception of forest, fish, wildlife management, stewardship activities, infrastructure, recreation and agricultural uses, stormwater management retrofitting, aggregate extraction or expansions of existing agricultural buildings”.

Envision Durham outlines the same definition of “infrastructure” as provincial planning documents, including the Greenbelt Plan, as described in Section 4.1.2.2 to include transportation, septage systems and stormwater management systems.

Policy 7.4.13 requires vegetation protections zones for key natural heritage features and key hydrologic features with a “minimum distance as determined by the area municipality” which is Clarington for this EIS.

The Region’s requirements for environmental impact studies are detailed in Section 7.4.15 of Envision Durham).

4.1.3.2 Clarington Official Plan

The Municipality of Clarington OP (Municipality of Clarington 2018) consolidates natural heritage planning objectives in a Natural Heritage System (NHS) and provides policy directives to protect and restore natural features and functions associated with the NHS.

Map D of the OP delineates areas of the NHS including Natural Heritage Features and Hydrologically Sensitive Features, which include:

Natural Heritage Features:

- Wetlands
- Areas of Natural and Scientific Interest (ANSI)
- Significant Woodlands
- Significant Valleylands
- Fish habitat and riparian corridors
- Habitat of endangered species and threatened species
- Rare vegetation communities, including sand barrens, savannahs and tallgrass prairie
- Wildlife habitat

Hydrologically Sensitive Features:

- Wetlands
- Watercourse
- Seepage areas and springs
- Groundwater features
- Lake Ontario and its littoral zones

The Study Area includes an NHS designation on Schedule D1 that corresponds with wooded areas, wetlands, and drainage features that surround the west, north and east limits of the Subject Lands. OP Section 3.4.3 allows site-specific studies to identify features that are not shown on Map D for inclusion in the NHS, and Section 3.4.4 allows site-specific studies or other updated information to refine the boundary or extent of mapped Natural Heritage Features and Hydrologically Sensitive Features.

4.1.3.2.1 Development Policies

OP Section 3.4.8 prohibits new development and site alteration from within Natural Heritage Features or Hydrologically Sensitive Features and their associated vegetation protection zones (VPZs), with some exceptions for natural resource management, flood and erosion control, infrastructure and utility projects that are subject to an Environmental Assessment, and low intensity recreation such as trails.

Section 3.2.15 states that an EIS is required for development and site alteration within 120 m of Natural Heritage Features or Hydrologically Sensitive Features, and Section 3.4.13 states that development will not be approved where an EIS or similar study identifies “unacceptable negative impacts” on the NHS.

OP Table 3-1 provides minimum requirements for VPZs which area summarized below (Table 4-1); however, Section 3.4.16 requires that VPZs are determined during by an EIS or similar study based on the “sensitivity of the features and ecological functions of the NHS”. It goes on to state that “in no case will

the vegetation protection zone be less than the minimum vegetation protection zone identified in [OP] Table 3-1". Section 3.4.9 permits low-impact development stormwater systems "such as bioswales, infiltration trenches and vegetation filter strips" within the VPZ if supported by an EIS.

Table 4-1 Minimum Vegetation Protection Zones (Municipality of Clarington 2018)

Type	Feature	Minimum VPZ (Outside Urban and Settlement Areas)
Natural Heritage Features	Wetlands	
	ANSI	TBD by a site-specific study
	Significant Woodlands	30 m (dripline)
	Significant Valleylands	30 m (stable top of bank)
	Fish habitat and riparian corridors	30 m (meander belt)
	Habitat of endangered species and threatened species	TBD by a site-specific study in accordance with provincial requirements
	Rare vegetation communities, including sand barrens, savannahs, and tallgrass prairie	TBD by a site-specific study
	Wildlife habitat	TBD by a site-specific study
Hydrologically Sensitive Features	Wetlands	30 m
	Watercourse	30 m (meander belt)
	Seepage areas and springs	30 m
	Groundwater features	None provided
	Lake Ontario and its littoral zones	None provided
Other	Beach/Bluff	TBD by a Geotechnical Evaluation and/or Slope Stability Study

Wetlands are defined in Clarington's OP as:

> *Lands that are seasonally or permanently covered by shallow water, as well as lands where the water table is at or close to the surface as defined by either the Ministry of Natural Resources, the Conservation Authority, or through a comparable evaluation. In either case, the presence of abundant water has caused the formation of hydric soils and has favoured the dominance of either hydrophytic or water tolerant plants. The four major types of wetlands are swamps, marshes, bogs and fens. Wetlands included in the natural heritage system are at least 0.5 hectares in size.*

The swamp (SWCM1-1/MAM) located at the east end of the Subject Lands and Study Area is considered a wetland part of Clarington's NHS. Further, Significant Woodlands, fish habitat and riparian corridors, habitat of endangered species and threatened species, wildlife habitat, and watercourses are present in the Study Area.

Section 19.8 of Clarington's OP speaks Transportation System Implementation policies. Concerning the Project and environmental impacts, Policy 19.8.4 states that transportation systems may be permitted to cross a natural heritage feature or a hydrologically sensitive feature if the applicant can demonstrate the Project meets criteria a) through f) as follows:

> *a) The need for the project has been demonstrated and there is no reasonable alternative; (for municipal infrastructure projects, need shall be determined through an environmental assessment process under the Environmental Assessment Act, where applicable. Where these projects are not subject to an Environmental Assessment, they will be dealt with under the Planning Act or Local Improvement Act, etc.); Ab) The planning, design and construction practices adopted will keep any adverse effects on the ecological integrity of the natural heritage system to a minimum; Ac) The design practices adopted will maintain, and where possible improve or restore, wildlife movement corridors and ecological and recreational linkages, including the trail system referred to Section 18.4;*
>
> *d) The landscape design will be adapted to the circumstances of the site and use native plant species as much as possible, especially along rights of way; and*
>
> *e) The long-term landscape management approaches adopted will maintain, and where possible improve or restore, the health, diversity, size and connectivity of the natural heritage feature or hydrologically sensitive feature; and*
>
> *f) The policies of the Greenbelt Plan and the Oak Ridges Moraine Conservation Plan have been adhered to.*

Environmental Protection Area Policies

Section 14.4 speaks to Clarington's EPA policies. EPA areas include the natural heritage features and hydrologically sensitive features that comprise the natural heritage system as well as those lands within the regulatory flood plain of a watercourse. Policy 14.4.7 states that "the extent of the Environmental Protection Areas designated on Map A is approximate only. The precise limits shall be detailed through the appropriate studies as part of the review of development applications and/or in consultation with the Conservation Authority." Further, Policy 14.4.8 states:

> *The setback for development and site alteration from lands designated as Environmental Protection Area shall be determined based on the sensitivity of the specific natural heritage feature or hydrologically sensitive feature.*

Policy 20.3.7 states:

> *Stormwater management facilities may be located in any land use designation, but generally shall not be permitted on lands within the natural heritage system, identified as flood plain or Regulatory Shoreline or designated as Environmental Protection Area. However, the exact location of stormwater management facilities shall be approved by the Municipality in consultation with the Province and the Conservation Authority.*

4.2 Designated Natural Heritage Features and Areas

Based on the results of the background review, the following natural heritage features and areas have been previously identified in the Study Area (Figure 2, Appendix A):

- Greenbelt Natural Heritage System – the Subject Lands are located within the Greenbelt natural Heritage System (LIO 2024, Greenbelt Plan 2017, Clarington OP Map H)
- Municipal Environmental Protection Area (EPA) – Map A1 of the Clarington OP delineates EPA along the western, northern and eastern perimeter of the Subject Lands and Study Area.
- Municipal Natural Heritage System – Map D1 of the Clarington OP delineates the Natural Heritage System, along the western, northern and eastern perimeter of the Subject Lands and Study Area.
- Woodlands – Provincial records show wooded areas in the Study Area (LIO 2024); the location of the woodlands generally correspond with the municipal Natural Heritage System.
- Wetlands – Unevaluated wetlands are located along the watercourses and within the woodlands on the Subject Lands and in the Study Area (LIO 2024).
- Watercourses - Two unnamed tributaries of Soper Creek are within the Study Area, one is located to west of the Subject Lands, and the other is located on the Subject Lands along the eastern property limit (LIO 2024).
- CLOCA Regulated Areas – The majority of the Subject Lands and Study Area are mapped as regulated by CLOCA. Wetlands, watercourses, floodplain and other hazard lands defined under O.Reg. 41/24 that have been confirmed as present or may be present in the Study Area are regulated by CLOCA.

No other natural heritage features or areas, as defined by the PPS, have been previously identified in the Study Area.

4.3 Terrestrial Resources

4.3.1 Vegetation communities

Agricultural row crops, meadow, thicket, forest and wetland habitat were identified on or directly adjacent to the Subject Lands.

Descriptions of vegetation communities present in the Study Area are provided in Table 4-2 below. Vegetation communities located within the Study Area are shown on Figure 4.1 and Figure 4.2, Appendix A.

Table 4-2 ELC Communities Present in the Study Area

Type	ELC Code	Community Name	Description/Notes	On Subject Lands?	NHIC Sub-Rank
Terrestrial	**Forest Communities**				
	FODM6-5	Fresh – Moist Sugar Maple – Hardwood Deciduous Forest	The FODM6-5 community was observed in the NHS at the north-east end of the Subject Lands, north of the Enbridge Gas easement. This community's canopy was dominated by Sugar Maple intermixed with Trembling Aspen, Eastern White Cedar, and occasional scattered Paper Birch. The sub-canopy was dominated by Common Buckthorn, Red Ash and Eastern White Cedar and the groundcover was dominated by Hairy Solomon's Seal, Wild Sarsaparilla, Bittersweet Nightshade, Spinulose Wood Fern, New York Fern, Multiflora Rose, Wild Black Current, and Red Raspberry.	Yes	S5
	FOCM4-2	Fresh – Moist White Cedar – Hemlock Coniferous Forest	The FOCM4-2 community was observed in the NHS at the north-central end of the Subject Lands, north of the Enbridge Gas easement. This community's canopy was dominated by Eastern White Cedar with occasional Eastern Hemlock. The sub-canopy included Sugar Maple saplings and Common Buckthorn. The ground cover was limited.	Yes	S5
	FOMM7-1	Fresh – Moist White Cedar – Sugar Maple Mixed Forest	The FOMM7-1 community was observed in the NHS in the central/north portion of the Subject Lands. This community's canopy was dominated by Eastern White Cedar and Sugar Maple, with associates of Black Cherry. Additional species observed included Trembling Aspen, White Poplar, American Basswood and Common Buckthorn.	Yes	S5
	FOMM8-1	Fresh – Moist Poplar Mixed Forest	The FOMM8-1 community was observed in the NHS in the southern/east portion of the Subject Lands. This community's canopy was dominated by Trembling Aspen, American Basswood, Red Ash, and Eastern White Cedar. Additional species observed included White Poplar, Butternut, White Elm, Manitoba Maple, Large-toothed Aspen, Common Buckthorn and occasional Paper Birch. The groundcover was dominated by Hairy Solomon's Seal, Wild Sarsaparilla, Bittersweet Nightshade, Spinulose Wood Fern, New York Fern, Multiflora Rose, Wild Black Current, Red Raspberry, Riverbank Grape and occasional patches of Sensitive Fern.	Yes	S5*

Type	ELC Code	Community Name	Description/Notes	On Subject Lands?	NHIC Sub-Rank
	FOCM4-1	Fresh – Moist White Cedar Coniferous Forest	The FOCM4-1 communities were observed in the NHS in two areas on the Subject Lands at the south end. One community is located east of the existing residential dwelling, and the other is located at the west end, west of the existing agricultural field, this community's canopy was dominated by Eastern White Cedar, with very few associates. The occasional Common Buckthorn and Manitoba Maple were observed inside or in the community's edge habitat/periphery. Ground cover was limited. There were also scattered FOCM4-1 communities observed on Adjacent Lands.	Yes	S5
	FOMM7	Fresh – Moist White Cedar – Hardwood Mixed Forest	Located in the NHS north of the FOCM4-1 community and east of the existing agricultural field. This community's canopy was dominated by Eastern White Cedar intermixed with deciduous species including Manitoba Maple, Sugar Maple, Trembling Aspen, with occasional European Mountain Ash, Crack Willow and White Elm. The subcanopy and groundcover included Chokecherry, Common Buckthorn, Red Raspberry, Canada Mayflower, Hairy Solomon's Seal and Thicket Creeper.	Yes	S5*
	FOD (includes inclusion communities)	Deciduous Forest	The FOD ELC code is a high-level classification used to assign a generic vegetation community description for forest communities located on Adjacent Lands where property access was not granted. FOD forest communities are comprised of a canopy of deciduous tree cover greater than 60%. Access was not granted to Adjacent Lands; however, the following species were observed from the edge of the property: Manitoba Maple, Sugar Maple, White Elm, Trembling Aspen, Common Buckthorn, American Basswood, Common Apple, and Red Ash.	No	N/A
	FOCM4-4	Fresh - Moist White Cedar - White Pine Coniferous Forest	The FOCM4-4 unit was observed on the west side of Liberty Street North. This unit was observed to be dominated by Eastern White Cedar and White Pine with scattered Trembling Aspen, and spruce within.	No	S5*
	FOMM7-2	Fresh – Moist White Cedar – Hardwood Mixed Forest	The FOMM7-2 unit was observed on the west side of Liberty Street North. This unit was observed to be dominated by Eastern White Cedar intermixed with deciduous species including Manitoba Maple, Sugar Maple, Trembling Aspen, with occasional European Mountain Ash, Crack Willow and White Elm. The subcanopy and groundcover included Chokecherry and Common Buckthorn.	No	S5*

Type	ELC Code	Community Name	Description/Notes	On Subject Lands?	NHIC Sub-Rank
	Woodland Communities				
	CUW1	Cultural Woodlands	The CUW1 woodland communities are comprised of a canopy of tree cover of 35% to ≤60%. These communities occur south of Concession Road 4 outside of the Subject Property, and in the Enbridge Gas easement on the Subject Lands. Dominant species observed in the CUW community associated with the Enbridge Gas easement included Trembling Aspen, Common Buckthorn, Manitoba Maple, and Balsam Poplar. CUW1 communities were also observed or determined through air photo interpretation on Adjacent Lands throughout the Study Area.	Yes	N/A
	Cultural Plantations				
	CUP3	Coniferous Plantation	The CUP3 community was assigned to a unit on Adjacent Lands that through air photo interpretation are anticipated to have been planted with coniferous species in rows for logging or otherwise commercial purposes.	No	N/A
	Thicket Communities				
	THMM2	Fresh - Moist Mixed Thicket	The THMM2 community was observed at the south-west end of the Subject Lands, directly adjacent to the agricultural field. Dominant species observed in this community were Common Buckthorn, English Hawthorn, as well as scattered juvenile trees/saplings including Common Lilac, Russian Olive, Siberian Crabapple, and Manitoba Maple.	Yes	N/A
	THD	Deciduous Thicket	The THD community was observed at the north end of the Subject Lands associated with the Enbridge Gas easement. The vegetation in this area was observed to have been actively managed. Mulch was observed in areas. Dominant species observed in this community included Common Buckthorn, honeysuckles, Staghorn Sumac, Trembling Aspen and Manitoba Maple saplings, and Balsam Poplar.	Yes	N/A
	THDM2-6	Buckthorn Deciduous Shrub Thicket	The THDM2-6 community is a small unit associated with an agricultural hedgerow feature on the Subject Lands. The shrub thicket is dominated by Common Buckthorn.		

Type	ELC Code	Community Name	Description/Notes	On Subject Lands?	NHIC Sub-Rank
Terrestrial	**Meadow Communities**				
	MEFM4	Fresh - Moist Forb Meadow	The MEFM4 community was observed at the southeast end of the Subject Lands, directly adjacent to the agricultural field. Dominant species observed in this community were various members of the asteraceae family (asters and goldenrods), Red Clover, European Swallow-wort, Wild Carrot, Oxeye Daisy, Common Fleabane, Common Burdock, and Common Ragweed, with scattered Common Teasel and Common Milkweed. The unit was dominated by forbs, however, scattered patches of graminoids were also observed including Creeping Bentgrass, Reed Canarygrass and Smooth Brome.	Yes	N/A
	MEMM3	Dry - Fresh Mixed Meadow	The MEMM3 unit on the Subject Lands was observed surrounding the residential dwelling. This area showed evidence of being previously actively managed (lawn) with a significant amount of Kentucky Blue Grass and with some graveled patches observed throughout. Other dominant species observed included Red Clover, Common Ragweed, Creeping Bentgrass, Common Timothy, Wild Carrot, Common Plantain, Annual Fleabane, Oxeye Daisy and various members of the asteraceae family (asters and goldenrods).	Yes	N/A
	MEMM4	Fresh - Moist Mixed Meadow	The MEMM4 unit on the Subject Lands was observed in the central portion of the Subject Lands in a field that was historically under active management (annual or perennial row crops based on historical air photo analysis). Dominant species observed included Common Ragweed, Common Timothy, Wild Carrot, Smooth Brome, Wild Carrot, Annual Fleabane, and various members of the asteraceae family (asters and goldenrods). Species which are known to establish in wetter conditions, including Tall Goldenrod, Spotted Joe-pye-weed and Creeping Bentgrass were observed, however, none of these species or wetland indicator species dominated the field. Stantec reviewed this unit in detail with CLOCA. The field was determined by both parties to be terrestrial and not wetland.	Yes	N/A
	MEM	Mixed Meadow	An MEM unit was interpreted to be present in the Enbridge Gas easement on Adjacent Land (west of the Subject Lands) through current and historical air photo interpretation, and where feasible, through direct observation from the edge of Liberty Street North.	No	N/A

Type	ELC Code	Community Name	Description/Notes	On Subject Lands?	NHIC Sub-Rank
	Agricultural				
	OAGM1	Annual Row Crop	The agricultural fields were established with Soybean or Corn throughout the field program.	Yes	N/A
	OAGM4	Open Pasture	The OAGM4 was enclosed in by an electric fence. The graminoid-forb mixed meadow in this unit was similar to the MEMM3 community described above but had been heavily grazed by cattle.	Yes	N/A
	OAG	Open Agriculture	OAG units were interpreted to be present on Adjacent Land through current and historical air photo interpretation, and where feasible, through direct observation from the Subject Lands or publicly accessible areas.	No	N/A
	Anthropogenic				
	HE	Hedgerow	Linear rows of trees and shrubs creating a divide between agricultural fields, lining road Right-of-ways or planted landscaping associated with residential dwelling/property were assigned an HE code.	Yes	N/A
	CVI_1	Transportation	The "C - " level codes refer to constructed landscapes. These units are dominated by anthropogenically altered lands. CVI_1 represents lands that have been developed for transportation (road infrastructure).	No	N/A
	CGL_1	Golf Course	The "C - " level codes refer to constructed landscapes. These units are dominated by anthropogenically altered lands. CGL_1 represents lands associated with the Bowmanville Golf and Country Club and include manicured greens, sand swales, constructed ponds and altered watercourses and ornamental landscaping features.	No	N/A
	CVR_1	Low Density Residential	The "C - " level codes refer to constructed landscapes. These units are dominated by anthropogenically altered lands. CVR_1 represents lands associated with single family dwellings and associated access roads and outbuildings. Undeveloped lands include manicured lawn and landscaping features.	No	N/A
	CVR_4	Rural Property	The "C - " level codes refer to constructed landscapes. These units are dominated by anthropogenically altered lands. CVR_4 represents lands associated with rural residences and associated access roads, barns and	Yes	N/A

Type	ELC Code	Community Name	Description/Notes	On Subject Lands?	NHIC Sub-Rank
			outbuildings. Undeveloped lands include lawns and landscaping features. The unit on the Subject Lands has established with some natural vegetation and as such, has been coupled with the MEMM3 vegetation community type.		
	Swamp Communities				
Wetland	SWCM1-1	White Cedar Mineral Coniferous Swamp	The SWCM1-1 unit was observed at the east end of the Subject Lands. This unit was dominated by Eastern White Cedar with groundcover species dominated by co-dominant wetland species and wetland indicator species including Sensitive Fern, False Nettle and Spotted Jewelweed.	Yes	S5
	SWDM2-2/SWMM1	Green Ash Mineral Deciduous Swamp/White Cedar Mineral Mixed Swamp	The SWDM2-2/SWMM1 swamp community is located in the NHS at the west end of the Subject Lands. It was observed as the transitional community between a narrow strip of cattail marsh and Red-Osier Dogwood dominated thicket observed along Liberty Street and the terrestrial FOMM8-1 (Fresh – Moist Poplar Mixed Forest). This community was patchy and included areas within the unit dominated by Red Ash (synonymous with Green Ash, i.e., Fraxinus pennsylvanica), Eastern White Cedar, Manitoba Maple, Balsam Poplar, White Willow, Crack Willow with occasional observation of Silver Maple (particularly on the west end/closer to Liberty Street). The understory/groundcover species were dominated by co-dominant wetland species and wetland indicator species including Sensitive Fern. There were also scattered SWMM1 communities observed on Adjacent Lands.	Yes	S5/S5
	SWTM2-1 (ELC inclusion unit)	Red-osier Dogwood Mineral Deciduous Thicket Swamp	The SWTM2-1 unit is located in the NHS at the west end of the Subject Lands, adjacent to Liberty Street. This unit was dominated by Red-osier Dogwood with Sensitive Fern and Narrow-leaved Cattail scattered throughout the unit.	Yes	S5
	SWMM5-1	Balsam Fir - Hardwood Mineral Mixed Swamp	The SWMM5-1 unit is located in the NHS at the north-west end of the Subject Lands. This unit was observed to have a mixed and patchy community with portions dominated by Balsam Fir, White Willow, Crack Willow, Balsam Poplar Trembling Aspen, with scattered Eastern White Cedar and occasional Eastern Hemlock (patches/inclusions).	Yes	NA

Type	ELC Code	Community Name	Description/Notes	On Subject Lands?	NHIC Sub-Rank
	SWMM3-2	Poplar - Conifer Mineral Mixed Swamp	The SWMM3-2 unit is located in the NHS at the north-west end of the Subject Lands, north of the Enbridge Gas easement. This unit was observed to be mixed coniferous and deciduous dominated community with large patches of poplars (predominantly Trembling Aspen and Balsam Poplar) and large patches of Eastern White Cedar. Other species and patches (inclusions) observed within the community included, White Willow, Crack Willow, Red Ash, Sandbar Willow, Eastern Hemlock, Balsam Fir, and occasional/scattered Scotch Pine and American Basswood.	Yes	S5
	SWT	Thicket Swamp	There was one SWT community located on in the north-west corner of the Study Area on the Adjacent Lands. Dominant shrub species observed include dogwoods, meadowsweets, honeysuckles and Common Buckthorn. The SWT groundcover is dominated by Creeping Bentgrass, Reed Canarygrass, Common Reed and occasional inclusion of Narrow-leaved Cattail.	No	NA
	SWDM4-5/SWDM2	Poplar Mineral Deciduous Swamp/Ash Mineral Deciduous Swamp	The SWDM4-5/SWDM2 swamp community is located on the west side of Liberty on Adjacent Lands at the north-west end of the Study Area. This community was dominated by Trembling Aspen, Balsam Poplar and dead ash trees. Some cattails were observed in areas of the understory, where observable from Liberty Street.	No	S5/S5
	SWD	Deciduous swamp	The SWD ELC code is a high-level classification used to assign a generic vegetation community description for deciduous swamp communities located on Adjacent Lands where property access was not granted. The SWD communities are comprised of a canopy of deciduous tree cover greater than 25% and deciduous tree species cover greater than 75%. Tree species composition is variable between the individual FOD communities but were observed where accessible to include the following species: Silver Maple, Manitoba Maple, White Elm, Trembling Aspen, Common Buckthorn and Red Ash.	No	NA
	SWMM1-1	White Cedar – Hardwood Mineral Mixed Swamp	The SWMM1-1 unit was observed on the west side of Liberty Street North. This unit was observed to be dominated by Eastern White Cedar intermixed with deciduous species including Silver Maple, Trembling Aspen, Balsam Poplar, Crack Willow and White Elm. The subcanopy and groundcover included Sandbar Willow and Common Buckthorn.	No	S5

Type	ELC Code	Community Name	Description/Notes	On Subject Lands?	NHIC Sub-Rank
	Marsh Communities				
	MASM1-1	Cattail Mineral Shallow Marsh	Several MASM1-1 communities were observed throughout the Study Area. These communities were observed in two areas on the Subject Lands: (1) at the west end of the Subject Lands adjacent/east roadside ditch to Liberty Street; given the size, this unit is considered an ELC inclusion to SWDM2-2/SWMM1), and (2) at the north-west end of the Subject Lands established within the Enbridge Gas easement area. These communities were dominated by Narrow-leaved Cattail, with scattered Purple Loosestrife, Common Reed, Spotted Joe Pye Weed, and Spotted Jewelweed throughout certain areas.	Yes	S5
	MAM	Meadow Marsh	The MAM ELC code is a high-level classification used to assign a generic vegetation community description for meadow marsh communities within the NHS along the eastern limit of the Subject Lands. This community was assigned based on air photo interpretation and reviews of topographic data, and watercourse secondary and primary source data.	Yes	N/A
	MAMM2	Forb Mineral Meadow Marsh	The MAMM2 community observed on the Subject Lands was associated with the roadside ditch and MASM1-1 community located on the east side of Liberty Street in the central portion of the Study Area. This community was dominated by Tall Goldenrod, New England Aster, Flat-topped White Aster, Calico Aster, Panicled Aster, and occasional patches of Spotted Jewelweed, Purple Loosestrife and Nodding Smartweed.	Yes	S4S5
	Aquatic Communities				
	OAO	Open Aquatic	The OAO communities were open aquatic and associated with constructed ponds present west of Liberty Street North. Water pooling/OAO was also observed on the property directly east of the Subject Lands on the north side of Concession Road 4. Very few aquatic macrophytes were observed in these communities outside of patches of Small Duckweed.	No	N/A

No rare communities (S1-S3) were observed in the Study Area; all communities observed in the Study Area are common to very common throughout Ontario.

Based on information from site visits completed in 2024 and 2025, and further review, Stantec re-evaluated/updated the Natural Heritage System (NHS) feature limit in one minor location at the west end of the Subject Lands; there was a small adjustment related to a tree crown which should have been associated with the existing hedgerow (residential dwelling lands), rather than the FOCM4-1 or FOMM8-1 communities to the west.

4.3.2 Flora

A list of vascular plant species documented during the field program is located in Appendix C. One-hundred and fifty-six (156) vascular plants were recorded in the Study Area. Of these species, 68 (44%) were native and 88 (64%) were non-native species.

All areas where tree removals were proposed were also inventoried by Stantec (Stantec 2025). Four Butternut trees were observed in the Study Area. Butternut is a provincially endangered species. The four Butternut individuals were observed near the proposed road access development location off Liberty Street North at the west end of the Subject Lands. To support the assessment, Stantec completed an additional search of all lands within the 30 m of the proposed road location to determine if additional trees or saplings had established in the area on June 2, 2025. No additional Butternuts were observed. Subsequent Butternut Health Assessments (BHAs) were completed by Stantec and submitted to the MECP; see Appendix B.3 for details.

All the remaining native plants documented had a provincial rank of S4 or S5, indicating they are common in Ontario.

4.3.3 Avifauna

A total of 131 avifauna species were recorded within or near the Study Area based on the results of the background review (Section 3.2) and Stantec's 2024 field program (Section 3.3). Species recorded and associated conservation status are provided in Appendix D, Table D.1. Of these species, 126 (96%) were native and 5 (4%) were non-native species. Eight SAR and six SOCC species were recorded for the area. These species were included in the SAR and SOCC Habitat Screening Assessments, see Section 4.5 for details.

4.3.3.1 Breeding Bird Survey Results

A total of 52 bird species were recorded during the 2024 field program which included breeding bird point-counts and area searches, as well as incidental observations **(**Appendix D, Table D.1). Locations of the eight point-count locations are shown on Figure 4.1 and Figure 4.2, Appendix A.

One SAR and two SOCC were observed during the breeding bird surveys. Eastern Meadowlark was observed singing on the first and second breeding bird survey site visits in BBS2 and BBS5 respectively.

An incidental observation of this species was also made in the southeast corner of the Study Area (outside of the Subject Lands) on May 23, 2024. Eastern Meadowlark are listed as Threatened (THR) under the ESA, under Schedule 1 of SARA, and have a provincial S-Rank of S4B. Based on the locations of observations, Eastern Meadowlark is assumed to be breeding in the fields located directly east of the Subject Lands.

Eastern Wood-Pewee was observed singing or calling during all three, breeding bird survey site visits at BBS8. Eastern Wood-Pewee was also observed singing at BBS7 during the first breeding bird survey site visit. Eastern Wood-Pewee are listed as Special Concern (SC) under the ESA, under schedule 1 of SARA, and have a provincial S-Rank of S4B (apparently secure).

Wood Thrush were observed singing on the first and second breeding bird site visits at BBS6. One Wood Thrush was also heard singing on BBS3 during the first breeding bird survey visit. There were also two incidental observations of Wood Thrush during the 2024 field program: one was observed singing at the north end of the Subject Lands during the first breeding bird survey visit and on the east side during the third breeding bird survey visit. Wood Thrush are listed as Special Concern (SC) under the ESA, as Threatened under schedule 1 of SARA, and have a provincial S-Rank of S4B (apparently secure).

All other native bird species observed in the Study Area have breeding S-Ranks of S4 (apparently secure) or S5 (secure) and are common and widespread in southern Ontario.

One new species, the Black-throated Green Warbler, was observed in the 2025 bird survey.

4.3.3.2 Building Survey – Chimney Swift Survey Results

No Chimney Swifts were observed entering or exiting the residential dwelling on the Subject Lands throughout the survey period.

4.3.4 Herpetofauna

A total of 19 herpetofauna species were recorded within or near the Study Area based on the results of the background review (Section 3.2) and Stantec's 2024 field program (Section 3.3). Species recorded and associated conservation status are provided in Appendix D, Table D.2. All species are native to Ontario. Five SOCC species were recorded for the area. These species were included in the SAR and SOCC Habitat Screening Assessments, see Section 4.5 for details.

4.3.4.1 Amphibian Call Survey Results

Three amphibian species were recorded during the amphibian call surveys. No SAR or SOCC species were detected during the 2024 field program. Seventeen amphibian call count stations were established for the Subject Lands (AMP01 to AMP17) as shown on Figure 4.1 and Figure 4.2, Appendix A. Results of the survey are summarized below in Table 4-3.

Table 4-3 Amphibian Call Survey Results (spring 2024)

Station	Date	Species			Notes
		AMTO	GRTR	GRFR	
AMP01	May 23, 2024	0	2	1	-
	June 17, 2024	0	0	1	-
AMP02	May 23, 2024	0	1-2	1	-
	June 17, 2024	0	0	0	No calls
AMP03	May 23, 2024	0	2	1	-
	June 17, 2024	0	1	0	-
AMP04	May 23, 2024	1	2	0	-
	June 17, 2024	0	0	0	No calls
AMP05	May 23, 2024	0	2	0	-
	June 17, 2024	0	1	0	-
AMP06	May 23, 2024	0	1	0	-
	June 17, 2024	0	1	0	-
AMP07	May 23, 2024	1	1	1	-
	June 17, 2024	0	1	0	-
AMP08	May 23, 2024	0	1	1	-
	June 17, 2024	0	1	0	-
AMP09	June 7, 2024	0	0	0	No calls.
	June 17, 2024	0	1	0	-
AMP10	June 7, 2024	0	0	0	No calls.
	June 17, 2024	0	1	1	-
AMP11	June 7, 2024	0	0	0	No calls.
AMP12	June 7, 2024	0	0	0	No calls.
AMP13	June 7, 2024	0	0	0	No calls.
AMP14	June 7, 2024	0	0	0	No calls.
AMP15	June 7, 2024	0	0	0	No calls.
AMP16	June 7, 2024	0	0	0	No calls.
	June 17, 2024	0	0	0	No calls
AMP17	June 7, 2024	0	0	0	No calls.

AMTO: American Toad *Anaxyrus americanus*
GRTR: Gray Treefrog *Hyla versicolor*
GRFR: Green Frog *Lithobates clamitans*

4.3.5 Mammals

Forty-four mammalian species were recorded within or near the Study Area based on the results of the wildlife records review and Stantec's 2024 field program, as detailed in Section 3.2 and Section 3.3. Species recorded and associated conservation status are provided in Appendix D, Table D.3. Of these species, 42 (95%) were native and 2 (5%) was a non-native species. Seven SAR species were recorded for the area. These species were included in the SAR Habitat Screening Assessments, see Section 4.5 for details. No SOCC species were recorded for the area.

4.3.5.1 Bat Habitat Assessments – Treed Areas

Big Brown Bat, Silver-haired Bat, Eastern Red Bat, Northern Hoary Bat, Tricolored Bat and Little Brown Myotis were recorded by the ARUs across the Subject Lands during the 2024 and 2025 survey periods. In addition, several unconfirmed *Myotis* species calls were recorded. The detailed results of the surveys were included in the Information Gathering Form and supporting documents submitted to the MECP to support the ESA permit application.

4.3.5.2 Bat Exit Surveys – Building Assessments

The results of the building condition assessments identified potential entry/exit holes on the north, south, and west sides of the building. This included a broken glass window and gaps between the roof and wall on the south and west side of the building, and gaps between wooden boards on the walls and covering the windows of the building's north and east side.

Bat exit surveys took place on June 10 and July 2, 2024, at strategic surveying locations (northeast corner of the building and south-west corner of the building) for optimal building coverage and coverage of potential entry/exit sites under appropriate weather conditions, see Section 3.3.5.1 for details. No bats were observed exiting or entering the building during both bat exit survey visits. On July 2, one flyover was observed flying around the building and then flying away. A review of the acoustic recordings determined the presence of Big Brown Bat, and potentially three additional SAR bat species: Northern Hoary Bat, Eastern Red Bat, and a possible Silver-haired Bat within the detection limits. There were 3 low frequency recordings during the second visit that could not be attributed to a particular species. These files were low frequency calls that are associated either a Big Brown Bat, Silver-haired Bat, or Northern Hoary Bat.

Table 4-4 Acoustic Bat Recordings – Residential Building

Visit	Station	Big Brown Bat	Northern Hoary Bat	Eastern Red Bat	Big Brown/Silver-haired Bat	Low Frequency Unknown	No ID (Non-SAR)	Total
1	BMS1	0	0	0	0	0	0	0
	BMS2	0	0	0	0	0	0	0
2	BMS1	9	3	1	1	1	0	15
	BMS2	1	1	1	0	2	1	6

4.3.6 Insects

A total of 115 insect (Lepidoptera and Odonata) species were recorded within or near the Study Area based on the results of the wildlife records review and Stantec 2024 field program, as detailed in Section 3.2 and Section 3.3. Species recorded and associated conservation status are provided in Appendix D, Table D.4. Of these species, 113 (98%) were native and 2 (2%) were non-native species. One SOCC species, the Monarch, was recorded for the area and observed in the Project Footprint during Stantec's 2024 field program. These species were included in the SAR and SOCC Habitat Screening Assessments, see Section 4.5 for details.

4.3.7 Incidental Wildlife Observations

Incidental wildlife observations during the 2024 field program completed for the Study Area included Barn Swallow, Barred Owl, Eastern Meadowlark, Cedar Waxwing, Eastern Phoebe, Gray Catbird, Pileated Woodpecker, Turkey Vulture, Wilson's Snipe, Wood Thrush, Coyote, Red Fox, White-tailed Deer, American Toad, and Monarch. Pileated Woodpecker feeding cavities were observed inside the NHS, outside the proposed grading limits, and no nesting trees were observed.

An Eastern Meadowlark was incidentally observed signing on May 23, 2024 (see Section 4.3.3 for details). Wood Thrush, a SOCC, was observed on May 22 and July 4, 2024, after the first and third breeding bird survey visit (see Section 4.3.3 for details). Monarch and Barn Swallow, two additional SOCC, was also observed on June 11, 2024. All other incidental species observed are common and secure in Ontario, with no provincial designation.

4.4 Fish Community and Fish Habitat

4.4.1 Fish Habitat

Watercourse layers published by LIO (2024) show two unnamed tributaries of Soper Creek within the Study Area.

4.4.1.1 Unnamed tributary of Soper Creek (east)

The unnamed tributary to Soper Creek on the east side is mapped within the Subject Lands. This watercourse is mapped as a coldwater thermal regime watercourse with intermittent flow (LIO 2024; MNR 2024). This unnamed tributary is within a forest vegetation community (FOCM4-1). It has low gradient and poorly defined banks. On April 22, 2024, the maximum water depth was 5 cm and an average wetted width of was 0.6 m. The substrate was mostly sand with some organic matter. A small amount of surface flow (<0.5 l/s) was observed on April 22, 2024, with a water temperature of 12°C.

In the northeastern end of the Study Area, this watercourse flows through the right of way (RoW) of the Enbridge Gas easement which exhibited mowed vegetation at the time of the site visits. Riparian vegetation was observed to include reeds (Common Reed and Reed Canarygrass) and cattails. No fish were observed visually in this watercourse.

On May 22, 2024, no flow was observed in this tributary and only pools of standing water remained in the southern part of the study area. No flowing or standing water was observed on August 2, 2024.

East of the Subject Lands, the watercourse flows through a 1.2 m diameter corrugated steel pipe (CSP) culvert under Concession Road 4. On April 22, 2024, minimal flow was observed (<0.05 m/s) with a water temperature of 15°C. Upstream of the culvert an area of the lawn was flooded lawn that formed a shallow pond (see Figure 2 and Figure 4.2 for location details). This pond was backed up by a berm upstream of the culvert that was damming the water. A follow up visit on August 2, 2024, found no water upstream or downstream of the culvert.

This watercourse provides contributing functions to downstream fish habitat. As contributing fish habitat, this tributary receives protection under the *Fisheries Act, 1987*.

4.4.1.2 Unnamed Tributary to Soper Creek (west)

This watercourse is mapped as a coldwater thermal regime watercourse with intermittent flow (LIO 2024; MNR 2024). A site visit was not conducted for this watercourse feature because it is located on Adjacent Lands and is not anticipated to be impacted by the proposed development.

4.4.2 Fish Community

There are fish records for the two unnamed tributaries to Soper Creek in the Study Area (LIO 2024; MNR 2024). Fish species recorded and associated conservation status are provided in Appendix D, Table D.5. The two watercourses in the Study Area are documented as separate aquatic resource areas but have same 27 fish species listed in the records.

4.4.2.1 Provincial Ranking

Most (18) fish species recorded in the Study Area have a subnational rank of S5, which indicates they are considered ‘Secure’ or at very low or no risk of extirpation in the jurisdiction due to a very extensive range, abundant populations, or occurrences, with little to no concern from declines or threats.

Some (1) fish species recorded in the Study Area have a subnational rank S4 which indicates they are considered ‘Apparently Secure’ or at a fairly low risk of extirpation in the jurisdiction due to an extensive range and/or many populations or occurrences, but with possible cause for some concern because of local recent declines, threats, or other factors.

One (1) fish, the Atlantic Salmon (*Salmo salar*), was recorded in the Study Area with a subnational rank SNA which indicates they are unranked because the species is not a suitable for conservation activities (Master et al. 2012).

Five (5) fishes recorded in the Study Area have a subnational rank of SE which indicates they are considered non-native to Ontario.

One (1) SOCC fish recorded in the Study Area, American Brook Lamprey (S3), has a subnational rank of S3 which indicates they are 'Vulnerable' in the province with relatively few populations (often 20 or fewer).

4.4.2.2 Thermal Preference

Fifteen (15) fish species recorded in the Study Area have a cool water thermal preference. Eight (8) fishes recorded in the Study Area have a cold-water thermal preference. Four (4) fish, have a warm water preference.

4.4.3 Headwater Drainage Features

The following review of the available desktop sources potential HDF were identified for further study in the field. Field studies were completed to confirm the presence of the HDF identified during the desktop study and to identify other HDF if present. Conditions in the HDF were documented in the spring and summer of 2024. No additional HDF were identified during the field studies. The described HDF were found within the cropland section of the Project Footprint as this was the primary area of planned activities. Two HDF in the naturalized parts of the Study Area are further described in Section 4.6.1 and have a recommended management status of Protected.

The following subsections describe the conditions in each HDF in the Study Area following the characterizing components of the HDF Guidelines which are:

- hydrology
- riparian vegetation
- fish and fish habitat
- terrestrial habitat

A classification was assigned to each as per the HDF Guidelines. Figure 4.1 and Figure 4.2, Appendix A shows the HDF identified on the Site with the assigned classification.

4.4.3.1 Hydrology

Hydrology condition and modifiers observed are summarized in the table below as well as the classification assigned to each reach for the Hydrology component.

Table 4-5 HDF Hydrologic Conditions, Modifiers and Classification

Reach Name	Hydrologic Condition April 22, 2024	Hydrologic Condition May 22, 2024	Hydrologic Condition August 2 2024	Feature Type	Modifiers	Classification
TSC-H1	Standing water	Dry	Dry	No defined feature	Crop planting	Limited

Reach Name	Hydrologic Condition April 22, 2024	Hydrologic Condition May 22, 2024	Hydrologic Condition August 2 2024	Feature Type	Modifiers	Classification
TSC-H2	Standing water (trickle flow from north meadow/thicket area leading to pool, but primarily standing water with no continuous flow along reach)	Standing water (north end of TSC-H2)	Dry	No defined feature	Crop planting	Limited
TSC-H3	Standing water	No data[1]	Dry	No defined feature	Crop planting	Limited
TSC-H4	Standing water	No data[2]	Dry	No defined feature	Crop planting	Limited

4.4.3.2 Riparian Vegetation

Riparian vegetation observed at each reach are summarized in the table below as well as the classification assigned to each reach for the Riparian Vegetation component.

Table-4-6 HDF Riparian Vegetation and Classification

Reach Name	Riparian Vegetation 0-1.5 m	Riparian Vegetation 1.5-10 m	Riparian Vegetation 10-30 m	Classification
TSC-H1	Cropped	Cropped	Cropped	Limited
TSC-H2	Cropped	Cropped	Cropped	Limited
TSC-H3	Cropped	Cropped	Cropped	Limited
TSC-H4	Cropped	Cropped	Cropped	Limited

4.4.3.3 Fish and Fish Habitat

Fish and fish habitat condition observed at each reach are summarized in the table below as well as the classification assigned to each reach for the fish and fish habitat component.

[1] No observations were made on May 22, 2024, but Classification for TSC-H3 remains as Limited
[2] No observations were made on May 22, 2024, but Classification for TSC-H5 remains as Limited

Table 4-7 HDF Fish and Fish Habitat Condition and Classification

Reach Name	Fish and Fish Habitat Condition	Classification
TSC-H1	Allochthonous transport through feature to downstream habitat.	Contributing
TSC-H2	Allochthonous transport through feature to downstream habitat.	Contributing
TSC-H3	Allochthonous transport through feature to downstream habitat.	Contributing
TSC-H4	Allochthonous transport through feature to downstream habitat.	Contributing

4.4.3.4 Terrestrial Habitat

Terrestrial habitat conditions observed at each reach are summarized in the table below as well as the classification assigned to each reach for the Terrestrial Habitat component.

Table 4-8 HDF Terrestrial Habitat Condition and Classification

Reach Name	Terrestrial Habitat	Classification
TSC-H1	No terrestrial habitat present	Limited
TSC-H2	No terrestrial habitat present	Limited
TSC-H3	No terrestrial habitat present	Limited
TSC-H4	No terrestrial habitat present	Limited

4.4.3.5 Summary and Recommendations

Using the classifications applied above to each criterion and the flowchart on page 21 in the HDF Guidelines, the HDF features were all linked with management options that are determined by running through the components in a decision flowchart. Table 4-9 below summarizes the classifications and the management of each HDF.

Table 4-9 HDF Summary of Classifications and Management Recommendations

Reach Name	Step 1 Hydrology (Modifiers)	Step 2 Riparian	Step 3 Fish Habitat	Step 4 Terrestrial Habitat	Recommended Management
TSC-H1	Limited (crop planting)	Limited	Contributing	Limited	No Management Required
TSC-H2	Limited (crop planting)	Limited	Contributing	Limited	No Management Required
TSC-H3	Limited (crop planting)	Limited	Contributing	Limited	No Management Required
TSC-H4	Limited (crop planting)	Limited	Contributing	Limited	No Management Required

The HDF Guidelines describe features associated with No Management Option as follows:

"The feature that was identified during desktop pre-screening has been field verified to confirm that no feature and/or functions associated with headwater drainage features are present on the ground and/or there is no connection downstream. These features are generally characterized by lack of flow, evidence of cultivation, furrowing, presence of a seasonal crop, and lack of natural vegetation. No management recommendations required."

4.5 Species at Risk and Species of Conservation Concern Habitat Screening Assessments

Habitat screenings for SAR and SOCC were completed for the Study Area using the methodology detailed in Section 3.4.1. The full results of the assessment are provided in Appendix E.

4.5.1 Species at Risk

The results of the assessment determined that the following SAR have a high probability of occurrence or have been confirmed as present in the Study Area:

- Butternut
- Eastern Meadowlark
- Little Brown Myotis
- Silver-haired Bat
- Eastern Red Bat
- Northern Hoary Bat

The results of the assessment determined that the following SAR have a medium probability of occurring in the Study Area.

- Eastern Small-footed Myotis
- Northern Myotis
- Tri-colored Bat

Eastern Meadowlark habitat was observed on Adjacent Lands as described in Section 4.3.3. Four Butternut trees were observed at the west end of the Subject Lands (see Section 4.3.2 for details). All SAR bats confirmed or potentially occurring in the Study Area are associated with treed areas throughout the Subject Lands. Stantec is currently in consultation with the MECP concerning permit requirements to support the Project.

The results of the assessment concluded that the remainder of the SAR species previously documented in or near the Study Area were absent or had a low probability of occurring on the Subject Lands and Study Area.

4.5.2 Species of Conservation Concern

The results of the assessment determined that the following SOCC have a high probability of occurrence or have been confirmed as present in the Study Area:

- Eastern Wood-pewee
- Wood Thrush
- Monarch

The results of the assessment have also determined that there is a medium probability of Snapping Turtle to occur in the Study Area.

SOCC species with a medium or high probability of occurring in the Study Area have been carried forward in the Significant Wildlife Habitat Assessment and Impact Assessments; see Section 4.6 and Section 6 for details.

The results of the assessment concluded that the remainder of the SOCC species previously documented in or near the Study Area were absent or had a low probability of occurring on the Subject Lands and Study Area.

4.6 Significance Assessments

4.6.1 Woodlands

The treed areas on the Subject Lands inside the dripline (as shown in Figure 3), and which continue north of Subject Lands into Adjacent Lands, meet the criteria for Significant Woodlands in accordance with provincial and municipal planning policies and supporting technical documents, as described in Section 4.1.

4.6.2 Wetlands

There are three wetlands on the Subject Lands. For the purposes of this assessment, a contiguous wetland feature includes all wetland vegetation communities (e.g. marsh, swamp thicket or forested swamp). Concerning potential implications on the Project (constraints and buffers), Stantec provides the following assessment of each of the features present on the Subject Lands:

Wetland #1: SWCM1-1/MAM/OAG unit

- Location: south-east quadrant of Study Area
- Size: approximately 1.18 ha
- Candidate PSW: No, the wetland is isolated and less than 2ha (Ontario Wetland Evaluation System; MNR 2022). Further it is noted that this conservative estimate in size assumes large

portions of private agricultural lands could qualify as wetlands if the fields are left fallow to re-generate with natural vegetation.

Wetland #2: SWMM5-1/MASM1-1/SWMM3-2 unit

- Location: north-west quadrant of Study Area
- Size: approximately 2.53 ha
- Candidate PSW: Yes, the wetland is large enough to be evaluated (Ontario Wetland Evaluation System; MNR 2022). Further it is noted that this is an estimate in size and Adjacent Lands north of the Subject Lands may support additional wetlands or boundary refined upon further investigation.

Wetland #3: SWDM2-2/SWMM1/SWTM2-1/MASM1-1/MAMM2 unit

- Location: southwest-central quadrant of Study Area
- Size: approximately 0.44 ha
- Candidate PSW: Candidate PSW: No, the wetland is isolated and less than 2ha (Ontario Wetland Evaluation System; MNR 2022). The wetland is an ELC inclusion unit (Lee et al., 1998) to the larger surrounding forest units; it delineated in the field and subsequently mapped for the purposes of evaluation to support the assessment herein.

4.6.3 Significant Wildlife Habitat Screening Assessment

The following subsections identify candidate and confirm SWH within the Study Area. SWH, including habitats for SOCC receive protection under the PPS. SOCC may also be afforded protection under the MBCA or Ontario *Fish and Wildlife Conservation Act, 1997*.

A SWH screening assessment for the Study Area is provided in Appendix F. A habitat screening for SOCC was completed for the Study Area and is provided in Appendix E, Table E.2. The results of the assessment are outlined below. Where a medium probably for SWH in the Study Area has been concluded, the SWH is considered Candidate SWH. Specifically, Candidate SWH refers to potential habitats that may meet the habitat criteria but have not been confirmed through additional detailed studies.

The results of the assessment identified the following confirmed or high probability (Candidate) SWH as present on the Subject Lands and in the Study Area:

Bat Maternity Colonies

Candidate Bat Maternity Colonies in the Study Area are associated with the treed areas (woodlands and swamp) in the Study Area. On the Subject Lands, Candidate Bat Maternity are associated with the treed areas inside the NHS feature dripline (see Figure 3, Appendix A for details).

Special Concern and Rare Wildlife Species

Eastern Wood-Pewee was observed at the north end of the Subject Lands (at stations BBS7 and BBS8, Figure 4.1, Appendix A). Eastern Wood-Pewee are listed as Special Concern (SC) under the ESA, under schedule 1 of SARA, and have a provincial S-Rank of S4B (apparently secure). This species receives protection under the MBCA. The Eastern Wood-pewee breeds mostly in mature and intermediate age deciduous and mixed forests (less often in coniferous forest) having an open understory (COSEWIC 2012a). It is often associated with forests dominated by Sugar Maple, elm and oak and is usually associated with forest clearings and edges within the vicinity of its nest (COSEWIC 2012a). Given the location of observations and habitat requirements, it is anticipated this species is breeding in the FODM6-5 and potentially SWMM3-2 and SWMM5-1 (Figure 4.2, Appendix A) communities present at the north end of the Subject Lands adjacent to the Enbridge Gas easement.

Wood Thrush was observed during surveys at breeding bird stations located in the north (station BB6, Figure 4.1, Appendix A) and central (station BBS3; Figure 4.2, Appendix A) parts of the Subject Lands. During the breeding season, the Wood Thrush is found in moist, deciduous hardwood or mixed stands, often previously disturbed with a dense deciduous undergrowth and with tall trees for singing perches (COSEWIC 2012b) and prefers interior forest habitat (Cornell Lab 2025). Wood Thrush has been documented to prefer second growth over mature forests. Wood Thrush was recorded singing on multiple dates in the woodlands immediately south of the Enbridge Gas easement (FOMM7 and FOMM7-1), and this species is likely breeding at that location.

One individual Wood Thrush was observed singing on one date (June 1, 2025) in the FOMM8-1 west of BBS3 along near Liberty Street North. Individual singing males are considered “possible breeding occurrences” (according to the Ontario Breeding Bird Atlas breeding evidence codes); therefore, habitat for Wood Thrush is considered candidate (not confirmed) SWH at that location.

The results of the assessment identified the following medium probability SWH (Candidate SWH) as present on the Subject Lands and in the Study Area:

Terrestrial Crayfish

Potential terrestrial crayfish habitat was observed in the Study Area associated with the wetlands on and adjacent to the Subject Lands. While no chimneys were directly observed throughout the field program, extensive searches were not completed outside of the proposed development footprint as part of the assessment.

Seeps and Springs

Seeps and springs were not directly observed during the field program including during the ELC surveys or HDFA assessment, however based on secondary source information, it is possible seeps and springs may be present associated with the woodlands at the north end of the Subject Lands and Study Area, particularly north of the Enbridge Gas easement.

The results of the assessment identified the following medium probability SWH (Candidate SWH) as present on Adjacent Lands only (in the Study Area, but not on the Subject Lands):

Turtle Nesting Areas

Potentially suitable habitat has been identified associated with ponds located west of Liberty Street North and there are known species record in the general area (see Appendix D, Table D.2).

Turtle Wintering Areas

Potentially suitable habitat has been identified associated with ponds located west of Liberty Street North and there are known species record in the general area (see Appendix D, Table D.2).

Colonial-Nesting Bird Breeding Habitat (Tree/Shrubs)

Potentially suitable habitat has been identified associated with lands located west of Liberty Street North and there are known species record in the general area (see Appendix D, Table D.1).

Amphibian Breeding Habitat (Woodland and Wetland SWH) and Amphibian Movement Corridor SWH

Potential amphibian breeding habitat is present in the Study Area associated with the wetlands and ponds located west of Liberty Street North and the deciduous woodlands and swamps located west and north of Subject Lands. Amphibian call surveys were completed throughout the Subject Lands. Woodland and wetland Amphibian Breeding Habitat SWH has not been identified on the Subject Lands.

5 Proposed Development

The Municipality of Clarington, with support from Durham Region, is moving forward with the development of the Clarington Operations Depot, Emergency Fire Station, and Training Facility. The proposed development will include a building (8,754 sm), open storage area, 1.4-acre driver training and snow storage area, aggregate storage area, 1-storey salt and sand dome, fire training yard, 4 site access roads, parking lots, stormwater infrastructure, telecom tower, electrical transformer, courtyard, fueling station, and dedicated habitat compensation area. The development plan also proposes bioswales as a low-impact development strategy to manage stormwater.

Copies of the Site Plan and Functional Grading Plan are provided in Appendix G.

6 Impact Assessment

The proposed Site Plan was overlaid on natural feature mapping in an ArcGIS environment to quantify direct impacts associated with the development. Direct impacts are quantifiable effects and may include loss of vegetation communities, natural feature components of the NHS and associated VPZ (Figure 5, Appendix A). Results of the assessment of direct impacts is discussed below.

The proposed Site Plan may also result in indirect impacts to natural heritage features during construction. Indirect effects are generally qualitative in nature and may include effects such as sedimentation and noise impacts to wildlife on adjacent lands. Indirect impacts are also discussed below.

Site-specific and standard recommendations are identified to mitigate potential impacts to natural features and enhance the natural heritage system where appropriate. Site-specific measures are recommended to address the specific natural heritage features and functions identified for the Subject Lands and Adjacent Lands, while standard measures address strategies that are typically required for construction such as erosion and sediment control.

6.1 Direct Impacts

The proposed development will result in a permanent direct loss of predominantly agricultural (5.54 ha) and cultural (0.33 ha) lands as shown on Figure 5, Appendix A and Table 6-1 Relatively minor loss is associated with natural vegetation communities, including meadows (0.11 ha), thickets (0.05 ha), hedgerows (0.12 ha), wetlands (0.01 ha), and woodlands (0.04 ha).

Direct loss of the woodland and wetland communities is associated with the proposed access drive to the development from Liberty Street North. The combined area of wetland and woodland loss (0.05 ha) represents the total loss to the NHS.

Thes proposed access drive from Liberty Street North also results in the direct loss of the 30 m NHS VPZ (0.03 ha). There is one other small area where the permanent footprint results in direct loss (0.01 ha) of the 30 m NHS VPZ, on the east side on the development (Figure 5, Appendix A). The total combined area of direct loss to the 30 m NHS VPZ is 0.04 ha.

Site specific recommendations to offset direct loss on the NHS include compensation plantings, VPZ re-vegetation, and woodland edge management, which are discussed in Section 6.4. The planned re-vegetation of agricultural lands (annual row crops) will result in net increase in natural cover on the Subject Lands, including an increase in the total area of woodland and NHS.

Table 6-1 Proposed Permanent Loss by Vegetation Community

Type	ELC Code	ELC Description	Area (ha)
Agriculture	OAGM1	Annual Row Crop	5.54
Cultural	MEMM3/CVR_4	Dry - Fresh Mixed Meadow/Rural Property	0.33
Meadow	MEFM4/THMM2	Fresh - Moist Forb Meadow/Fresh - Moist Mixed Thicket	<0.01
Meadow	MEMM4/THDM2-6	Dry - Fresh Mixed Meadow/Buckthorn Deciduous Shrub Thicket	0.11
Thicket	THDM2-6	Buckthorn Deciduous Shrub Thicket	0.05
Hedgerow	HE	Hedgerow	0.12
Wetland	SWDM2-2/SWMM1	Green Ash Mineral Deciduous Swamp/White Cedar Mineral Mixed Swamp	0.01
Woodland	FOMM8-1	Fresh – Moist Poplar Mixed Forest	0.04

6.1.1 Wildlife Habitat

Based on the assessment of wildlife and wildlife habitat (Section 4.6.3) and SAR/SOCC habitat (Section 4.5), the following wildlife habitats were identified for the area of proposed permanent loss of woodlands (FOMM8-1 and SWDM2-2/SWMM1):

- Habitat for SAR (endangered bats)
- Candidate Bat Maternity Colonies
- Candidate Habitat for SOCC (Wood Thrush)

SAR bats and their habitat are protected by the ESA, and mitigation and authorization requirements are discussed further in Section 6.3 and Section 6.7. Mitigation requirements for SAR bats will protect other non-SAR bats and offset loss to candidate Bat Maternity Colonies and no negative impacts this habitat function are anticipated.

Wood Thrush is considered a possible breeder in the FOMM8-1 forest. Protection of individuals and nests will be provided by implementing standard measures for the protection of migratory birds (Section 6.3.2). Woodland habitat compensation will offset loss of candidate Wood Thrush habitat. As discussed in Section 6.4.1, woodland compensation is proposed in the northeast part of the property, south of the Enbridge Gas easement. Compensation at this location will enhance existing woodland breeding habitat for Wood Thrush, and negative impacts to the local breeding activity of this species are not anticipated.

6.1.2 Drainage Features

The proposed development plan will remove HDFs TSC-H1, H2 and H3 (Figure 4.2, Appendix A). These features were assessed and assigned a management recommendation using the HDF Guidelines (TRCA/CVC 2014). Based on the guidelines, all three features were assigned a “No Management”

recommendation, indicating that “no feature and/or functions associated with headwater drainage features are present on the ground and/or there is no connection downstream. These features are generally characterized by lack of flow, evidence of cultivation, furrowing, presence of a seasonal crop, and lack of natural vegetation”. Removal of these features does not require mitigation beyond standard measures erosion and sediment control (see Section 6.3).

6.2 Temporary Impacts

In addition to the permanent loss discussed above, the proposed development plan proposes bioswales as low-impact development strategy to manage stormwater in the 30 m NHS VPZ. Removal of the existing vegetation will be required to grade and construct the bioswales; however, they will be re-vegetated post-construction to the extent feasible and are considered temporary removals. Vegetation within the proposed grading limits is associated with agricultural lands (annual row crop) and early successional vegetation communities including meadows, thickets and hedgerows. Re-vegetation within the agricultural lands (annual row crop) will result in a net increase of natural vegetation cover, provided self-sustaining native species are incorporated to the extent feasible. There are also opportunities to improve the diversity of native flora in the VPZ by removing invasive Common Buckthorn, particularly in the bioswales that overlay THDM2-6 (Buckthorn Deciduous Shrub Thicket) north of the development.

As noted in Section 4.1.3, the Clarington OP permits some activities in natural features and their VPZs such as low intensity recreation (OP Section 3.4.8), and low-impact development (LIDs) stormwater systems “such as bioswales, infiltration trenches and vegetation filter strips” within the VPZ, if supported by an EIS. Given the potential to improve natural cover and diversity of flora in the VPZ, it is possible to construct the proposed bioswale while maintaining enhancing existing natural heritage features and functions of the NHS.

6.3 Standard Mitigation

Standard mitigation measures are recommended to protect existing significant natural heritage features during construction, reduce potential effects to features and urban tolerant wildlife, as well as protect migratory birds and bats in the Study Area.

6.3.1 Erosion and Sediment Control

An erosion and sediment control (ESC) strategy will be developed during detailed design and implemented throughout the construction process to mitigate the potential for off-site discharge of sediment into receiving features and the associated negative environmental impacts.

Additional disturbance may be required to facilitate spill clean-up activities. Where they occur, these impacts are expected to be localized to the construction area and adjacent areas.

These potential indirect effects are common to various types of construction and can be controlled using standard mitigation measures for erosion and sediment control. The primary principles associated with sedimentation and erosion protection measures are to:

- Reduce the duration of soil exposure to the extent feasible
- Retain existing vegetation to the extent feasible
- Encourage re-vegetation
- Divert runoff away from exposed soils
- Keep runoff velocities low
- Trap sediment as close to the source as possible

To address these principles, the following mitigation measures will be implemented during construction:

- Silt fencing will be used along all construction areas adjacent to natural features. No equipment will be permitted to enter natural features beyond the fencing.
- Natural features inadvertently disturbed during construction will be stabilized and re-vegetated, through the placement of seed and mulching or seed and an erosion control blanket, promptly upon completion of construction activities.
- Equipment will be re-fueled >30 m away from natural features avoid potential impacts, in the event that an accidental spill occurs.
- In addition to any specified requirements, additional silt fence will be available on site, prior to grading operations, to provide a contingency supply in the event of an emergency.
- All sediment and erosion controls will be monitored regularly and properly maintained, as required. Controls will be removed only after the construction area has been stabilized.
- Maintain proper muffling of machinery and equipment to mitigate noise during construction.

Re-vegetation within and adjacent to natural areas will use native species that are suited to the site conditions, and plant material will be sourced locally if possible. Plantings will include a variety of vegetation forms such as trees, shrubs and herbaceous material, and a variety of species that are beneficial to wildlife such nectar, nut and berry producing species.

6.3.2 Protection of Migratory Birds

The MBCA provides legal protection of migratory birds and their active nests in Canada. The loss of migratory bird nests, eggs and or nestlings due to tree cutting or other vegetation clearing can be avoided by clearing vegetation outside of the general nesting period for forest nesting migratory birds in this region (C2) as identified by ECCC (i.e., between April 1 and August 31) (ECCC 2023). If work must be performed within this window, a survey for active nests or breeding must be conducted by a qualified biologist before work commences and additional mitigation measures (e.g., implementation of avoidance distances during construction) implemented, if required.

Nests of species with year-round protection under the *Migratory Birds Regulation, 2022* were not observed on the Subject Lands. As noted in Section 4.3.7, Pileated Woodpecker feeding cavities were observed inside the NHS, outside the proposed grading limits; however, no nesting trees were observed.

6.3.3 Protection of Monarch Butterfly

Monarch butterflies were observed foraging in meadow habitat the Study Area during field investigations and may use larval host plants (Common Milkweed) within the Subject Lands for reproduction. To protect Monarch larvae, vegetation removal will avoid the period when they may be present on host plants which is between April 1 and September 30, if possible. If vegetation clearing is planned to proceed during this period, milkweed plants will be inspected for Monarch larvae prior to their removal. If larvae are present, they may be moved to a location that is suitable and safe under the direction of a qualified professional. Monarch caterpillars may be moved to other milkweed plants; for other larval stages (i.e., eggs and chrysalis), entire milkweed plants will be transplanted to location nearby that is out of harm way, ideal next to other Common Milkweed plants.

6.3.4 Protection of Wildlife

The proposed drainage activity has potential to interact with wildlife, particularly herpetofauna and other ground-dwelling wildlife that use the NHS. The following measures will be implemented during construction to avoid wildlife:

- The contractors will conduct regular inspections of work areas (i.e., prior to the start of activities each day, or activities entering new areas) to identify wildlife if present. Inspections will include visual searches under and around vegetation and other potential wildlife cover structures and equipment. Contractors will not threaten, harass or injure wildlife.
- If wildlife is observed during activities, person(s) will cease carrying out the activity and allow the animal a reasonable amount of time to leave the area before continuing. If a reasonable amount of time has been provided to allow the animal to move on and it has not, a person(s) with experience handling wildlife will take careful measures (e.g., carry gently by hand) to relocate the animal to a nearby location that is suitable and safe for the animal.
- If a nest or nesting animal (including migratory birds and turtles) is encountered during activities, work will cease and a qualified biologist with knowledge of wildlife and the applicable regulations will be contacted immediately for further direction.
- If an injured or dead animal is encountered, the animal will be protected from any further harm and then an authorized wildlife rehabilitator (https://www.ontario.ca/page/find-wildlife-rehabilitator) will be contacted immediately for further direction.

6.3.5 Clean Equipment Protocol

Invasive Phragmites is present in the Study Area. Phragmites is an aggressive non-native species that can create dense monocultures with severe implications on local biodiversity. Using the ‘Clean Equipment Protocol for Industry' (Stewardship Council and Ontario Invasive Plant Council 2013) as a guide, the proposed work will be designed to prevent the spread of invasive Phragmites to new areas as follows:

- Equipment will not advance through Phragmites to new areas without first being thoroughly cleaned of plant debris and soil. Equipment cleaning will include the inside and outside to remove

plant debris and soil. Equipment will be cleaned in an area where wastewater will not contaminate new areas.

- Phragmites material will pre-cut in work areas to prevent the spread of seed. Phragmites reproductive material that is cut will bagged and deposited in a municipal landfill that will accept invasive material.
- Soil with Phragmites colonies will not be stockpiled, reused, or transported to new areas where Phragmites does not occur.
- Disturbed areas will be restored as soon as feasible with native seed mixes that are suited the site conditions.

6.4 Site Specific Mitigation

Site specific mitigation recommendations include measures to offset direct loss of vegetation and habitat and provide enhanced ecological functions where achievable. These measures include woodland compensation and VPZ restoration plans, edge management plans, and bioswale planting plans which are discuss separately below.

Compensation and restoration planting plans will be prepared with input from qualified restoration ecologists or similar professionals with knowledge of local plants and vegetation communities, to provide self-sustaining natural vegetation and enhance local native biodiversity. Plans will include native species that are suited to the site conditions, including a variety of tees, shrubs and herbaceous plant forms where appropriate, and a variety of species that are beneficial to wildlife such as nectar, nut and berry producing species. Plant material will be sourced locally, to the extent possible.

Compensation and restoration planting plans will be tracked during and post implementation to support successful establishment for target native vegetation communities and habitat, and correct deficiencies if any (see Section 6.5).

6.4.1 Woodland Compensation and VPZ Restoration

Removal of 0.05 ha of woodland habitat (FOMM8-1 and SWDM2-2/SWMM1 inclusions) will be compensated on the Subject Lands by restoring agricultural lands (annual row crops) in the northeast part of the property, south of the Enbridge Gas easement at a minimum 1:1 ratio, please see LA plan Drawings L401.1 – L403.1 located in Appendix G for details. In addition to woodland compensation, the 30 m NHS VPZ will be restored to natural self-sustaining vegetation, including agricultural lands (annual row crops), and other lands that are temporarily disturbed during construction.

Stantec provides the following recommendations to support the and woodland compensation and VPZ restoration plans (landscape architect [LA] plans):

- Areas of the 30 m VPZ to the NHS across the Subject Lands, where septic systems and infrastructure related to the site access road off Liberty Street North, stormwater management

and/or associated low-impact developments are not proposed, will be re-vegetated with native self-sustaining vegetation.

- The woodland compensation area and VPZ in agricultural fields will be re-vegetated with a native woodlands/forest community that are suited to the site conditions, using communities that are present on the Subject Lands, as detailed in this EIS/NHE, as a model. The target woodlands will be planned to provide comparable or enhanced habitat functions than currently exist on the Subject Lands.
- The woodland compensation area planting area will be graded using a pit-and-mound design to emulate topography in native forests and create a variety of micro-habitats, including moist depressions.
- Recognizing there is a constraint to re-vegetation associated with the natural gas line easement in the north end of the Subject Lands, the compensation woodland and VPZ plantings will be designed to create a connection between the east and west parts of the NHS, on the south side of the easement. This approach supports Greenbelt and municipal policies that promote a connected NHS.
- Bat habitat compensation structure(s) (rocket box) will support SWH habitat removal and endangered bat species habitat removal for Project compliance with the PPS and Endangered Species Act, 2007. Rocket box(es) will be placed at the intersect between the gas line easement and the new compensation area in the north-east agricultural field (the bat box will be placed in “open” habitat and will not be impeded by tree branches). If the box cannot be placed in the easement itself, the LA plan will prioritize seeding and shrubs in the proposed bat box location, rather than trees.
- Concerning tree density, the overall tree canopy cover (trees at maturity) must be at least 60% for the VPZ and compensation areas, noting that an exception can be made in the area surrounding the bat box if it cannot be accommodated in the easement area.
- Shrubs and herbaceous species (seeding) will be incorporated into the planting plan to support the prevention of invasive species from establishing in open spaces between the tree planting locations.
- All species proposed in the LA plans are to be native species to Ontario, in accordance with NHIC/MNR as published online at: https://www.ontario.ca/page/get-natural-heritage-information
- To support an expansion of existing ecological habitats present surrounding the agricultural fields and promote ecological resilience of the VPZ and compensation areas, a diversity of tree and shrub species will be incorporated into the plan (at least 7 different species of each). The main species to be incorporated into the plan, subject to soil moisture regimes at the discretion of the landscape architect, will include Sugar Maple, Red Maple, Silver Maple, Eastern White Cedar, Red Oak, Black Cherry, White Elm, Yellow Birch, Paper Birch, Blue Beech, American Beech, Eastern Cottonwood, Bur Oak, and/or Basswood. Shrubs could include Grey Dogwood, Red Osier Dogwood, Choke Cherry, Wild Black Current, Prickly Gooseberry, Red Raspberry, American Elder, Nannyberry and/or native cranberries.

6.4.2 Edge Management Plan

The proposed access from Liberty Street North will bisect woodland habitat in the NHS (FOMM8-1 and SWDM2-2/SWMM1). The encroachment will create newly cut edges exposing the woodland to elements such as sunlight and wind and create new pathways for invasive species. To offset these potential impacts, an edge management planting plant will be designed and implemented to seal the newly cut edges and protect interior habitat.

6.4.3 Bioswale Landscape Planting Plans

Landscape planting plans will be prepared for the proposed bioswales in the VPZ. These planting plans will specify native species that are suited to the site conditions, including a variety of tees, shrubs and herbaceous plant forms where appropriate, to establish self-sustaining natural vegetation and enhance local native biodiversity.

6.4.4 Protection of Bats

As noted in Section 4.3.5, suitable habitat for SAR bats occurs on the Subject Lands and SAR bats were recorded during ARU surveys in 2024 and 2025. Suitable bat maternity and migratory roost habitat includes trees and shrubs throughout the Subject Lands. Consultation with the MECP and permit application was initiated in 2025. A permit was issued by the MECP in December of 2025 (CN-ESA-020-25). Removal of trees and shrubs is to occur outside of the active season for the SAR bat species recorded on the Subject Lands (March 15 – November 30 of any year), which includes the peak maternity and migratory roost periods. Additional mitigation and compensation include the replacement of SAR bat habitat, see please see LA plan Drawings L401.1 – L403.1 located in Appendix G for details.

6.5 Environmental Monitoring

6.5.1 Construction Phase Monitoring

Construction monitoring swill be undertaken to track implementation of the planned mitigation measures, including compliance with the final grading, and erosion and sediment control plans. This includes proper functioning of control throughout all phases of development, and proper containment of work in designated work areas. Remedial action will be undertaken as soon as possible wherever discrepancies are identified.

Compliance monitoring reports will be prepared and submitted to the municipality twice annually (or other agreed to frequency) while the site is actively under construction. The reports will include a log of dates when inspections occurred, the condition of the facilities at the time and any recommended remedial actions, if any, that were implemented. This monitoring will continue until substantial completion of the grading and construction. Inspection activities will include:

- Inspection of erosion and control measures after each significant rainfall event (e.g., greater than 12 mm) or every other week, whichever is shorter

- Inspections will include all silt fence installations
- All noticeable erosion shall be repaired immediately, with investigation into the cause so implementation of mitigation measures to prevent recurrence will be more successful
- Encroachment beyond work zones will be noted.

6.5.2 Vegetation Monitoring

Vegetation monitoring will be completed to document compliance with the landscape planting plans including the compensation plantings, edge management plantings and the bioswales to confirm that correct species and quantities were planted, to track and manage invasive species such as Phragmites, and implement corrective actions as required. Adaptive management may be triggered by poor survival of planted material, insufficient vegetation cover, presence of invasive species in planted areas, and insufficient control of non-native invasive species. Adaptive strategies may include supplemental plantings and/or control of unacceptable species. Vegetation monitoring will occur for two years post implement of planting plans or until the vegetation cover is exceeds 90% to exclude invasive species.

6.6 Policy Conformity

Provincial Planning Statement (2024)

The Subject Lands are subject to provincial policies as outlined in the PPS and Greenbelt Plan. It is Stantec's understanding that there are no reasonable alternatives concerning the development of certain components of the Project, including the development of the site access road off Liberty Street North into the NHS and the development of stormwater management systems in the form of Low Impact Developments in certain areas of the 30 m VPZ.

In accordance with PPS Policy 4.1.4, development and site alteration is not proposed in any confirmed Significant Wetlands or any unevaluated wetlands that could qualify as potential significant wetlands under OWES. With the exception of the proposed access road off Liberty Street North, the proposed permanent hard surface developments are proposed to be located at least 30 m (30 m VPZ) from significant natural features and areas covered under the PPS. Further, with the implementation of (1) the recommended edge management/restoration of the buffered areas which are currently established with corn crops and (2) the mitigation measures outlined in Section 6.3 to Section 6.5, and (3) the habitat compensation recommendations, including the proposed replacement and increased size of the Significant Woodlands and Significant Wildlife Habitat to the overall NHS feature in an area of close proximity to the habitat loss area (approximately 300 m north-east) on the Subject Lands, it is Stantec's opinion that the proposal meets PPS Policy 4.1.5.

The required Project provincial and federal natural heritage related permits are currently in progress. Once obtained, it is Stantec's opinion that the proposal meets PPS policies 4.1.6 and 4.1.7.

Greenbelt Plan (2017)

Stantec completed a review of the Greenbelt Plan as a whole. Overlapping and conflicting policies concerning the types of *infrastructure* developments permitted or not permitted within a KNHF, KHF or their requisite VPZs were noted. Numerous policies, as detailed in Section 4.1.2.2 of this report speak to flexibilities concerning encroachments into key natural heritage features and key hydrological features, and their associated buffers (in this case, 30 m VPZ) under certain circumstances, including where there is no reasonable alternative. In consultation with the proponent, the purpose of the proposed development is to support public health and safety, serves to support significant growth and economic development expected in southern Ontario, and serves to support the agricultural sector. As such, with the implementation of the mitigation, restoration, compensation and monitoring recommendations outlined in this EIS, it is Stantec's opinion that the proposal meets Greenbelt Plan Policies 3.2.5.1, 3.2.5.5, 3.2.2.3 a-c, 4.2.1.1, 4.2.1.2, 4.2.1.3 and, meets the overall intent of the natural heritage policies outlined in the Greenbelt Plan.

Concerning the stormwater management design, Policies 4.2.3.4 and 4.2.3.5 speak to measures to avoid, minimize and mitigate impacts to existing vegetation, receiving waters and protect aquatic species and their habitat. A preliminary review of the draft design drawings suggests that these policies are met, however a comprehensive stormwater management plan was not included in the assessment as the final design is currently in progress. This EIS will be updated or amendment issued upon completion of the SWM technical report.

Municipal Official Plans

Durham Region's OP relays the same definition of *infrastructure* and provides similar infrastructure related policies concerning developments and encroachments into KNHFs and KHFs, and their requisite VPZs as the Greenbelt Plan (e.g. Policy 7.4.11).

Clarington's EPA areas include the natural heritage features and hydrologically sensitive features that comprise the NHS. The components of Clarington's NHS include the terrestrial and aquatic features covered under the natural heritage protection policies outlined in the Durham OP, Greenbelt Plan and PPS. Clarington's EPA designation includes the natural heritage features and hydrologically sensitive features that comprise the NHS as well as those lands within the regulatory flood plain of a watercourse. With the exception of the access road development required for site access and emergency services (meets OP Policy 19.8.4), the proposed development respects the minimum VPZs outlined in Clarington's OP Table 3-1.

With the implementation of the environmental protection, mitigation, restoration and compensation recommendations outlined in Section 6.2 to Section 6.4, it is Stantec's opinion that the proposal meets the intent of the natural heritage policies outlined in the upper tier and lower tier official plans.

6.7 Authorization Considerations

6.7.1 Endangered Species Act, 2007

As noted in Section 4.3.2, the Subject Lands were reviewed for botanical species covered under the provincial Endangered Species Act in accordance with O. Reg. 230/08. Four (4) butternut trees (1613, 1616, 1617 and 1631) were observed onsite. All four trees are identified for removal. Butternut health assessments (BHAs) were completed for these trees on June 23, 2025. The results determined that these are all Category 1 trees. The BHAs were submitted to the Ministry of Environment, Conservation and Parks (MECP) on July 9, 2025, and submission approved on July 15, 2025. Stantec did not rely on Part 5 of O.Reg. 830/21 and further assessments were not requested by MECP within the 30-day window. Removal of the 4 Category 1 butternuts is permitted under the *Endangered Species Act, 2007*.

As noted in Section 4.3.5, suitable habitat for SAR bats occurs on the Subject Lands and SAR bats were recorded during ARU surveys in 2024 and 2025. Suitable bat maternity and migratory roost habitat includes trees and shrubs throughout the Subject Lands. A permit was obtained in from the MECP in December 2025 (CN-ESA-020-25).

6.7.2 Conservation Authorities Act, 1998

Portions of the Subject Lands are regulated by CLOCA under O. Reg. 41/24 of the CAA. Prior to undertaking development or site alteration activities in regulated areas, written approval (i.e., a Permit or a Letter of Permission) is required from CLOCA. Prohibited activities do not require a permit if they are part of development authorized under the provincial *Planning Act, 1990* (and it satisfies the conditions and restrictions that may be prescribed in the development authorization).

7 Summary and Conclusion

This EIS/NHE report was prepared to document natural heritage features that require consideration through the development application process, including features that are protected by the PPS, Greenbelt Plan, Clarington OP and other relevant legislation and policy. The EIS/NHE included a review and background information and field investigations that were completed between 2023 and 2025. The field program identified the following natural heritage features on the Subject Lands: Significant Woodlands, wetlands, candidate and confirmed Significant Wildlife Habitat and watercourses. These features were consolidated into an NHS, as shown on Figure 4 and Figure 5, Appendix A, which was staked by staff from Clarington, CLOCA and Stantec. As per requirements in the Greenbelt Plan and Clarington OP, a 30 m VPZ was applied to the limit of the NHS.

The proposed Site Plan was overlaid on natural feature mapping in an ArcGIS environment to quantify direct impacts associated with the development, including permanent loss of loss of vegetation communities, natural feature components of the NHS and the associated VPZ (Figure 5, Appendix A). This assessment identified the permanent loss of 0.05 ha of NHS and 0.04 ha of the VPZ, which is predominantly the result of the access drive from Liberty Street North. Loss of NHS will be compensated for on the Subject Lands, by restoring agricultural lands (annual row crops) in the northeast part of the property, south of the Enbridge Gas easement. In addition to the woodland compensation, the 30 m NHS VPZ will be restored to self-sustaining natural vegetation. Collectively, the woodland compensation and VPZ revegetation will restore agricultural lands (annual row crops) and result in a net increase in natural cover on the Subject Lands, including an increase in the total area of Significant Woodland and NHS.

In addition to the permanent loss discussed above, the proposed development plan proposes bioswales as low-impact development strategy to manage stormwater in the 30 m NHS VPZ. Removal of the existing vegetation (agricultural row crops and hedgerows) will be required to grade and construct the bioswales; however, they will be re-vegetated with native self-sustaining vegetation post-construction to the extent feasible and are considered temporary removals.

With the implementation of the environmental protection and mitigation recommendations, as described in Section 6.3 (Standard Measures), Section 6.4 (Site Specific Measures), Section 6.5 (Environmental Monitoring), and authorization requirements, as described in Section 6.4, the development proposal meets the natural heritage policy objectives outlined in the PPS, Greenbelt Plan, Durham OP and Clarington OP.

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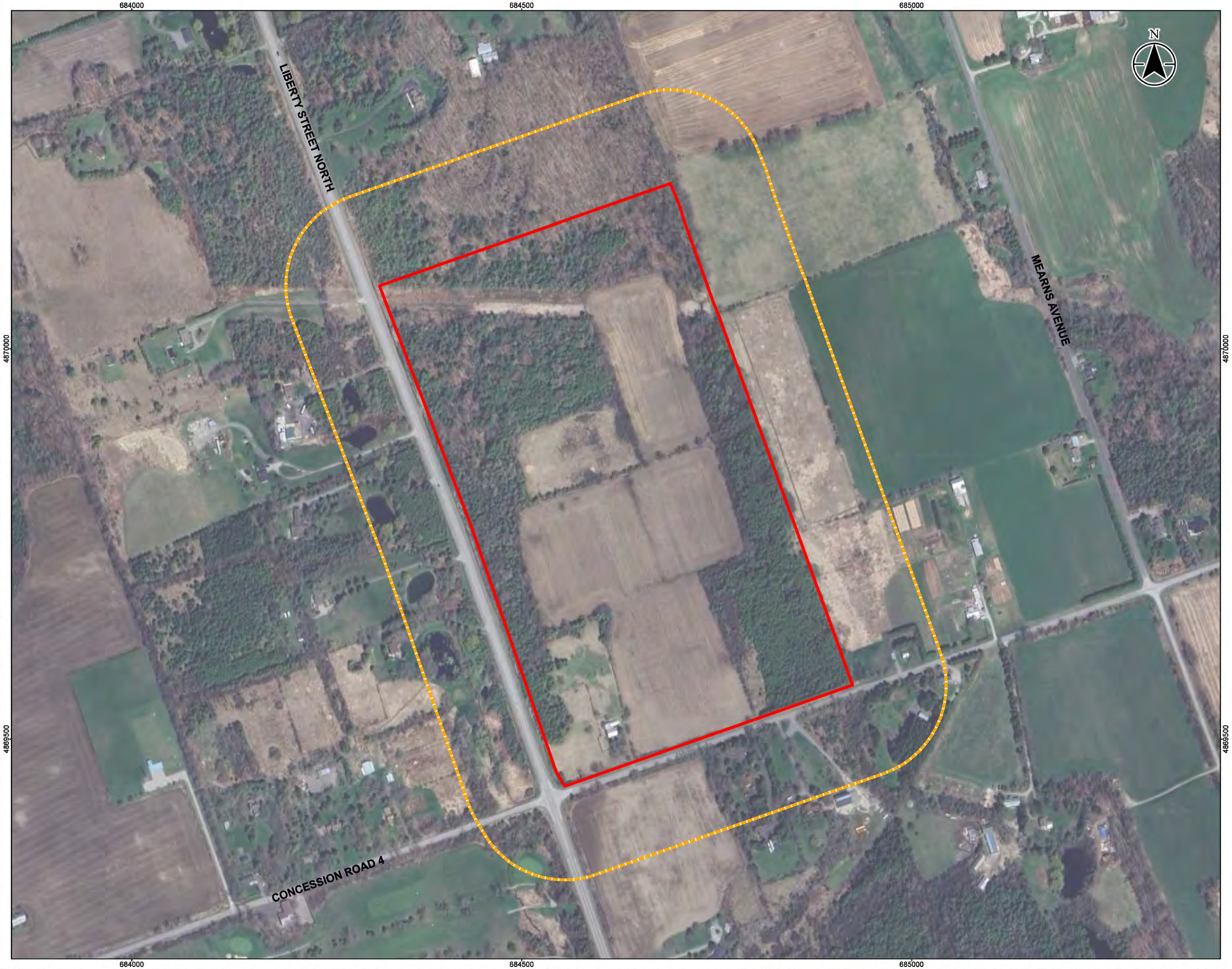
Appendices

Appendix A Figures



Stantec

Legend

- Subject Lands
- Study Area (120 m)

0 100 200 m

1:5,000 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Contains information licensed under the Open Government Licence – Ontario, and the Open Government Licence - Canada, accessed 2025.
3. Orthoimagery provided by Google. Date of imagery, unknown.

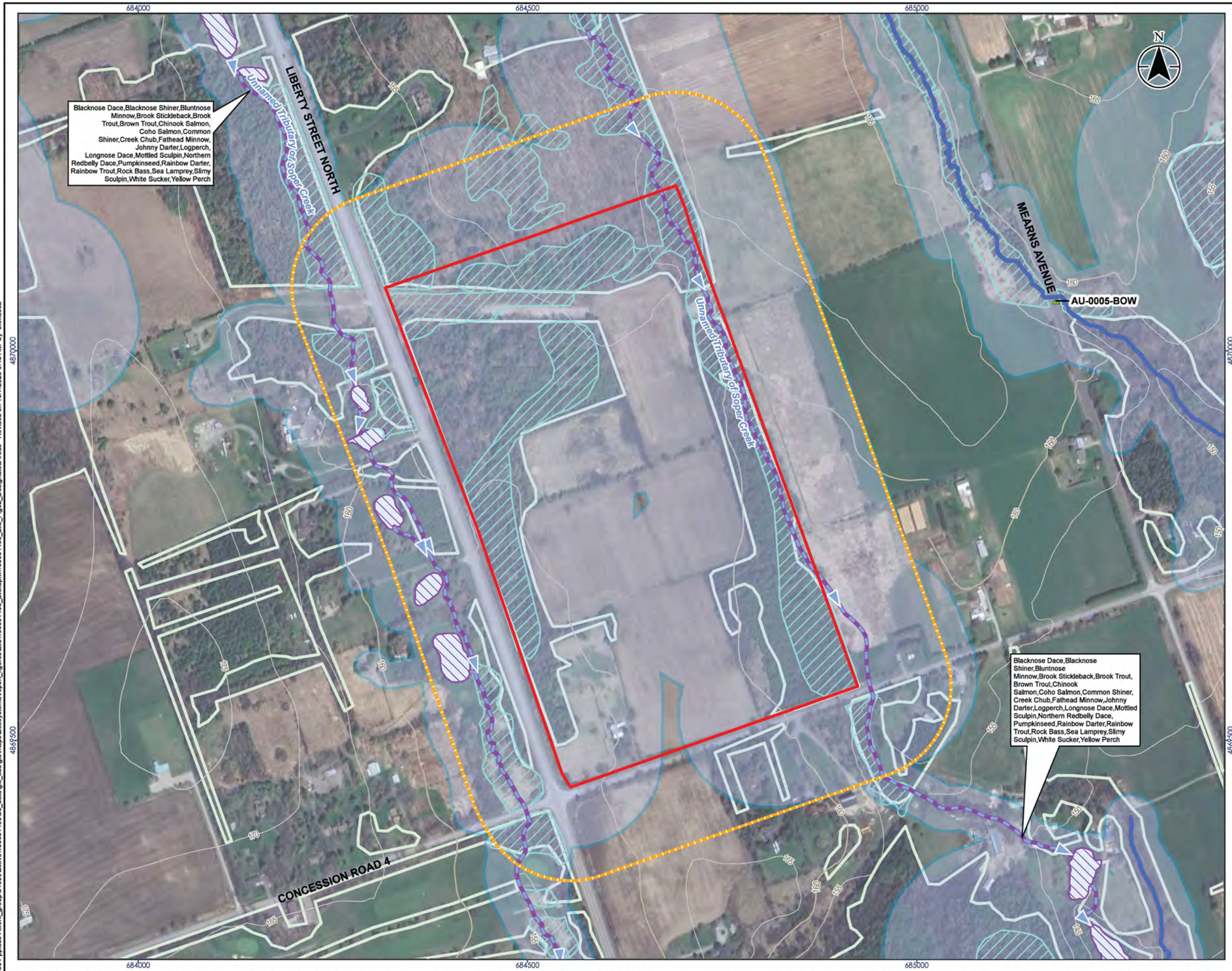
Project Location
Municipality of Clarington

160951460 REV1
Prepared by bfonseca on 2025-10-06
Technical Review by AW on 2025-10-06

Client/Project
MUNICIPALITY OF CLARINGTON
ENVIRONMENTAL IMPACT STUDY
2656 CONCESSION ROAD 4

Figure No.
1

Title
Study Area



Stantec

Legend

- Subject Lands
- Study Area (120 m)
- Fish Survey Point (ARA)
- Contour (m AMSL)
- Thermal Regime, Cold
- Watercourse (Intermittent)
- Watercourse (Permanent)
- Regulation Limit (CLOCA)
- Thermal Regime, Cold
- Waterbody
- Wetland, Unevaluated
- Wooded Area

0 150 300 m

1:5,000 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Contains information licensed under the Open Government Licence – Ontario, and the Open Government Licence - Canada, accessed 2025.
3. This figure contains information made available under Central Lake Conservation Authority's Open Data Licence v1.0.
4. Orthoimagery provided by Google. Date of imagery, unknown.

- Ecoregion (MNRF, 2023)
- Greenbelt Natural Heritage System - Protected Countryside

Project Location
Municipality of Clarington

160951460 REV2
Prepared by bfonseca on 2025-10-07
Technical Review by AW on 2025-10-07

Client/Project
MUNICIPALITY OF CLARINGTON
ENVIRONMENTAL IMPACT STUDY
2656 CONCESSION ROAD 4

Figure No.
2

Title
Provincial Natural Heritage Designated Areas

Stantec

Legend

- Subject Lands
- NHS Feature Limits (Stantec 2025)
- 30 m VPZ from NHS

0 100 200 m

1:3,500 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Contains information licensed under the Open Government Licence – Ontario, and the Open Government Licence - Canada, accessed 2025.
3. Orthoimagery provided by Google. Date of imagery, unknown.

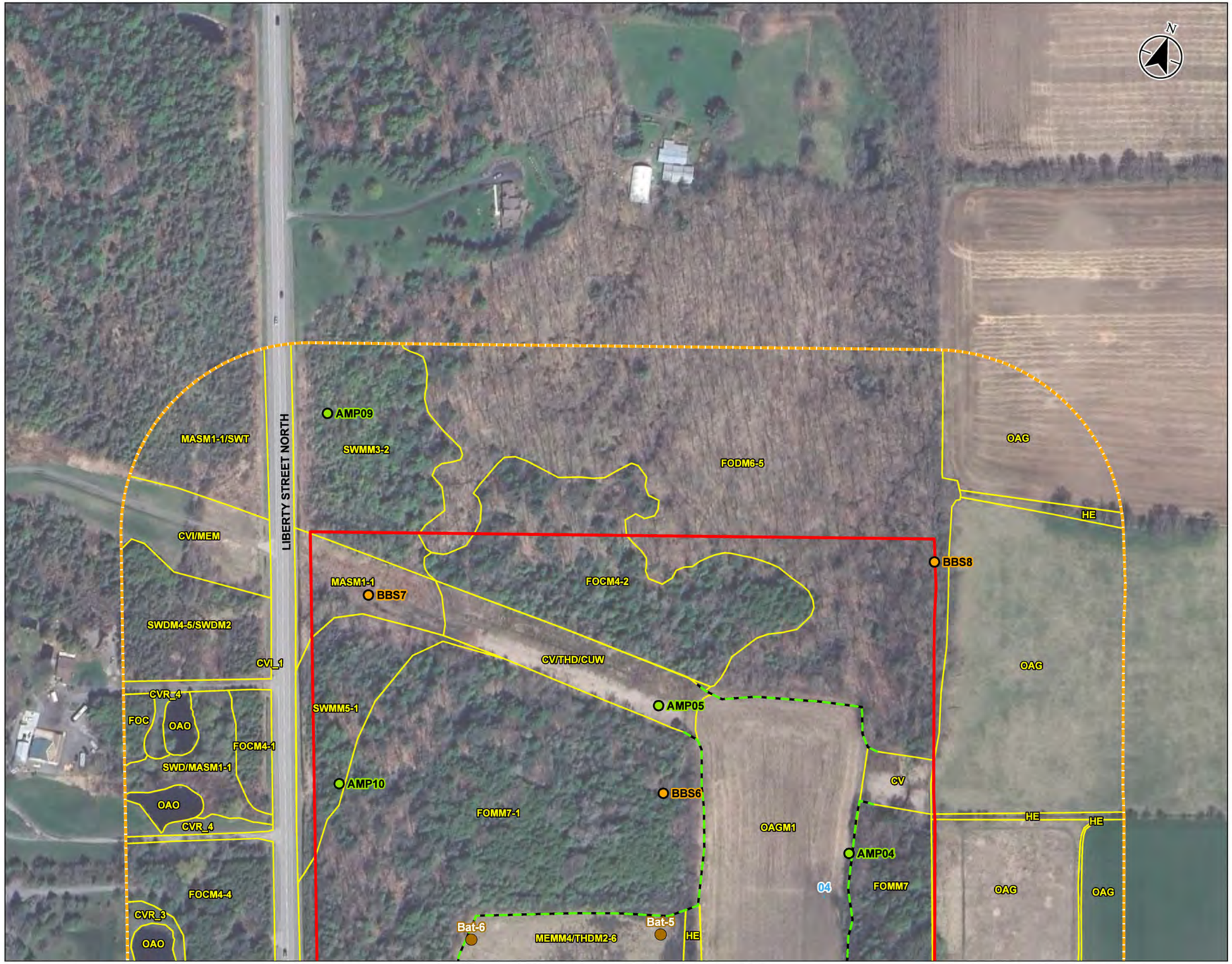
Project Location
Municipality of Clarington

160951460 REV2
Prepared by bfonseca on 2025-10-06
Technical Review by AW on 2025-10-06

Client/Project
MUNICIPALITY OF CLARINGTON
ENVIRONMENTAL IMPACT STUDY
2656 CONCESSION ROAD 4

Figure No.
3

Title
Natural Heritage System Feature Limits – 2025



Stantec

Legend

- Subject Lands
- Study Area (120 m)
- Amphibian Call Station
- Breeding Bird Station
- HDF Survey Locations
- NHS Feature Limits (Stantec 2025)
- Ecological Land Classification (ELC) Boundary

ELC Description

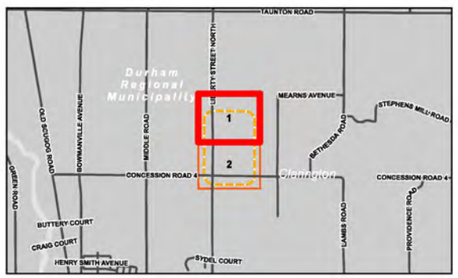
- CV (Constructed)
- CV (Constructed),THD (Deciduous Thicket),CUW (Cultural Woodland)
- CVI (Transportation and Utilities),MEM (Mixed Meadow)
- CVI_1 (Transportation)
- CVR_3 (Single Family Residential)
- CVR_4 (Rural Property)
- FOC (Coniferous Forest)
- FOCM4-1 (Fresh – Moist White Cedar Coniferous Forest Type)
- FOCM4-2 (Fresh – Moist White Cedar – Hemlock Coniferous Forest Type)
- FOCM4-4 (Fresh - Moist White Cedar - White Pine Coniferous Forest Type)
- FODM6-5 (Fresh – Moist Sugar Maple – Hardwood Deciduous Forest Type)
- FOMM7 (Fresh – Moist White Cedar – Hardwood Mixed Forest Ecosite)
- FOMM7-1 (Fresh – Moist White Cedar – Sugar Maple Mixed Forest Type)
- HE (Hedgerow)
- MASM1-1 (Cattail Mineral Shallow Marsh Type)
- MASM1-1 (Cattail Mineral Shallow Marsh Type),SWT (Thicket Swamp)
- MEMM4 (Fresh - Moist Mixed Meadow Ecosite),THDM2-6 (Buckthorn Deciduous Shrub Thicket Type)
- OAG (Open Agriculture)
- OAGM1 (Annual Row Crops)
- OAO (Open Aquatic)
- SWD (Deciduous Swamp),MASM1-1 (Cattail Mineral Shallow Marsh Type)
- SWDM4-5 (Poplar Mineral Deciduous Swamp Type),SWDM2 (Ash Mineral Deciduous Swamp Ecosite)
- SWMM3-2 (Poplar – Conifer Mineral Mixed Swamp Type)
- SWMM5-1 (Balsam Fir - Hardwood Mineral Mixed Swamp Type)

0 25 50 m

1:2,500 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Contains information licensed under the Open Government Licence – Ontario, and the Open Government Licence - Canada, accessed 2025.
3. Orthoimagery provided by Google. Date of imagery, unknown.



Project Location
Municipality of Clarington

160951460 REV2
Prepared by bfonseca on 2025-10-07
Technical Review by AW on 2025-10-07

Client/Project
MUNICIPALITY OF CLARINGTON
ENVIRONMENTAL IMPACT STUDY
2656 CONCESSION ROAD 4

Figure No.
4.1

Title
Existing Conditions - Northern Half of Study Area

Stantec

Legend

- Subject Lands
- Study Area (120 m)
- Amphibian Call Station
- Breeding Bird Station
- Bat Monitoring Station
- HDF Survey Locations
- NHS Feature Limits (Stantec 2025)
- Ecological Land Classification (ELC) Boundary

ELC Description

CGL_1 (Golf Course)
CUM1 (Mineral Cultural Meadow Ecosite)
CUP3 (Coniferous Plantation)
CUW1 (Mineral Cultural Woodland Ecosite),SWD (Deciduous Swamp)
CVI_1 (Transportation)
CVR_3 (Single Family Residential)
CVR_3 (Single Family Residential),CUW1 (Mineral Cultural Woodland Ecosite)
CVR_4 (Rural Property)
FOCM4-1 (Fresh – Moist White Cedar Coniferous Forest Type)
FOCM4-4 (Fresh - Moist White Cedar - White Pine Coniferous Forest Type)
FOMM7 (Fresh – Moist White Cedar – Hardwood Mixed Forest Ecosite)
FOMM7 (Fresh – Moist White Cedar – Hardwood Mixed Forest Ecosite),SWMM1-1 (White Cedar – Hardwood Mineral Mixed Swamp Type)
FOMM7-1 (Fresh – Moist White Cedar – Sugar Maple Mixed Forest Type)
FOMM7-2 (Fresh – Moist White Cedar – Hardwood Mixed Forest Type)
FOMM8-1 (Fresh – Moist Poplar Mixed Forest Type)
HE (Hedgerow)
MAM (Meadow Marsh),OAG (Open Agriculture)
MASM1-1 (Cattail Mineral Shallow Marsh Type)
MASM1-1 (Cattail Mineral Shallow Marsh Type),MAMM2 (Forb Mineral Meadow Marsh Ecosite)
MEFM4 (Fresh - Moist Forb Meadow Ecosite),THMM2 (Fresh - Moist Mixed Thicket Ecosite)
MEMM3 (Dry - Fresh Mixed Meadow Ecosite),CVR_4 (Rural Property)
MEMM4 (Fresh - Moist Mixed Meadow Ecosite),THDM2-6 (Buckthorn Deciduous Shrub Thicket Type)
OAG (Open Agriculture)
OAGM1 (Annual Row Crops)
OAO (Open Aquatic)
OAO (Open Aquatic),OAG (Open Agriculture)
SWCM1-1 (White Cedar Mineral Coniferous Swamp Type)
SWD (Deciduous Swamp)
SWD (Deciduous Swamp),FOD (Deciduous Forest)
SWDM2-2 (Green Ash Mineral Deciduous Swamp Type),SWMM1 (White Cedar Mineral Mixed Swamp Ecosite)
SWMM1-1 (White Cedar – Hardwood Mineral Mixed Swamp Type)
SWTM2-1 (Red-osier Dogwood Mineral Deciduous Thicket Swamp Type)
THDM2-6 (Buckthorn Deciduous Shrub Thicket Type)

0 25 50 m
1:2,500 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Contains information licensed under the Open Government Licence – Ontario, and the Open Government Licence - Canada, accessed 2025.
3. Orthoimagery provided by Google. Date of imagery, unknown.

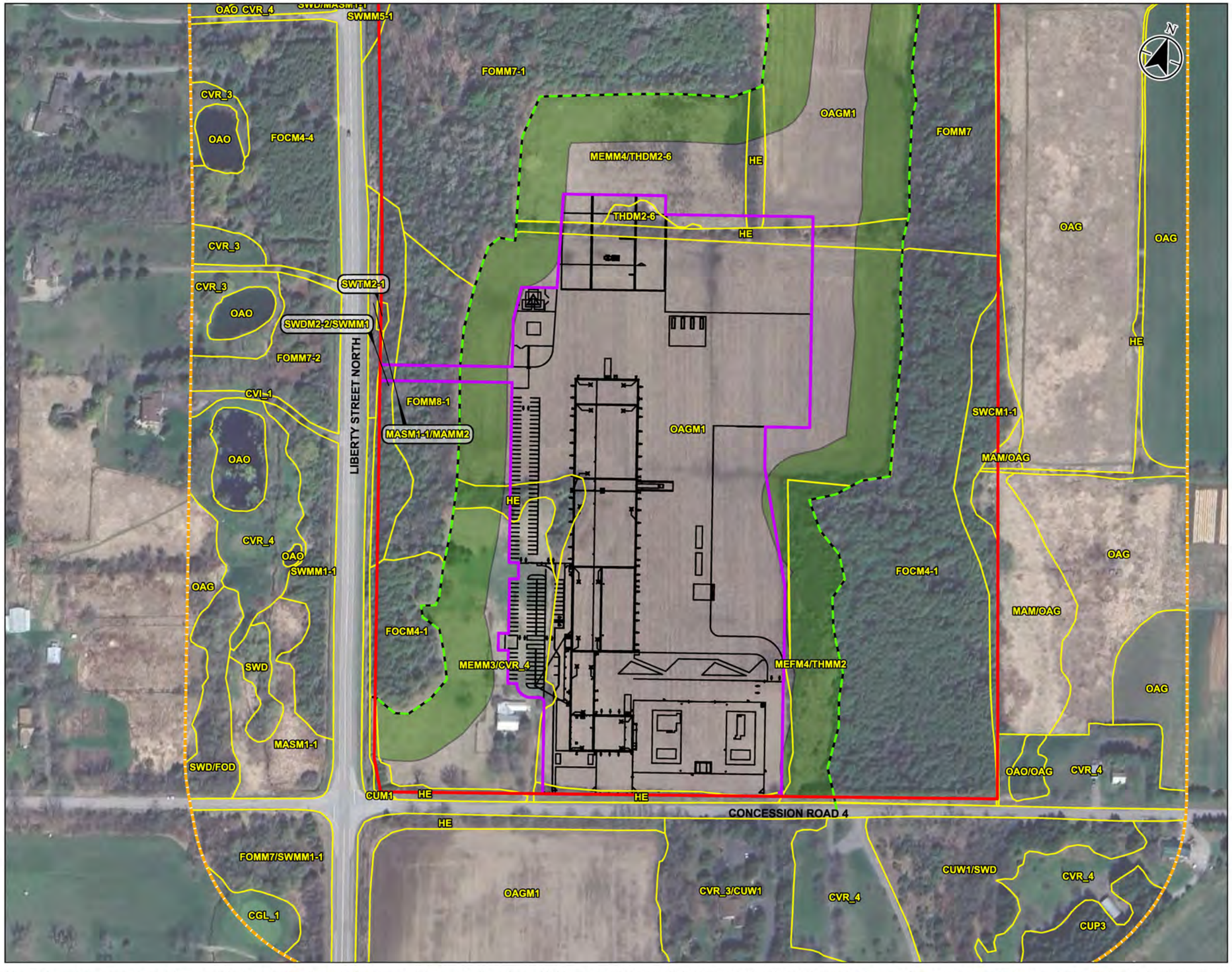
Project Location
Municipality of Clarington

160951460 REV2
Prepared by bfonseca on 2025-10-07
Technical Review by AW on 2025-10-07

Client/Project
MUNICIPALITY OF CLARINGTON
ENVIRONMENTAL IMPACT STUDY
2656 CONCESSION ROAD 4

Figure No.
4.2

Title
Existing Conditions - Southern Half of Study Area



Stantec

Legend

- Subject Lands
- Study Area (120 m)
- NHS Feature Limits (Stantec 2025)
- Proposed Development
- Area of Permanent Direct Loss
- Ecological Land Classification (ELC) Boundary
- 30 m VPZ from NHS

ELC Description

CGL_1 (Golf Course)
CUM1 (Mineral Cultural Meadow Ecosite)
CUP3 (Coniferous Plantation)
CUW1 (Mineral Cultural Woodland Ecosite),SWD (Deciduous Swamp)
CVI_1 (Transportation)
CVR_3 (Single Family Residential)
CVR_3 (Single Family Residential),CUW1 (Mineral Cultural Woodland Ecosite)
CVR_4 (Rural Property)
FOCM4-1 (Fresh – Moist White Cedar Coniferous Forest Type)
FOCM4-4 (Fresh - Moist White Cedar - White Pine Coniferous Forest Type)
FOMM7 (Fresh – Moist White Cedar – Hardwood Mixed Forest Ecosite)
FOMM7 (Fresh – Moist White Cedar – Hardwood Mixed Forest Ecosite),SWMM1-1 (White Cedar – Hardwood Mineral Mixed Swamp Type)
FOMM7-1 (Fresh – Moist White Cedar – Sugar Maple Mixed Forest Type)
FOMM7-2 (Fresh – Moist White Cedar – Hardwood Mixed Forest Type)
FOMM8-1 (Fresh – Moist Poplar Mixed Forest Type)
HE (Hedgerow)
MAM (Meadow Marsh),OAG (Open Agriculture)
MASM1-1 (Cattail Mineral Shallow Marsh Type)
MASM1-1 (Cattail Mineral Shallow Marsh Type),MAMM2 (Forb Mineral Meadow Marsh Ecosite)
MEFM4 (Fresh - Moist Forb Meadow Ecosite),THMM2 (Fresh - Moist Mixed Thicket Ecosite)
MEMM3 (Dry - Fresh Mixed Meadow Ecosite),CVR_4 (Rural Property)
MEMM4 (Fresh - Moist Mixed Meadow Ecosite),THDM2-6 (Buckthorn Deciduous Shrub Thicket Type)
OAG (Open Agriculture)
OAGM1 (Annual Row Crops)
OAO (Open Aquatic)
OAO (Open Aquatic),OAG (Open Agriculture)
SWCM1-1 (White Cedar Mineral Coniferous Swamp Type)
SWD (Deciduous Swamp)
SWD (Deciduous Swamp),FOD (Deciduous Forest)
SWD (Deciduous Swamp),MASM1-1 (Cattail Mineral Shallow Marsh Type)
SWDM2-2 (Green Ash Mineral Deciduous Swamp Type),SWMM1 (White Cedar Mineral Mixed Swamp Ecosite)
SWMM1-1 (White Cedar – Hardwood Mineral Mixed Swamp Type)
SWMM5-1 (Balsam Fir - Hardwood Mineral Mixed Swamp Type)
SWTM2-1 (Red-osier Dogwood Mineral Deciduous Thicket Swamp Type)
THDM2-6 (Buckthorn Deciduous Shrub Thicket Type)

0 25 50 m

1:2,500 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Contains information licensed under the Open Government Licence – Ontario, and the Open Government Licence - Canada, accessed 2025.
3. Orthoimagery provided by Google. Date of imagery, unknown.
4. The proposed development plan was designed by others and should be considered approximate.

Project Location
Municipality of Clarington

160951460 REV2
Prepared by bfonseca on 2025-10-07
Technical Review by AW on 2025-10-07

Client/Project
MUNICIPALITY OF CLARINGTON
ENVIRONMENTAL IMPACT STUDY
2656 CONCESSION ROAD 4

Figure No.
5

Title
Proposed Development

Appendix B Records of Correspondence

B.1 EIS Terms of Reference

Stantec Consulting Ltd.
100 – 401 Wellington Street West
Toronto, ON M5V 1E7

April 11, 2024
Project/File: 160951460

Lisa Backus, MCIP, RPP (she/her)
Manager, Community Planning Division
Planning and Infrastructure Services
Municipality of Clarington
40 Temperance Street,
Bowmanville ON L1C 3A6
T: 905-623-3379 ext. 2413
C: 289-404-4530
E: lbackus@clarington.net

Dear Lisa Backus,

Reference: Terms of Reference for an Environmental Impact Study / Natural Heritage Evaluation for 2656 Concession Road 4, Municipality of Clarington

Introduction

Stantec Consulting Ltd. (Stantec) has been retained by the Municipality of Clarington to prepare an Environmental Impact Study / Natural Heritage Evaluation (EIS/NHE) for lands associated with municipal address 2656 Concession Road 4, Municipality of Clarington (Clarington), in the Regional Municipality of Durham (herein referred to as the "Subject Lands"), see Figure 1 in Attachment A for details.

The Subject Lands encompass approximately 27 ha of undeveloped land and are currently developed with one residential building, a garage and associated gravel access driveway. A subsurface natural gas pipeline and associated actively managed easement that transects a portion of the Subject Lands at the north end. The remainder of the property is currently under active agriculture (four fields established with annual row crops) or is otherwise undeveloped natural lands. It is our understanding that Clarington wishes to develop a public works yard and fire training facility on the Subject Lands, including several storage areas, training areas as well as an operations buildings and a fire station (herein referred to as the "Project").

Background Review

The Subject Lands are located in the Regional Municipality of Durham (Region) and within the Soper Creek watershed under the administrative jurisdiction of the Central Lake Conservation Authority (CLOCA). Unevaluated wetlands have been mapped by the province (Land Information Ontario 2023) within treed areas on the Subject Lands, adjacent to the existing agricultural fields. Unnamed tributaries associated with Soper Creek are present west and east of the existing agricultural fields where developments are proposed.

Reference: Terms of Reference for an Environmental Impact Study / Natural Heritage Evaluation for 2656 Concession Road 4, Municipality of Clarington

The Subject Lands are located within the Greater Golden Horseshoe planning area and within the Greenbelt Natural Heritage System (Clarington Official Plan Map H). Key Natural Heritage and Key Hydrologic Features have been mapped by the Region on portions of the Subject Lands (Regional OP Map 'B1e') and portions of the Subject Lands have been identified as Environmental Protection Area (Clarington Official Plan Map A1 and D1).

Given this geographic context, the following documents and information sources will be reviewed and included as part of the assessment:

- Provincial Policy Statement (MMAH 2020)*
- A Place to Grow: Growth Plan for the Greater Golden Horseshoe (MMAH 2020)*
- Greenbelt Plan (MMAH 2020)
- Bowmanville / Soper Creek 2020 Watershed Plan Update (CLOCA 2020)
- CLOCA regulations and policies, records and database reviews
- Durham Regional Official Plan (Durham Region 2020)*
- Official Plan Municipality of Clarington 2018 (Clarington 2018)
- Endangered Species Act and associated regulations
- Ministry of Natural Resources and Forestry's (MNRF) Land Information Ontario (LIO) database, including mapping of designated natural areas, topographic mapping, etc.
- MNRF's Natural Heritage Information Centre (NHIC) database
- Species at Risk (SAR) and wildlife atlas database reviews
- Topographic mapping
- Historical and current high resolution ortho imaging
- Previous data collected and/or reports prepared by others as available (MESP, Class EAs, ESRs etc.)

*The province of Ontario has released a proposed update to the PPS (Proposed Provincial Planning Statement, 2024; April 10, 2024 ERO Posting #019-8462). Further, the Region of Durham has initiated Envision Durham - the Municipal Comprehensive Review (MCR) of the Durham Regional Official Plan (ROP). On May 17, 2023, Durham Regional Council adopted the recommended new Durham ROP, as amended. Should the Ministry of Municipal Affairs and Housing approve the 2024 PPS and/or 2023 ROP throughout the duration of the contract, the new 2024 PPS and/or ROP will be reviewed and included in the EIS in lieu of the 2020 PPS, 2020 Growth Plan and/or 2020 ROP, as applicable.

Reference: **Terms of Reference for an Environmental Impact Study / Natural Heritage Evaluation for 2656 Concession Road 4, Municipality of Clarington**

Site Investigations / TOR Checklist

The Municipality of Clarington's Terms of Reference (ToR) Checklist document has been filled out by Stantec and is located in Attachment B. In summary, the following site investigations / surveys are proposed. Some surveys have already been completed to date and have been noted below.

- General site reconnaissance to confirm presence/absence of mapped features (concurrent with vegetation site visit).
    - This was completed on September 19, 2023.
- Floral inventory and vegetation community mapping (verification / update as required) using Ecological Land Classification (Lee et al., 1998) during the growing season (two site visits; summer and fall).
    - The fall assessment was completed on September 19, 2023.
    - The summer assessment will take place on a date between June 24 and August 16 2024.
- Wetland delineation following provincial standards (Ontario Wetland Evaluation System for Southern Ontario). Site visit with approving agencies (CLOCA and City planning staff) and Ontario Land Surveyor (OLS) to stake and survey the feature limits.
    - Completed on October 13, 2023 by Alex Kissel and Sarem Nejad (CLOCA), Tim Ryan (Municipality of Clarington), Lauren Cymbaly and Patrick Peltekian (Stantec). See OLS survey and CLOCA acknowledgement letter (Attachment C and D) for details.
- Breeding bird survey including 3 site visits to be completed between the end of May and early July 2024 in accordance with MNRF requirements for grassland species at risk (SAR) bird species.
- Snag and acoustic bat surveys to determine presence or absence of SAR bat habitat for buildings and within treed areas planned for removal in accordance with MNRF standard procedures and protocols (June 1 to July 15 2024).
- Chimney Swift surveys to determine presence or absence of Chimney Swift habitat within the buildings on the Subject Lands (June 2024).

Based on a review of aerial photographs (current and historic) and the results of the site reconnaissance and feature reviews with CLOCA completed in 2023, the property does not appear to support wetlands or headwater drainage features in the agricultural field or meadow areas where developments are proposed.

The Greenbelt Plan policies prohibit development within Key Natural Heritage Features (KNHF) and Key Hydrologic Features (KHF), which includes wetlands and woodlands, and outline a 30m minimum vegetation protection zones (MVPZ) for those features. Amphibian call surveys are not proposed at this time as a 30m MVPZ from adjacent woodlands and wetlands is considered adequate for the protection of potential Significant Wildlife Habitat (SWH) associated with amphibian breeding habitat (woodlands and wetland).

Reference: **Terms of Reference for an Environmental Impact Study / Natural Heritage Evaluation for 2656 Concession Road 4, Municipality of Clarington**

Reporting

Stantec will prepare an EIS/NHE report which will include the following:

- Review and summary of background information, including secondary source natural heritage data and policy review.
- Summary of existing conditions, including terrestrial and aquatic habitat descriptions, and bio-inventory data completed in 2023 and 2024, as described above and included in the TOR document (Attachment B).
    - Existing conditions for natural features, including ecological communities, staked feature limits, and locations of wildlife and habitat surveys, will be shown on figures in ArcGIS.
    - The OLS survey of feature limits staked with the agencies will be appended to the report.
- Review and summary of supporting technical studies, as available.
- Proposed development and associated impact assessment, including environmental protection, mitigation and/or compensation recommendations to bring the project in conformity with natural heritage policy and legislation at the time of submission.
- Outline natural heritage permitting or registration requirements to move the project forward as they relate to the Fisheries Act, the Species at Risk Act, the Endangered Species Act, the Conservation Authorities Act and the Migratory Birds Convention Act, as applicable.

Closure

We trust that this ToR provides a clear understanding of the natural heritage assessment, the planned site investigations, and methods to evaluate natural heritage features. Please contact Stantec with any comments or questions you may have regarding the ToR.

Sincerely,

Stantec Consulting Ltd.

Lauren Cymbaly M.E.S.
Senior Ecologist
Phone: (416) 786-1302
lauren.cymbaly@stantec.com

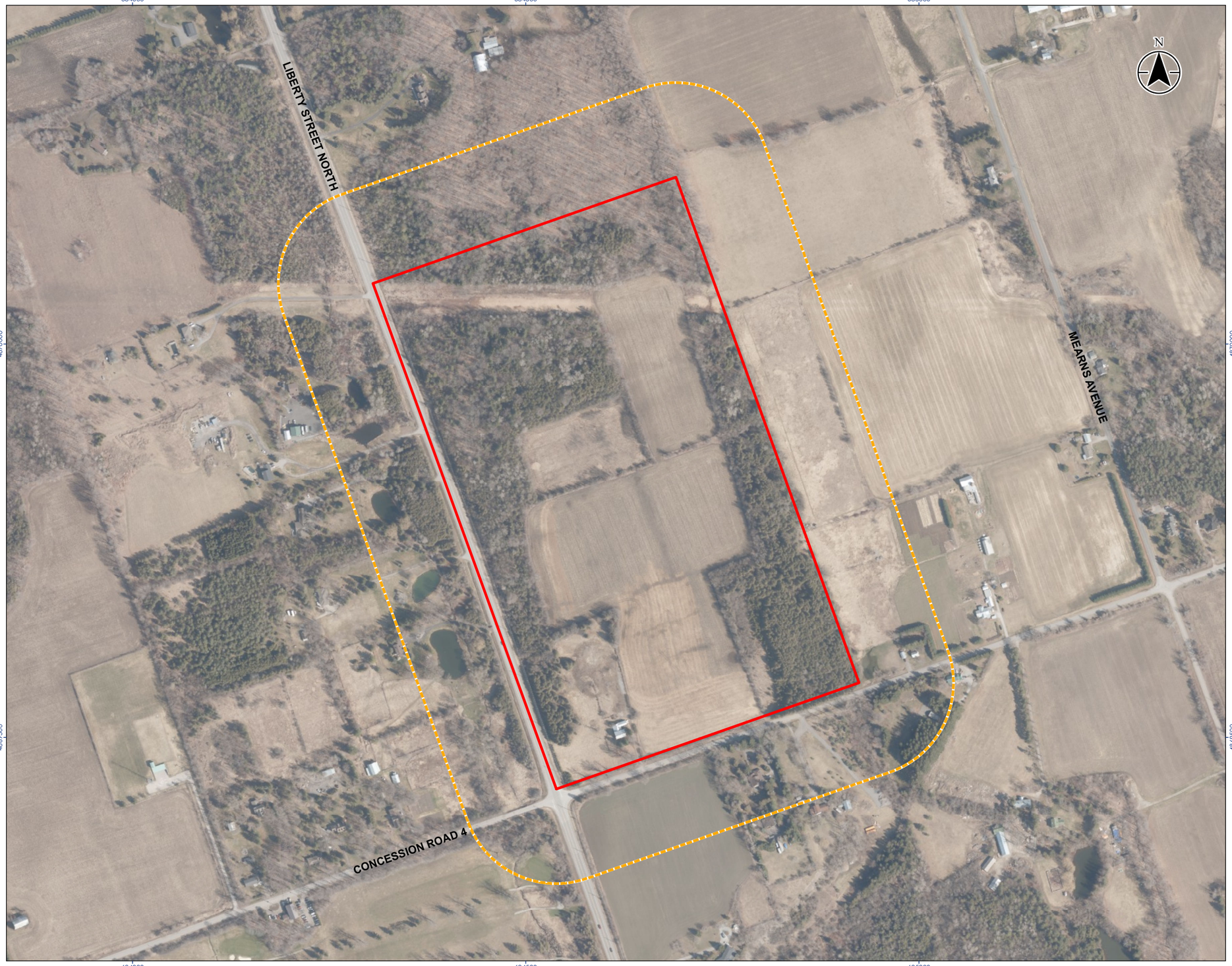
Sean Spisani B.Sc., ERGC
Senior Associate, Senior Team Lead (Ecology)
Phone: (289) 208-6934
sean.spisani@stantec.com

Attachments: Attachment A: Figure 1 – Study Area
Attachment B: Clarington TOR Checklist
Attachment C: OLS Feature Limit Survey
Attachment D: CLOCA Survey Acknowledgement Letter

April 11, 2024
Lisa Backus, MCIP, RPP (she/her)

Reference: **Terms of Reference for an Environmental Impact Study / Natural Heritage Evaluation for 2656 Concession Road 4, Municipality of Clarington**

Attachment A Figure 1 – Study Area



Stantec

Legend

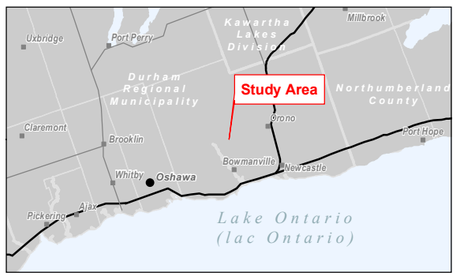
- Subject Lands
- Study Area (120 m)

0 100 200 m

1:5,000 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2024.
3. Orthoimagery © First Base Solutions, 2024. Imagery Date, 2023.



Project Location
Municipality of Clarington

160951460 REV1
Prepared by BF on 2024-04-10

Client/Project
MUNICIPALITY OF CLARINGTON
ENVIRONMENTAL IMPACT STUDY
2656 CONCESSION ROAD 4

Figure No.
1

Title
Study Area

April 11, 2024
Lisa Backus, MCIP, RPP (she/her)

Reference: **Terms of Reference for an Environmental Impact Study / Natural Heritage Evaluation for 2656 Concession Road 4, Municipality of Clarington**

Attachment B Clarington TOR Checklist

Stantec

Municipality of Clarington

Terms Of Reference Guide for The Preparation of Environmental Impact Studies (EIS) And Natural Heritage Evaluations (NHE)

Vision And Guiding Principles

The future development of Clarington will be pursued in a manner that ensures current needs can be met without compromising the ability of future generations to meet their own needs. Planning and development will be undertaken in a context which recognizes the interaction of all parts of ecosystems and protects the integrity and vitality of natural systems and processes.

The natural heritage principals and policies of the Official Plan (OP) were developed to support Clarington's vision as a place for people to live, work and play in a safe, vibrant, healthy and prosperous environment; a place where people, businesses and governments collectively balance growth with the protection, management and enhancement of rural landscapes, cultural heritage, natural resources and the natural environment; and where the built environment emphasizes high quality design and integrates nature in the design process.

To meet Clarington's Natural Environment Goals and Objectives, which include protecting natural heritage features and functions from incompatible development and enhancing ecological processes, biodiversity and connections with the natural heritage system, an **Environmental Impact Study (EIS)** and/or **Natural Heritage Evaluation (NHE)** is often required to support development applications. An EIS and a NHE are generally synonymous in terms of the technical report's content but are distinguished by the nomenclature and associated policy triggers between local municipal and specific provincial plans. EISs are required by Clarington's Official Plan for any *development* or *site alteration* proposed within the minimum area of influence of *natural heritage features* and/or *hydrologically sensitive features* defined in the OP. NHEs in Clarington are triggered by the Growth Plan, the Greenbelt Plan and the Oak Ridges Moraine Conservation Plan (ORMCP) as they relate to development near Key Natural Heritage Features and Key Hydrological Features defined by those provincial policy documents. For the purposes of the **Terms of Reference (ToR)**, these natural heritage technical reports will be referenced herein as an "**EIS/NHE**".

The term "natural heritage features" used in this document is a generic term intended to include, but is not limited to, the natural heritage and areas and hydrologic features listed in the table on page 5.

EIS/NHE Terms of Reference

The following EIS/NHE ToR Scoping Checklist summarizes components to be considered in the preparation of an EIS/NHE Terms of Reference. Scoping is to be completed in consideration of existing land use, the scope and scale of the proposed *development* or *site alteration*; the scope and scale of potential impacts resulting from the proposed *development* or *site alteration*; the sensitivity or complexity of the features on or adjacent to the proposed *development* or *site alteration* and; the surrounding land use context (e.g., existing *development*). All of the components summarized in the EIS/NHE ToR Scoping Checklist will not necessarily be required. Large projects with a higher risk of potential impact on sensitive natural heritage features will generally require a more comprehensive set of surveys, assessments/analyses, supporting technical studies, etc. Smaller scale projects with lower potential impacts and/or where natural heritage features and functions are less sensitive or complex, may be suitable for a scoped EIS/NHE (where selected studies outlined below may not be required).

The EIS/NHE ToR Scoping Checklist is to be completed after it has been determined that an EIS/NHE is required to support the overall planning application and represents an enhanced pre-consultation process. Other studies may be required to support a complete planning application and will be determined through the initial pre-consultation process.

The EIS/NHE ToR Scoping Checklist is to be completed by the proponent or delegated EIS/NHE Lead Consultant for submission, review and approval from Clarington and other agency stakeholders. The approved scoping checklist/ToR is to be reviewed and used by the EIS/NHE Lead Consultant who will be preparing the EIS/NHE.

Stantec

Municipality of Clarington
EIS/NHE Terms of Reference Scoping Checklist

Project Information

Project Name: 2656 Concession Road 4 Fire Station - EIS/NHE

Proponent Primary Contact:

Name: Brendan Grigg

Company: Clarington Public Works Department

Email Address: bgrigg@clarington.net

Telephone Number: 905-623-3379

Lead Consultant Primary Contact:

Name: Lauren Cymbaly

Company: Stantec Consulting Ltd.

Email Address: lauren.cymbaly@stantec.com

Telephone Number: 416-786-1302

Project Location*: 2656 Concession Road 4, Clarington, Ontario

* Please attach legal survey and/or figure of Project Location

Project Type: *Check all that apply.*

- ☐ Plan of Subdivision (residential)
- ☑ Commercial or Industrial Development
- ☐ Mixed-Use Development
- ☐ Lot Severance
- ☐ Zoning Bylaw Amendment (ZBA)
- ☐ Official Plan Amendment (OPA)
- ☐ New residential dwelling on an existing lot
- ☑ Existing building alteration (building permit required in accordance with O.Reg. 332/12; e.g., building extension and/or material alteration)
- ☑ New accessory development (e.g., swimming pool, driveway, private septic)
- ☑ New accessory structure on existing lot (garage, shed, etc.)
- ☑ Other development or site alteration, please specify:

Fire station / training facility. Specialized facility developments may be required.

Study Area: *Check one.*

- ☐ 120 m radium from legal property boundaries (Subject Lands)
- ☐ 120 m radium from a pre-determined *Project Footprint* on a parcel of land (appropriate for proposals for a single building or small developments on large parcels of land)
- ☑ Other, please specify:

Legal survey not provided. It is assumed lot boundaries, as shown on Figure 1 represent the general limits of the "Subject Property".

Existing Studies and Secondary Source Data Review: *Check all that apply. Field studies are typically required to verify background data. Background data more than five years old should be updated using site specific studies.*

- ☐ EIS or NHE completed within the last 10 years
- ☐ Municipally approved EIS or NHE on or adjacent to Subject Property
- ☐ OLS topographic survey
- ☑ Conservation Authority approved natural heritage feature limit (wetland or valleyland) OLS survey completed within the last 5 years
- ☐ Species at Risk Assessment/surveys completed within the last 5 years
- ☑ NHIC and wildlife atlas database reviews
- ☑ Fish/fish habitat data (MNRF and/or Conservation Authority records)
- ☐ Previous Master Environmental Servicing Plan (MESP) completed within the last 10 years
- ☑ Conservation Authority or other Watershed Plan
- ☐ Conservation Authority Floodplain Data
- ☐ Site floodplain impact assessment
- ☐ Agricultural impact assessment
- ☐ Relevant Subwatershed Study
- ☐ Schedule C Municipal Class EA
- ☑ Other, please specify:

Bowmanville / Soper Creek 2020 Watershed Plan Update (CLOCA 2020)

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Potential natural Heritage features and Areas, Hydrologic Features, and Natural Heritage Planning areas

Identify all confirmed or potential natural heritage features and areas, hydrologic features and provincial planning areas in the Study Area: *Check all that apply.*

Yes	No	Potential	On Subject Lands or in Project Footprint
☑	☐	☐	Greenbelt Planning Area[1]
☐	☑	☐	Oak Ridges Moraine Planning Area[1]
☐	☑	☐	Lake Iroquois Beach[2]
☑	☐	☐	Valleyland and/or mapped Natural Heritage System (NHS)[1]
☑	☐	☐	Drainage feature/watercourse
☑	☐	☐	Wetland (unevaluated)
☐	☑	☐	Provincially Significant Wetland[1]
☑	☐	☐	Woodland
☑	☐	☐	Grassland or meadow habitat
☐	☐	☑	Significant Wildlife Habitat (SWH)[3]
☐	☑	☐	Area of Natural and Scientific Interest (ANSI)[1]
☐	☐	☑	Seepage area or spring(s)
☐	☑	☐	Lake or pond
☐	☐	☑	Habitat of endangered or threatened species
☐	☐	☑	Fish habitat
☐	☑	☐	Regulated aquatic habitat[4] (e.g., fish Species at Risk)
☑	☐	☐	Wildlife corridors / linkages[5]

Yes	No	Potential	In Study Area (within 120m of Subject Lands or Project Footprint)
☑	☐	☐	Greenbelt Planning Area[1]
☐	☑	☐	Oak Ridges Moraine Planning Area[1]
☑	☐	☐	Lake Iroquois Beach[2]
☑	☐	☐	Valleyland and/or mapped Natural Heritage System (NHS)[1]
☑	☐	☐	Drainage feature/watercourse
☑	☐	☐	Wetland (unevaluated)
☐	☑	☐	Provincially Significant Wetland[1]
☑	☐	☐	Woodland
☑	☐	☐	Grassland or meadow habitat
☐	☐	☑	Significant Wildlife Habitat (SWH)[3]
☐	☑	☐	Area of Natural and Scientific Interest (ANSI)[1]
☐	☐	☑	Seepage area or spring(s)
☑	☐	☐	Lake or pond
☐	☐	☑	Habitat of endangered or threatened species
☐	☐	☑	Fish habitat
☐	☑	☐	Regulated aquatic habitat[4] (e.g., fish Species at Risk)
☑	☐	☐	Wildlife corridors / linkages[5]

[1]Check "Yes" if mapped by the Province of Ontario (MNRF, Land Information Ontario) or through municipal Official Plan or Provincial Planning Documents.

https://www.lioapplications.lrc.gov.on.ca/Natural_Heritage/index.html?viewer=Natural_Heritage.Natural_Heritage&locale=en-CA

[2]Check "Yes" if within the Lake Iroquois Beach landform shown on Map D of Clarington's OP (2018).

[3]Check "Yes" if mapped by the Province of Ontario (MNRF, Land Information Ontario).
https://geohub.lio.gov.on.ca/datasets/lio::wildlife-values-area/explore
http://geo2.scholarsportal.info/#r/details/_uri@=3482897339

[4]Check "Yes" if mapped by Fisheries and Oceans Canada (DFO).
https://www.dfo-mpo.gc.ca/species-especes/sara-lep/map-carte/index-eng.html

[5]Check "Yes" if a linkage area is identified in a Secondary Plan, watershed or subwatershed study, or wildlife corridors may be present.

EIS/NHE Scoping – Feature Assessments, Inventories and Delineations

Feature Classification Assessments and Delineation: *Check all that apply.*

Wetland

- ☑ Wetland delineation following OWES protocols (description following ELC) (June to September). *Adjustments to PSW limits are to be submitted with supporting documentation to the MNRF for review.*
- ☑ Wetland feature limit verification with Conservation Authority (June to end-September) (OLS survey required)
- ☐ Full OWES Evaluation for provincial significance and submission to MNRF *OWES Evaluations are to be submitted with supporting documentation to the MNRF for review.*

Woodland

- ☑ Significant Woodlands Assessment
- ☑ Woodland feature limit (dripline) verification with municipal staff completed during the growing season; leaf-on (June to end-September) (OLS survey required)

Valleyland

- ☑ Valleyland feature limit verification with municipal staff and Conservation Authority (OLS survey required)
- ☐ Long-term Stable Top of Bank / Slope Stability Assessment

Habitat Screening Assessments: *Check all that apply.*

Species at Risk

- ☑ SAR Screening Assessment
- ☑ Targeted surveys are anticipated to be required. *Please detail surveys under the Terrestrial and Aquatic Habitat and Bioinventories sections.*

Significant Wildlife Habitat

- ☑ SWH Screening Assessment
- ☐ Targeted surveys are anticipated to be required. *Please detail surveys under the Terrestrial and Aquatic Habitat and Bioinventories sections.*

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Terrestrial Habitat and Bioinventories: *Check all that apply.*

ELC and Floral Surveys

- ☐ Spring survey (mid-May to mid-April)
- ☑ Summer survey (late-June to end-July)
- ☑ Fall survey (late-Aug to end-Sept)
- ☐ Targeted species surveys for SWH or SAR, please specify:_____

Avifauna (birds)

- ☑ Habitat description + Incidental / general observations
- ☑ Standard Breeding Bird Survey (2 site visits between May 20 and July 7, at least 15 days apart using point counts and/or transect survey methods)
- ☑ Targeted species or species group surveys for SWH or SAR, please specify: Chimney S

Herpetofauna (amphibians and reptiles)

- ☑ Habitat description + Incidental / general observations
- ☐ Standard amphibian call survey (3 site visits; April, May, June)
- ☐ Turtle nesting and/or basking surveys
- ☐ Snake surveys
- ☐ Targeted species surveys for SWH or SAR, please specify:_____

Mammals

- ☑ Habitat description + Incidental / general observations
- ☑ Bat roost tree assessments (during leaf-off)
- ☑ Bat acoustic surveys (June)
- ☐ Targeted species or species group surveys for SWH or SAR, please specify:_____

Terrestrial Crustaceans (i.e., Chimney crayfish)

- ☑ Habitat description and incidental / general observations
- ☐ Targeted surveys for SWH (i.e., searches for chimneys/burrows; April to August)

Insects

- ☑ Habitat description and incidental / general observations
- ☐ Targeted species or species group surveys for SWH or SAR, please specify:_____

Aquatic Habitat and Bioinventories: *Check all that apply.*

- ☑ General habitat description and incidental / general observations
- ☐ Full Headwater Drainage Feature Assessment (HDFA) using TRCA and CVC (2024) guidelines (2-3 site visits; late March to mid-May, late April to May, and July to August if necessary)
- ☐ Fish community survey
- ☐ Benthic invertebrate survey (OBBN)
- ☐ Mussel habitat assessment
- ☐ Inventory of creek crossings (e.g., access roads, farm crossings)
- ☐ Inventory of instream barriers
- ☐ Other targeted species or species groups surveys, please specify:_____

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Supporting Studies

This section applies to any additional studies required to support the EIS recommendations and does not represent a comprehensive list of all studies required to support the planning application. Note secondary source refers to studies completed previously and are considered appropriate for use for the site. If a relevant study has been previously completed but needs to be updated, please select Study Required.

Floodplain Assessment and/or Floodplain Impact Assessment

- ☐ Secondary Source
- ☐ Study (or Study Update) Required

Stormwater Management Plan and / or Functional Servicing Plan

- ☐ Secondary Source
- ☑ Study (or Study Update) Required

Geotechnical (Long-term Stable Top of Bank / Slope Stability Assessment)

- ☐ Secondary Source
- ☐ Study (or Study Update) Required

Hydrogeological

- ☐ Secondary Source
- ☐ Study (or Study Update) Required

Geomorphological (fluvial assessment, erosion hazard limit / meanderbelt)

- ☐ Secondary Source
- ☐ Study (or Study Update) Required

Oak Ridges Moraine Conservation Plan Conformity Report

- ☐ Secondary Source
- ☐ Study (or Study Update) Required

Standard Water Balance

- ☐ Secondary Source
- ☐ Study (or Study Update) Required

Feature-based Water Balance

- ☐ Secondary Source
- ☐ Study (or Study Update) Required

Arborist Report (tree inventory and preservation plan)

- ☐ Secondary Source
- ☐ Study (or Study Update) Required

Edge Management and/or Habitat Management Plan

- ☐ Secondary Source
- ☐ Plan (or Plan Update) Required

Erosion and Sediment Control Plan (ESCP)

- ☐ Secondary Source
- ☑ Plan (or Plan Update) Required

OLS Topographic Survey

- ☐ Secondary Source
- ☐ Study (or Study Update) Required

Agricultural Impact Assessment

- ☐ Secondary Source
- ☐ Study (or Study Update) Required

Reporting

The EIS/NHE report shall be prepared by a Qualified Professional (author or reviewer with greater than 10 years of experience)[1]. The following information and/or headers are to be included in the EIS/NHE:

- **Background Review** *Includes a summary of the methods results of the review of all secondary source data checked off in the "Existing Studies and Secondary Source Data Review" section.*

- **Legislative and Policy Context** *Includes a summary of relevant legislation and policy documents, including but not limited to: Species at Risk Act, Fisheries Act, Migratory Birds Convention Act, Endangered Species Act, Conservation Authorities Act, Provincial Policy Statement, Growth Plan, Greenbelt Plan (as applicable), Oak Ridges Moraine Conservation Plan (as applicable), Region of Durham Official Plan, and Municipality of Clarington Official Plan.*

- **Existing Conditions** *Identify the location and extent of natural heritage features. Includes the results of field surveys and reference maps.*

- **Assessment of Significance** *Includes the results of any assessments of features for significance (SWH, Significant Woodlands, PSW, etc.)*

- **Linkage Assessment** *Required where a linkage area is identified in a Secondary Plan, watershed or subwatershed study, or wildlife corridors are present. Identify how the linkage function can be maintained and enhanced by the development proposal.*

- **Project Description** *Detailed description of proposed developments (including temporary work areas and permanent development and alterations) and associated phases of development.*

- **Impact Assessment** *Includes analysis of confirmed and potential impacts to natural heritage features and functions within the Study Area. This section must include description of both temporary and permanent impacts. This shall include an assessment of any associated infrastructure (ie. Trails, Stormwater outfalls).*

- **Environmental Protection and Mitigation Recommendations** *This section must include any protection measures recommended including lands to be preserved in their natural state, set-backs/buffers, and environmental mitigation as appropriate to bring the project into conformity with existing policy and legislation.*

- **Enhancement Opportunities** *Identify opportunities for restoration, invasive species management and other opportunities to create and manage wildlife habitat.*

- **Legislation and Policy Conformity** *Detail how the project meets legislative requirements and conforms with relevant provincial and municipal natural heritage policies with the implementation of the environmental protection and mitigation recommendations.*

[1] Qualified Professional means an individual who (1) is employed in the field of ecology, (2) has completed a minimum of a Bachelor degree or technical diploma from a recognized university or college with their major study area in ecology, conservation biology, environmental science or similar related discipline, and (3) has worked 10 years of more completing technical natural heritage assessments including projects of similar scale, scope and complexity as the undertaking.

- **Summary and Conclusions** *Summarize main findings (existing conditions) and recommendations.*
- **Appendices**

  - **Approved EIS/NHE Terms of Reference Scoping Checklist**

  - **Maps / Figures** *The maps/figures shall summarize existing conditions (including location and extent of aquatic and terrestrial natural heritage features), wildlife survey locations (e.g., amphibian call stations, breeding bird point count locations, bat monitoring stations, etc.), and staked feature limits. A map/figure shall also be provided that includes feature limits and recommended buffers with overlay of the development proposal.*

  - **Bioinventory Tables** *Includes a summary of all plant and wildlife inventoried as part of the study.*

  - **Field Data Cards**

  - **Supporting Plans** *Includes Site Plans and OLS surveys*

The EIS/NHE report will be submitted as an unlocked, PDF report that includes all appendices. Raw data and shapefiles will also be submitted to the municipality and/or the Conservation Authority to existing natural heritage databases. If to be posted on the Municipality's website, or requested, it may be required to be AODA compliant.

Abbreviations

ANSI	Areas of Natural and Scientific Interest
CA	Conservation Authority
CLOCA	Central Lake Conservation Authority
DFO	Fisheries and Oceans Canada
ECCC	Environment and Climate Change Canada
EA	Environmental Assessment
EIS	Environmental Impact Study
ELC	Ecological Land Classification
ESA	Endangered Species Act, 2007
ESCP	Erosion and Sediment Control Plan
GIS	Geographic Information System
GRCA	Ganaraska Region Conservation Authority
HDF	Headwater Drainage Feature
HDFA	Headwater Drainage Feature Assessment
KRCA	Kawartha Conservation Authority
LIO	Land Information Ontario
m	Metres
MBCA	*Migratory Birds Convention Act, 1994*
MECP	Ministry of the Environment, Conservation and Parks
MESP	Master Environmental Servicing Plan
MMHA	Ministry of Municipal Affairs and Housing
MNRF	Ministry of Natural Resources and Forestry
NHE	Natural Heritage Evaluation
NHIC	Natural Heritage Information Centre
OBBA	Ontario Breeding Bird Atlas
OBBN	Ontario Benthic Biomonitoring Network
OLS	Ontario Land Survey
OP	Official Plan
OPA	Official Plan Amendment
ORM	Oak Ridges Moraine
ORMCP	Oak Ridges Moraine Conservation Plan
OWES	Ontario Wetland Evaluation System (Southern Manual)
PSW	Provincially Significant Wetland

PPS	Provincial Policy Statement, 2020	SOCC	Species of Conservation Concern
SAR	Species at Risk	SWH	Significant Wildlife Habitat
SARA	Species at Risk Act, 2002	TOB	Top of Bank
SARO	Species at Risk in Ontario	TOR	Terms of Reference
		ZBA	Zoning Bylaw Amendment

Stantec

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April 11, 2024
Lisa Backus, MCIP, RPP (she/her)

Reference: **Terms of Reference for an Environmental Impact Study / Natural Heritage Evaluation for 2656 Concession Road 4, Municipality of Clarington**

Attachment C OLS Feature Limit Survey

Stantec

Stantec Geomatics Ltd.
CANADA LANDS SURVEYORS
ONTARIO LAND SURVEYORS
300-675 COCHRANE DRIVE, WEST TOWER
MARKHAM, ONTARIO, L3R 0B8
TEL. 905.944.7777
stantec.com

CAUTION

THIS IS NOT A PLAN OF SURVEY AND SHALL NOT BE USED EXCEPT FOR THE PURPOSE INDICATED IN THE TITLE BLOCK.

UTILITIES SHOWN ARE FOR DISCUSSION PURPOSES ONLY AND PRIOR TO CONSTRUCTION SHOULD BE CONFIRMED BY A CONTRACTOR.

VERTICAL DATUM

ELEVATIONS ARE GEODETIC, REFERRED TO CGVD-1928:1978 AND DERIVED FROM GNSS OBSERVATIONS USING A REAL-TIME CORRECTION SERVICE.

DRAWING COORDINATES

UTM ZONE 17, NAD83 (CSRS)

NOTES

DRIPLINE STAKED OCTOBER 13, 2023 WITH C.L.O.C.A. STAFF PRESENT.

SURVEYOR'S CERTIFICATE

I CERTIFY THAT FIELDWORK WAS COMPLETED October 13, 2023.

NOTE, THIS IS NOT A PLAN OF SURVEY AND SHALL BE USED ONLY FOR THE PURPOSE INDICATED IN THE TITLE BLOCK.

October 24, 2023
DATE

MERRILL D. MCLEAN
ONTARIO LAND SURVEYOR

CLIENT/PROJECT:

MUNICIPALITY OF CLARINGTON

2656 CON 4 EIS/NHE

2656 CONCESSION RD 4, BOWMANVILLE

DRAWING TITLE:

AS-STAKED DRIPLINE

Scale 1:750

20 0 20 40 METRES

Rev.	Description	Drawn	Chk'd	yyyy-mm-dd
0	ISSUED TO CLIENT	BC	MM	2023-10-24

PROJECT No.: 160951460 PAGE: 1 of 1

April 11, 2024
Lisa Backus, MCIP, RPP (she/her)

Reference: **Terms of Reference for an Environmental Impact Study / Natural Heritage Evaluation for 2656 Concession Road 4, Municipality of Clarington**

Attachment D CLOCA Survey Acknowledgement Letter

November 13, 2023

Ms. Lauren Cymbaly, Senior Ecologist
Stantec

Dear Ms. Cymblay

Subject: **Confirmation of Natural Feature Staking**
2656 Concession Road 4
Municipality of Clarington
CLOCA IMS No: RCON570

Purpose of application:

To undertake a staking of the contiguous vegetation with the key natural heritage system / significant woodland. The staking was completed by CLOCA and Municipality of Clarington staff on October 13, 2023, on the above noted property. Those in attendance included Alex Kissel and Sarem Nejad (CLOCA), Tim Ryan (Municipality of Clarington), Lauren Cymbaly and Patrick Peltekian (Stantec).

Limitations

Please be advised that the staking is subject to the following limitations:

a) The staking of the Natural Heritage Features (dripline of trees) is valid for a period of **5 years from the date of this letter**, after which time if the proposed development is not substantially underway, CLOCA reserves the right to revisit the property and adjust the Natural Heritage Feature limits;
b) This confirmation letter relates to the GPS waypoint staking undertaken by the applicant and confirmed by CLOCA Staff on October 13, 2023;
c) The Central Lake Ontario Conservation Authority may amend this letter at a future date, should additional applicable information become available;
d) This letter does not provide formal comments and/or clearance with respect to CLOCA's position regarding any future development or permit applications pursuant to Ontario Regulation 42/06 under the *Conservation Authorities Act*.

Establishing Limits of Development

The staking of the dripline of the vegetation identified in this letter is only one of the components which will be used to determine the limits of development on the above noted property, should a development application be brought forward. Therefore, CLOCA advises that this line ***does not represent the final limits of development***. Other factors and features that are not included in this letter, may influence the limits of

development, including a desktop analysis of natural hazards, wetland communities, as well as the Region of Durham and Municipality of Clarington Official Plan policies regarding Vegetation Protection Zones (VPZ) required. The purpose of this letter is only to provide the current owner a confirmation of the outermost physical constraint (vegetation dripline) of the features identified on the subject lands during the site visit noted above.

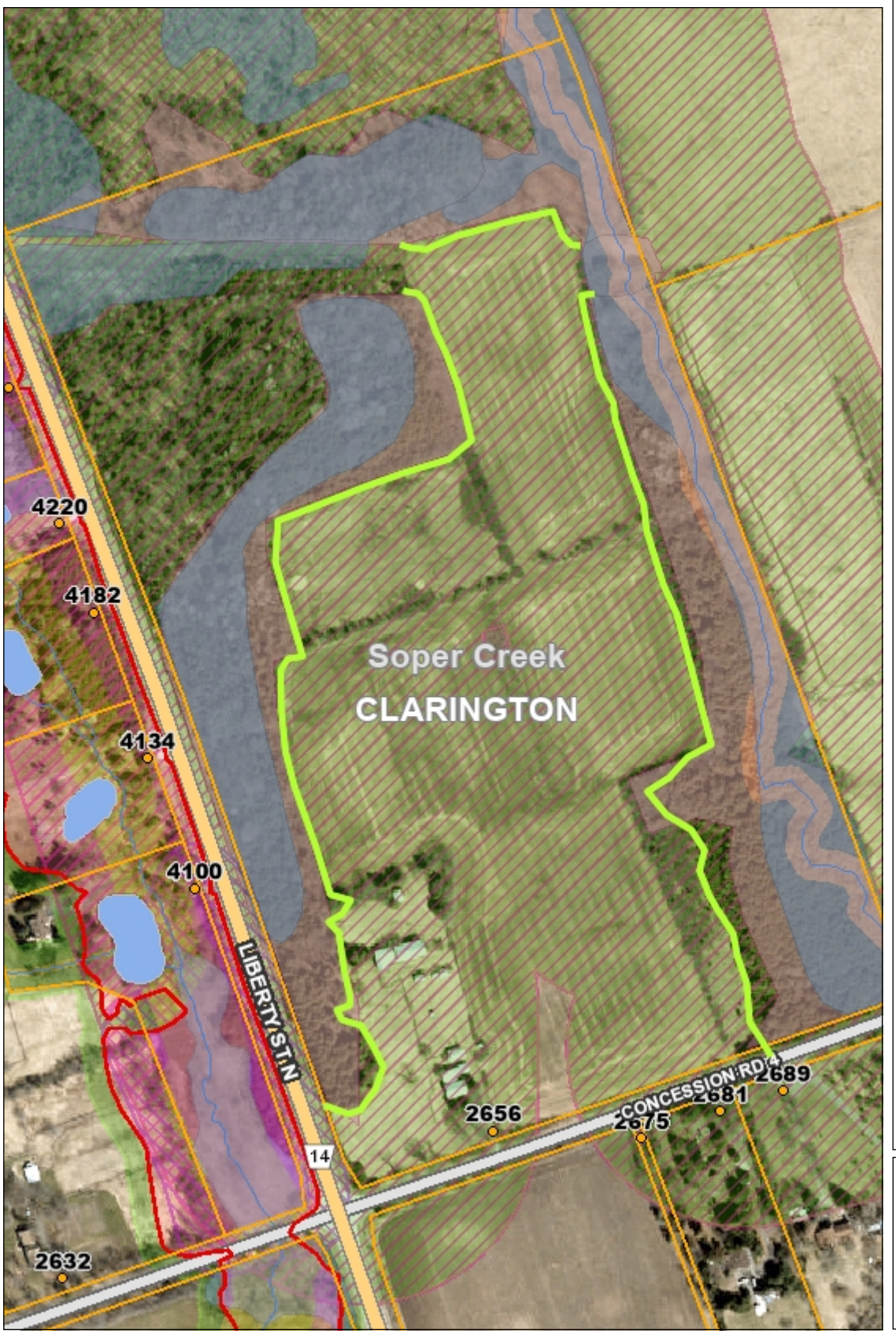
Should you have any additional questions or comments, please do not hesitate to contact the undersigned.

Sincerely,

Sarem Nejad, PhD MCIP RPP
Development Planner

Attachment: 2656 Concession Rd 4 – CLOCA Staked Line Mapping in PDF Format

Development Review and Planning Regulations



Legend

- Road (Google Symbology) LEVEL 3
- Addresses
- Assessment Parcel
- Top of Bank
- Floodline
- Riverine
- Lake Ontario
- Watershed Names
- Municipality Names
- Lower Tier Municipality
- Watershed Boundary
- Waterbody
- Drainage
- Meander Belt Allowance
- Flood Polygon
- CLOCA Regulated Area
- All MNRF Wetlands
- Not Evaluated
- Evaluated-Other
- Evaluated-Provincial
- ELC Wetland 0.5 to 2 HA
- ELC Wetland 30m Adjacent Land
- ELC Wetland 2 HA and Greater
- ELC Wetland 120m Adjacent

Staked Dripline

SOURCE: CLOCA, 2023; REGIONAL MUNICIPALITY OF DURHAM, 2023; MNR, 2023. 2018 ORTHOPHOTOGRAPHY PROVIDED BY © FIRST BASE SOLUTIONS INC.

PROJECTION: NORTH AMERICAN DATUM 1983 UNIVERSAL TRASVERSE MERCATOR (6 DEGREES) PROJECTION, ZONE 17, CENTRAL MERIDIAN (81 DEGREES WEST)

DATE PRINTED: November 13, 2023

0.1 0 0.06 0.1 Kilometres

1: 4,000

Map Compiled by the Central Lake Ontario Conservation Authority
100 Whiting Ave., Oshawa, Ontario, L1H 3T3

This map is for information purposes only and the Central Lake Ontario Conservation Authoirty takes no responsibility for, nor guarantees, the accuracy of all the information contained within the map.

Cymbaly, Lauren

From: Sarem Nejad <snejad@CLOCA.com>
Sent: Monday, May 13, 2024 9:46 AM
To: Backus, Lisa
Cc: Grigg, Brendan; Acorn, George; Cymbaly, Lauren; Kathy Luttrell; Alex Kissel
Subject: RE: Draft EIS Terms of Reference - 2656 Concession Road 4, Clarington ON (RCON570)

Good morning Lisa,

Please find below Kathy's comments on the ToR. Thank you!

The ToR suggests that amphibian breeding surveys need not be conducted given that the wetlands on the Subject Property will be protected with a MVPZ of 30 m. Regardless of wetland protection on the Subject Property, the EIS should provide a clear picture of the natural heritage features and functions on the Subject Property and Adjacent Lands to fully understand all potential impacts. As such, amphibian breeding surveys should be completed. At an absolute minimum, the Subject Property should be reviewed for the presence of vernal pools/open water wetland features that would support amphibian breeding. If no amphibian breeding habitat is present, then surveys could reasonably be omitted.

Aside from the omission of amphibian surveys, the ToR is complete.

Regards,

Sarem Nejad, MCIP RPP (he/him) | Development Planner
Ph.D. Geography & Planning

Central Lake Ontario Conservation Authority

Admin Office 100 Whiting Avenue, Oshawa ON L1H 3T3
Phone 905 579 0411 ext 145 | Fax 905 579 0994
Email snejad@CLOCA.com | Website cloca.com

Healthy watersheds for today and tomorrow.

*To go to our on-line mapping tool, click **here***

From: Backus, Lisa <lbackus@clarington.net>
Sent: Friday, May 10, 2024 9:42 AM
To: Kathy Luttrell <kluttrell@cloca.com>; Alex Kissel <akissel@cloca.com>; Sarem Nejad <snejad@CLOCA.com>
Cc: Grigg, Brendan <BGrigg@clarington.net>; Acorn, George <gacorn@clarington.net>; Cymbaly, Lauren <Lauren.Cymbaly@stantec.com>
Subject: Draft EIS Terms of Reference - 2656 Concession Road 4, Clarington ON

Hi Sarem, Alex and Kathy. As you are aware, Stantec is completing the NHE/EIS for the new Public Works/Fire Depot on Concession Road 4. They also prepared our standardized NHE/EIS terms of reference.

Please find attached a term of reference for the study in support of the Depot. It also chronicles some of the investigations that have already taken place. We have reviewed it and find it satisfactory however It would be appreciated if you could please review and advise if you concur.

George and Brendan are copied as they are the project leads. Lauren is copied as our lead consultant.

Kindly,

Lisa

Lisa Backus, MCIP, RPP (she/her)
Manager, Community Planning Division
Planning and Infrastructure Services
Municipality of Clarington
T: 905-623-3379 ext. 2413
C: 289-404-4530
F: 905-623-0830
E: lbackus@clarington.net

B.2 Feature Staking

Cymbaly, Lauren

From: Cymbaly, Lauren
Sent: Tuesday, October 24, 2023 1:39 PM
To: Sarem Nejad; Alex Kissel
Cc: Ryan, Tim; Backus, Lisa
Subject: FW: 2656 Concession Road 4, Municipality of Clarington - OLS survey deliverable schedule
Attachments: 160951460_V-ET_Dripline.pdf; 2000-160951460_V-ET_Dripline-2000.dwg

Hi Sarem and Alex,

Thanks again for joining us for the natural heritage feature staking site visit and associated survey work completed on October 13th, 2023.

As discussed, we are providing the signed OLS survey and associated digital files for your review and letter confirming feature limits.

Please let us know if you have any questions regarding the attached or need anything further from our end in this regard.

Thanks again,

Kind Regards,

Lauren Cymbaly, M.E.S.
Senior Ecologist
Stantec
100 – 401 Wellington Street West, Toronto ON M5V 1E7
Phone: (416) 786-1302
Fax: (416) 596-6680
Lauren.Cymbaly@stantec.com

Stantec

Stantec Geomatics Ltd.
CANADA LANDS SURVEYORS
ONTARIO LAND SURVEYORS
300-675 COCHRANE DRIVE, WEST TOWER
MARKHAM, ONTARIO, L3R 0B8
TEL. 905.944.7777
stantec.com

CAUTION

THIS IS NOT A PLAN OF SURVEY AND SHALL NOT BE USED EXCEPT FOR THE PURPOSE INDICATED IN THE TITLE BLOCK.

UTILITIES SHOWN ARE FOR DISCUSSION PURPOSES ONLY AND PRIOR TO CONSTRUCTION SHOULD BE CONFIRMED BY A CONTRACTOR.

VERTICAL DATUM

ELEVATIONS ARE GEODETIC, REFERRED TO CGVD-1928:1978 AND DERIVED FROM GNSS OBSERVATIONS USING A REAL-TIME CORRECTION SERVICE.

DRAWING COORDINATES

UTM ZONE 17, NAD83 (CSRS)

NOTES

DRIPLINE STAKED OCTOBER 13, 2023 WITH C.L.O.C.A. STAFF PRESENT.

SURVEYOR'S CERTIFICATE

I CERTIFY THAT FIELDWORK WAS COMPLETED October 13, 2023.

NOTE, THIS IS NOT A PLAN OF SURVEY AND SHALL BE USED ONLY FOR THE PURPOSE INDICATED IN THE TITLE BLOCK.

DATE

MERRILL D. MCLEAN
ONTARIO LAND SURVEYOR

CLIENT/PROJECT:

MUNICIPALITY OF CLARINGTON

2656 CON 4 EIS/NHE

2656 CONCESSION RD 4, BOWMANVILLE

DRAWING TITLE:

AS-STAKED DRIPLINE

Scale 1:750

20 0 20 40 METRES

Rev.	Description	Drawn	Chk'd	yyyy-mm-dd
0	ISSUED TO CLIENT	BC	MM	2023-10-24

PROJECT No.: 160951460 PAGE: 1 of 1

November 13, 2023

Ms. Lauren Cymbaly, Senior Ecologist
Stantec

Dear Ms. Cymblay

Subject: **Confirmation of Natural Feature Staking**
2656 Concession Road 4
Municipality of Clarington
CLOCA IMS No: RCON570

Purpose of application:

To undertake a staking of the contiguous vegetation with the key natural heritage system / significant woodland. The staking was completed by CLOCA and Municipality of Clarington staff on October 13, 2023, on the above noted property. Those in attendance included Alex Kissel and Sarem Nejad (CLOCA), Tim Ryan (Municipality of Clarington), Lauren Cymbaly and Patrick Peltekian (Stantec).

Limitations

Please be advised that the staking is subject to the following limitations:

a) The staking of the Natural Heritage Features (dripline of trees) is valid for a period of **5 years from the date of this letter**, after which time if the proposed development is not substantially underway, CLOCA reserves the right to revisit the property and adjust the Natural Heritage Feature limits;
b) This confirmation letter relates to the GPS waypoint staking undertaken by the applicant and confirmed by CLOCA Staff on October 13, 2023;
c) The Central Lake Ontario Conservation Authority may amend this letter at a future date, should additional applicable information become available;
d) This letter does not provide formal comments and/or clearance with respect to CLOCA's position regarding any future development or permit applications pursuant to Ontario Regulation 42/06 under the *Conservation Authorities Act*.

Establishing Limits of Development

The staking of the dripline of the vegetation identified in this letter is only one of the components which will be used to determine the limits of development on the above noted property, should a development application be brought forward. Therefore, CLOCA advises that this line ***does not represent the final limits of development***. Other factors and features that are not included in this letter, may influence the limits of

development, including a desktop analysis of natural hazards, wetland communities, as well as the Region of Durham and Municipality of Clarington Official Plan policies regarding Vegetation Protection Zones (VPZ) required. The purpose of this letter is only to provide the current owner a confirmation of the outermost physical constraint (vegetation dripline) of the features identified on the subject lands during the site visit noted above.

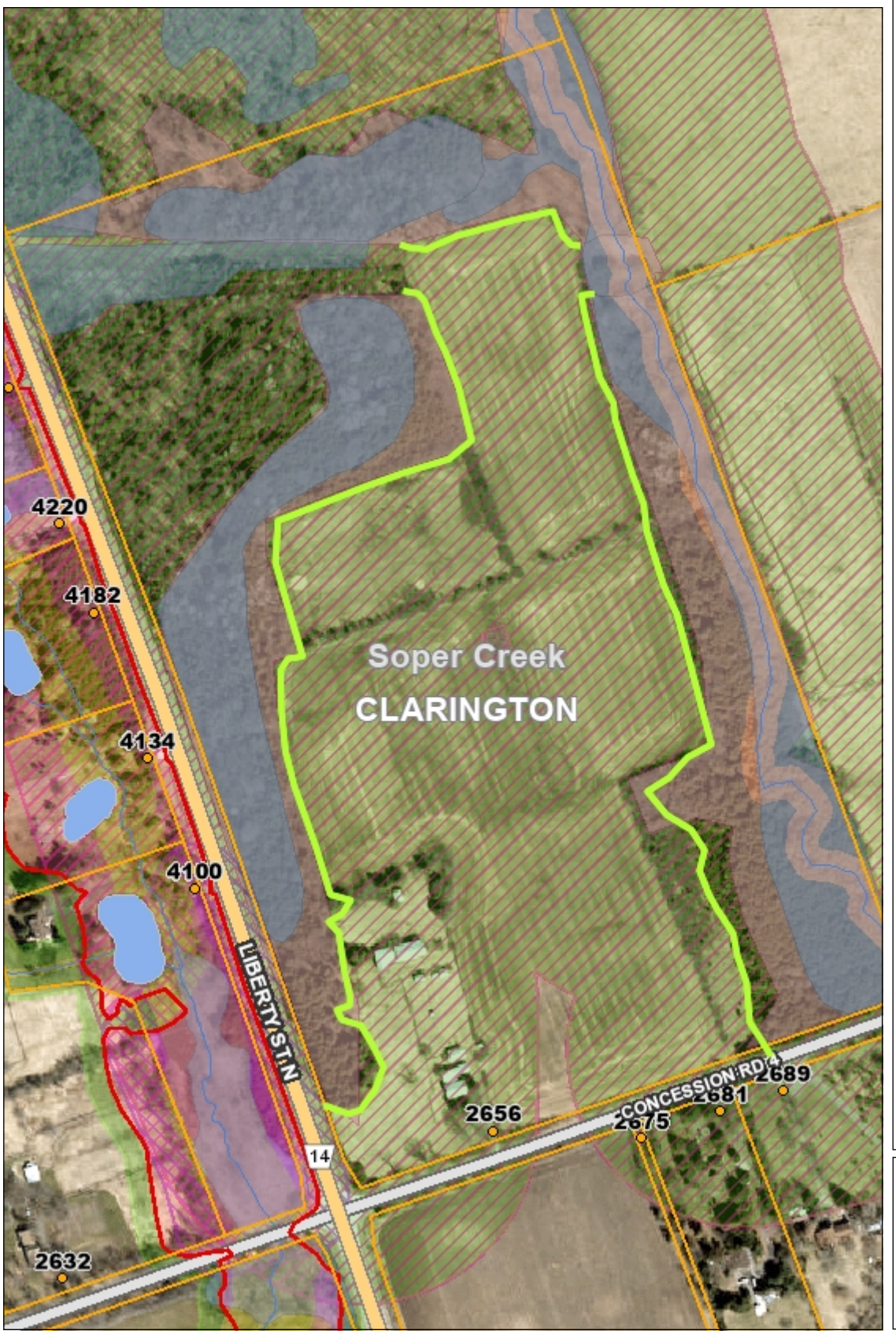
Should you have any additional questions or comments, please do not hesitate to contact the undersigned.

Sincerely,

Sarem Nejad, PhD MCIP RPP
Development Planner

Attachment: 2656 Concession Rd 4 – CLOCA Staked Line Mapping in PDF Format

Development Review and Planning Regulations



Legend

- Road (Google Symbology) LEVEL 3
- Addresses
- Assessment Parcel
- Top of Bank
- Floodline
- Riverine
- Lake Ontario
- Watershed Names
- Municipality Names
- Lower Tier Municipality
- Watershed Boundary
- Waterbody
- Drainage
- Meander Belt Allowance
- Flood Polygon
- CLOCA Regulated Area
- All MNRF Wetlands
- Not Evaluated
- Evaluated-Other
- Evaluated-Provincial
- ELC Wetland 0.5 to 2 HA
- ELC Wetland 30m Adjacent Land
- ELC Wetland 2 HA and Greater
- ELC Wetland 120m Adjacent

Staked Dripline

SOURCE: CLOCA, 2023; REGIONAL MUNICIPALITY OF DURHAM, 2023; MNR, 2023. 2018 ORTHOPHOTOGRAPHY PROVIDED BY © FIRST BASE SOLUTIONS INC.

PROJECTION: NORTH AMERICAN DATUM 1983 UNIVERSAL TRASVERSE MERCATOR (6 DEGREES) PROJECTION, ZONE 17, CENTRAL MERIDIAN (81 DEGREES WEST)

DATE PRINTED: November 13, 2023

0.1 0 0.06 0.1 Kilometres

1: 4,000

Map Compiled by the Central Lake Ontario Conservation Authority
100 Whiting Ave., Oshawa, Ontario, L1H 3T3

This map is for information purposes only and the Central Lake Ontario Conservation Authoirty takes no responsibility for, nor guarantees, the accuracy of all the information contained within the map.

B.3 MECP

Ontario

Ministry of
Natural Resources

Information Gathering Form for activities that may affect species or habitat protected under the *Endangered Species Act*

For Internal Use Only

Tracking Number	Lead District

Note: It is anticipated that the completion of this form will take multiple extended sessions. It is recommended that proponents download and save the form and the associated guide book to their local hard drive in order to more easily facilitate this task. Adobe Reader 10 is required to save, view and add data to the form. If you require this version of Adobe, select download to download it for free. To review the entire form, select view . It is strongly recommended that while completing the form, proponents read all associated tabs and help buttons to ensure the information requirements are clearly understood.

Personal information in this form is collected under the authority of Section 53 of the *Endangered Species Act, 2007*. The information provided will be used for the purposes of administering the Act and its Regulations. Questions about the use of this information should be directed to the species at risk representative at the local MNR office (http://www.mnr.gov.on.ca/en/ContactUs/2ColumnSubPage/STEL02_179002.html) for the location where the proposed activity will take place.

Fields marked with an asterisk (*) are mandatory.

1. Contact Information

Proponent Contact Information ☐ check this box if the proponent is a private individual

Legal Last Name*	Legal First Name*	Legal Middle Initial(s)
Fizeeli	Obaed	

Full Mailing Address

Unit No.	Street No.*	Street Name*	P.O. Box
	40	Temperance Street	

Rural Route	Postal Station	Lot No.	Concession

City/Town*	Province*	Postal Code*
Bowmanville	Ontario	L1C 3A6

Telephone No.*	Fax No.	Email (if available)
905 623-3379 ext. 2452		ofizeeli@clarington.net

Primary Contact for Proponent

Is the proponent the primary contact for this form?*

☐ Yes ☑ No

Last Name*	First Name*	Middle Initial(s)
Cymbaly	Lauren	

Position/Title
Associate, Senior Ecologist

Legal Name of Organization/Company
Stantec Consulting Inc.

Full Business Mailing Address

Unit No.	Street No.*	Street Name*	P.O. Box
100	401	Wellington Street West	

Rural Route	Postal Station	Lot No.	Concession

City/Town*	Province*	Postal Code*
Toronto	Ontario	M5V 1E7

Business Telephone No.*	Business Fax No.	Business Email (if available)
416 786-1302 ext.		lauren.cymbaly@stantec.com

Authorization*

☑ I, Obaed Fizeeli (proponent's name), authorize

Lauren Cymbaly (primary contact's name) to disclose information required by the Ministry of Natural Resources for the purpose of administering the *Endangered Species Act, 2007* and its Regulations and in accordance with the *Freedom of Information and Protection of Privacy Act, 1990*.

Species at Risk Field Surveys

Has MNR determined whether species at risk surveys required?*
If proponent has not already contacted the local MNR office regarding species surveys, please do so before proceeding with the form.

☑ Yes, surveys required ☐ No, surveys not required

Is the primary contact for the proponent, the same as the principal species at risk surveyor?*

☐ Yes ☑ No

Species at risk principal surveyor contact information

Last Name*	First Name*	Middle Initial(s)
Randall	Jennifer	

Position/Title
Terrestrial Ecologist

Legal Name of Organization/Company
Stantec Consulting Inc.

Full Business Mailing Address

Unit No.	Street No.*	Street Name*	P.O. Box
100	300	Hagey Boulevard	

Rural Route	Postal Station	Lot No.	Concession

City/Town*	Province*	Postal Code*
Waterloo	Ontario	N2L 0A4

Business Telephone No.*	Business Fax No.	Business Email (if available)
226 791-3744 ext.		jennifer.randall@stantec.com

Summarize any species at risk surveyors experience and knowledge (i.e., relevant qualifications)

B.E.S, Dip ERR, M.E.S.

Over 15 years of consulting experience conducting species at risk surveys. Double major in biology and environment and resource studies, diploma in ecological restoration. MNR certifications in OWES, ELC and OSAP.

Names of the other surveyors who assisted in (or will be assisting in) carrying out the species at risk surveys:

Jennifer Randall, B.Sc., M.E.S.

Over 13 years of consulting experience conducting species at risk surveys. Completed her master's thesis on bat behavioural patterns and has been a specialist in bat ecology throughout her consulting career.

2. Activity Overview

Primary Activity Sector (please check one)*

☐ aggregate
☐ agriculture
☑ construction or development
☐ mining
☐ forestry
☐ non-renewable energy (e.g., oil and gas, nuclear)
☐ other (specify)
☐ renewable energy (hydroelectric)
☐ renewable energy (wind/solar/biofuel)
☐ transportation
☐ existing infrastructure (e.g., utility corridors, dams, drains)
☐ research
☐ tourism, culture, recreation

Briefly summarize **what the proposed activity entails**, its **purpose** (e.g., research, constructing a home, building a subdivision, quarry establishment/operation, road construction, etc.), the **general location** of the activity and **current land uses** at that location.

If this information is available in an existing report, proponents can copy and paste the relevant information from the report(s) into the space provided below. Please reference the title, author and date of the report(s) from which the copy and paste sections originate.

Brief Description

The Municipality of Clarington, with support from Durham Region, is moving forward with the development of the Clarington Operations Depot, Emergency Fire Station, and Training Facility. The proposed development will include a building (8,754 sm), open storage area, 1.4 acre driver training and snow storage area, aggregate storage area, 1-storey salt and sand dome, fire training yard, 4 site access roads, parking lots, stormwater infrastructure, telecom tower, electrical transformer, courtyard, fueling station, and dedicated habitat compensation area.

Purpose

The development will support community emergency fire services and has received provincial funding to move forward to support safety within the community.

General location

Municipal address 2656 Concession Road 4, Bowmanville Ontario.

Current land uses (including Aboriginal land uses, where known) on/surrounding the proposed activity location

Agricultural land use.

Duration of the Proposed Activity

Targeted start date for the activity (yyyy-mm-dd)	Targeted completion date for the activity (yyyy-mm-dd)
2025-10-01	2025-11-01

Environmental Assessment

What Environmental Assessment has been or will be done in association with this activity? (Enter N/A if not applicable)

An Environmental Impact Study prepared by Stantec to support SPA.

3. Activity Details – Where, When, and How

Activity Location(s): 1

Provide detailed descriptions of the location(s) of the proposed activity according to each of the items below. In cases where the activity will occur in multiple locations, the following should be described for each location.

A. Location*

☑ Geographic coordinates of the activity location

☐ Legal Description of activity location

Geographic coordinates of the activity location

UTM Map Datum	Zone	Coordinates – Easting	Coordinates – Northing
UTM (m, km)	17 T	684486.57 m E	4869699.26 m N

Latitude	Longitude

Legal Description of activity location

Civic Address

Unit No.	Street No.	Street Name	P.O. Box	Rural Route

City/Town	Province	Postal Code

Lot(s) and Concession(s)	Assessment Roll Number(s)	Geographic Township(s)

Local Municipality(ies)	Regional Municipality, County or Territorial District(s)

B. Land Ownership

Indicate the land ownership for the proposed activity (please check all that apply)

☐ Federal crown land/water or protected area

☑ Municipal land/water

☐ Provincial crown land/water

☐ Other (identify)

☐ First Nation Reserve

☐ Private property

☐ Provincial crown land – provincial park/conservation reserve

C. MNR district(s) where the activity will take place

Aurora

D. Identify the **ecological communities** (e.g., agricultural (hayfield, crop, pasture), forest type and age (deciduous, coniferous, mixed wood; early/late successional forest), tallgrass prairie, etc.) at and surrounding the activity location.

If this information is available in an existing report, proponents can copy and paste the relevant information from the report(s) into the space provided below. Please reference the title, author and date of the report(s) from which the copy and paste sections originate.

Ecological Communities

Deciduous hedgerows (dominated by Basswood, Eastern White Cedar, Common Buckthorn and Manitoba maple with scattered Sugar Maple and dead ash intermixed), and Fresh – Moist Green Ash - Hardwood Lowland Deciduous Forest Type (FODM7-2) / Fresh – Moist Poplar Deciduous Forest Type (FODM8-1). Specifically, the area where tree removals are planned in the woodland unit is dominated by Green Ash, Trembling Aspen and American Basswood.

Activity Methodology
(How each stage of the activity will be carried out)

In Table 1, please provide a detailed **description** of the various components of the proposed activity over the activity's full lifespan. In the context of this form, “activity” is defined broadly to include all components associated with all stages of the activity including, but not limited to, site access and investigation, site preparation and construction, operation and maintenance, closure, decommissioning and completion, and rehabilitation and restoration stages. **The level of detail provided should reflect the size and complexity of the activity.**

If this information is available in an existing report, proponents can copy and paste the relevant information from the report(s) into Table 1. Please reference the title, author and date of the report(s) from which the copy and paste sections originate.

Table 1. Detailed description of the various components/stages of the proposed activity.

Component / Stage	Targeted Dates		Detailed Description of Methodology
	Start Date (yyyy-mm-dd)	Completion Date (yyyy-mm-dd)	
Tree clearing and grubbing	2025-10-01	2025-10-15	Tree clearing and grubbing.
Access road development	2025-10-15	2026-05-29	Grading. Subsequent asphalt deposition and road development.

Are there any site-related or technical limitations that restrict how this activity may be carried out?

The Municipality of Clarington is working on an expedited timeline to start construction activities for the Clarington Operations Depot, Emergency Fire Station, and Training Facility project (CODEFS) to meet the requirements of the grant they have received by the Province through the Skills Development Fund. Clarington has received this grant with a specific disbursement period that requires meeting the grant's terms, conditions, and timeline. As such, they have a firm committed date of November 1st to commence construction as part of this agreement. The terms of this agreement stipulate that construction includes tree clearing activities. In order to provide much needed training facilities for Clarington and the Region of Durham we hope to expedite permit approvals and commence tree clearing activities prior to November 1st.

4. Indication of Species at Risk and Habitat Found at or near the Activity Location

Records Review

Proponents are requested to outline what protected species at risk or habitats may be present at or near the proposed activity location. An activity is considered “near” a species at risk or its habitat if the activity is physically located within a reasonable distance of the species or habitat **and** there is a reasonable likelihood that the adverse effects of the activity will affect the species or extend into its habitat. In outlining this, proponents should consider the area that is reasonably likely to be affected by any of the stages of the proposed activity. This area may extend beyond the physical (direct) footprint of the activity itself.

While the local MNR office may be able to provide advice for completing this information, proponents are expected to conduct a records review. Some links to information sources can be found on page 1 of this form under the information sources tab. The results of the records review should be recorded in Table 3. The results of the records review should be recorded in Table 3.

Species at Risk Surveys

Where there is insufficient species at risk data or information, proponents may also be required to conduct species at risk surveys at or near the proposed activity location. The methodology and results from these species surveys can be recorded in Tables 2 and 3.

An ESA authorization (e.g., a permit under clause 17(2)(b) of the Act) may be required to conduct species at risk surveys.

Determining the presence of species at risk and their habitats often requires a higher degree of knowledge and expertise that may not be a standard requirement for routine environmental assessments. Species at risk surveys must be undertaken by a qualified professional who is familiar with the species/habitat anticipated to be at or near the proposed activity location. Survey methods must be specific to each species at risk (or groups of similar species) that is reasonably expected to be found at or near the proposed activity location. **It is strongly recommended that proponents contact the local MNR office prior to conducting any surveys to confirm whether surveys are required,** that they are conducted using appropriate methods and protocols, and that any required ESA or other MNR authorizations are obtained. *Note: costs associated with conducting surveys are the responsibility of the proponent.*

In Table 2, please describe any surveys that have been (or will be) undertaken to assess what protected species at risk and habitats may be present at or near the activity location.

If this information is available in an existing report, proponents can copy and paste the relevant information from the report(s) into Table 2. Please reference the title, author and date of the report(s) from which the copy and paste sections originate.

4. Indication of Species at Risk and Habitat Found at or near the Activity Location

Table 2. Overview of species at risk surveys to outline what species at risk and habitats may be present at or near the activity location

☐ Check this box if no species at risk surveys have been done or are planned

Targeted species	Start/End dates and times for surveys	Detailed description of survey protocols and methods	Search Effort (e.g., number of searches, search time, transects per area, number of surveyors, number of survey stations)	Has the survey been completed?
All seven endangered bat species	May 22 2024 - June 1 June 11 2025 - June 3(	Tree inventory,snag and follow up acoustic surveys followed the MNR's Survey Protocol for Species at Risk Bats within Treed Habitats - Little Brown Myotis, Northern Myotis & Tri-Colored Bat, April 2017.	Arborist surveys and snag surveys completed between March 2023 and July 2025. Sixteen (16) Acoustic Monitoring Units (ARUs) were deployed throughout the woodlands and hedgerows to support the assessment. See Figure 1 for details.	☑ completed ☐ yet to be completed

In Table 3, please record:

- all protected species at risk occurrences and habitat observations made at or near the proposed activity location;
- the SARO list status for each species;
- the rationale which indicates that the species or habitat may be present at or near the proposed activity location. This rationale should be based on information and data collected during the records review and through field surveys (if applicable).

If this information is available in an existing report, proponents can copy and paste the relevant information from the report(s) into Table 3. Please reference the title, author and date of the report(s) from which the copy and paste sections originate.

Please submit all new observation data for any endangered or threatened species to the Natural Heritage Information Centre (NHIC) using the Rare Species reporting form available at: http://nhic.mnr.gov.on.ca/species/species_report.cfm.

Any new observation data for other provincially tracked species (e.g., special concern species) that may have been observed at or near the proposed activity location should also be submitted to the NHIC.

Table 3: Summary of species at risk and their habitats found at or near the proposed activity location. Identify information sources as required. Note: It is recommended that representative photos of the habitat areas and features found at or near the proposed location of the activity be submitted with this form (opportunity to add attachments is in the next section). Be sure to include the time, date and location where each photo was taken.

	Species 1	Species 2
Species name*	Eastern Red Bat	Hoary Bat
Species status in Ontario* (provided in the SARO List)	☐ Threatened ☑ Endangered	☐ Threatened ☑ Endangered
Presence/absence of species/habitat at or near the proposed activity location*	☐ individuals of the species **absent** ☑ individuals of the species **present**	☑ individuals of the species **absent** ☐ individuals of the species **present**
Number of individuals observed and how (e.g., visual sighting, auditory observation, etc.) Also indicate life stage of the individuals (e.g., adult, juvenile, fruiting, etc.) where possible, dates the observations were made, the geographic coordinates of the observations, etc.	Eastern Red Bat calls were recorded at all acoustic monitoring stations (between 2 and 96 calls pending the location). See Figure 1 and snag survey results summary table for details.	Hoary Bat calls were recorded at all acoustic monitoring stations (between 57 and 519 calls pending the location). See Figure 1 and snag survey results summary table for details.
Detailed ecological description of the landscape. Include the Ecological Land Classification (ELC), Forest Ecosystem Classification (FEC), or Aquatic Resource Area (ARA) information, slope, aspect, soils, substrate, dominant plant species, associated plant species, etc.. If you require assistance in completing the required information, please contact the local MNR office.	Terrestrial habitat will be affected by the project. There are wetlands scattered in larger natural heritage system (SWM and cattail marsh). Removal of a portion of woodlands and the hedgerows is required to support the project. Specifically, deciduous hedgerows (dominated by Basswood, Eastern White Cedar, Common Buckthorn and Manitoba maple with scattered Sugar Maple and dead ash intermixed), and Fresh – Moist Green Ash - Hardwood Lowland Deciduous Forest Type (FODM7-2) / Fresh – Moist Poplar Deciduous Forest Type (FODM8-1) will be affected. Note, the area where tree removals are planned in the woodland unit is dominated by Green Ash, Trembling Aspen and American Basswood.	Terrestrial habitat will be affected by the project. There are wetlands scattered in larger natural heritage system (SWM and cattail marsh). Removal of a portion of woodlands and the hedgerows is required to support the project. Specifically, deciduous hedgerows (dominated by Basswood, Eastern White Cedar, Common Buckthorn and Manitoba maple with scattered Sugar Maple and dead ash intermixed), and Fresh – Moist Green Ash - Hardwood Lowland Deciduous Forest Type (FODM7-2) / Fresh – Moist Poplar Deciduous Forest Type (FODM8-1) will be affected. Note, the area where tree removals are planned in the woodland unit is dominated by Green Ash, Trembling Aspen and American Basswood.
Description of habitat features on site. Note any key habitat features (e.g., nests, hibernacula, calving areas, dens, roost trees, etc) observed at or near the activity location including the geographic coordinates of the observations. If you require assistance in completing the requested information, please contact the local MNR office species at risk representative.	Large DBH Sugar Maple, American Elm, Green Ash and Manitoba Maples observed throughout. See snag results summary table and Figure 1 for details. Understory species in the woodlands included Chokecherry, Wild Black Current, Wild Red Raspberry, Common Buckthorn, and White Cedar. Groundcover was dominated by Wild	Large DBH Sugar Maple, American Elm, Green Ash and Manitoba Maples observed throughout. See snag results summary table and Figure 1 for details. Understory species in the woodlands included Chokecherry, Wild Black Current, Wild Red Raspberry, Common Buckthorn, and White Cedar. Groundcover was dominated by Wild

	Sarsaparilla, Jack-in-the-pulpit, Bittersweet Nightshade, False Solomans Seal, and Spinulous Wood Fern.	Sarsaparilla, Jack-in-the-pulpit, Bittersweet Nightshade, False Solomans Seal, and Spinulous Wood Fern.
How and when the species is (or may be) using the habitat to carry out its life processes Indicate if the habitat is being used by the species for reproduction, rearing, hibernation, over-wintering, migration, feeding, resting (including predator avoidance), dispersal, daily movement, or any other life process (please specify). If it is not clear which life process the habitat is supporting, please indicate "unknown". If you require assistance in completing the requested information, please contact the local MNR office species at risk representative.	Utilize trees and large shrubs for maternity roosting. Foraging habitat present throughout natural heritage system, particularly near marshes associated with trees clearing area at the north end (Natural Gas Pipeline easements).	Utilize trees and large shrubs for maternity roosting. Foraging habitat present throughout natural heritage system, particularly near marshes associated with trees clearing area at the north end (Natural Gas Pipeline easements).
Other available information that suggests the effects of the activity, not just the physical (direct) footprint, may overlap with species at risk occurrences and/or habitat (e.g., species expert's opinion, etc.).	Development of stormwater ponds / biowales near the retained woodlands is anticipated to increase foraging habitat for local bat populations.	Development of stormwater ponds / biowales near the retained woodlands is anticipated to increase foraging habitat for local bat populations.
	Species 3	**Species 4**
Species name*	Silver-haired Bat	Little Brown Myotis / Myotis Species
Species status in Ontario* (provided in the SARO List)	☐ Threatened ☑ Endangered	☐ Threatened ☑ Endangered
Presence/absence of species/habitat at or near the proposed activity location*	☐ individuals of the species **absent** ☑ individuals of the species **present**	☑ individuals of the species **absent** ☐ individuals of the species **present**
Number of individuals observed and how (e.g., visual sighting, auditory observation, etc.) Also indicate life stage of the individuals (e.g., adult, juvenile, fruiting, etc.) where possible, dates the observations were made, the geographic coordinates of the observations, etc.	Silver-haired Bat calls were recorded at all acoustic monitoring stations (between 24 and 77 calls pending the location). See Figure 1 and snag survey results summary table for details.	Little Brown Myotis or Myotis species calls were recorded (1-2 calls pending location) at 6 bat monitoring stations (Bat-2, Bat-3, Bat-1, Bat-10, Bat-7, and Bat-4). See Figure 1 and snag survey results summary table for details.
Detailed ecological description of the landscape. Include the Ecological Land Classification (ELC), Forest Ecosystem Classification (FEC), or Aquatic Resource Area (ARA) information, slope, aspect, soils, substrate, dominant plant species, associated plant species, etc.. If you require assistance in completing the required information, please contact the local MNR office.	Terrestrial habitat will be affected by the project. There are wetlands scattered in larger natural heritage system (SWM and cattail marsh). Removal of a portion of woodlands and the hedgerows is required to support the project. Specifically, deciduous hedgerows (dominated by Basswood, Eastern White Cedar, Common Buckthorn and Manitoba maple with scattered Sugar Maple and dead ash intermixed), and Fresh – Moist Green Ash - Hardwood Lowland Deciduous Forest Type (FODM7-2) / Fresh	Terrestrial habitat will be affected by the project. There are wetlands scattered in larger natural heritage system (SWM and cattail marsh). Removal of a portion of woodlands and the hedgerows is required to support the project. Specifically, deciduous hedgerows (dominated by Basswood, Eastern White Cedar, Common Buckthorn and Manitoba maple with scattered Sugar Maple and dead ash intermixed), and Fresh – Moist Green Ash - Hardwood Lowland Deciduous Forest Type (FODM7-2) / Fresh

	– Moist Poplar Deciduous Forest Type (FODM8-1) will be affected. Note, the area where tree removals are planned in the woodland unit is dominated by Green Ash, Trembling Aspen and American Basswood.	– Moist Poplar Deciduous Forest Type (FODM8-1) will be affected. Note, Little Brown Myotis / Myotis calls were confined to isolated tree or hedgerow areas. No calls were recorded for these species in the woodlands unit.
Description of habitat features on site. Note any key habitat features (e.g., nests, hibernacula, calving areas, dens, roost trees, etc) observed at or near the activity location including the geographic coordinates of the observations. If you require assistance in completing the requested information, please contact the local MNR office species at risk representative.	Large DBH Sugar Maple, American Elm, Green Ash and Manitoba Maples observed throughout. See snag results summary table and Figure 1 for details. Understory species in the woodlands included Chokecherry, Wild Black Current, Wild Red Raspberry, Common Buckthorn, and White Cedar. Groundcover was dominated by Wild Sarsaparilla, Jack-in-the-pulpit, Bittersweet Nightshade, False Solomans Seal, and Spinulous Wood Fern.	Large DBH Sugar Maple, American Elm, Green Ash and Manitoba Maples observed throughout. See snag results summary table and Figure 1 for details. Understory species in the woodlands included Chokecherry, Wild Black Current, Wild Red Raspberry, Common Buckthorn, and White Cedar. Groundcover was dominated by Wild Sarsaparilla, Jack-in-the-pulpit, Bittersweet Nightshade, False Solomans Seal, and Spinulous Wood Fern.
How and when the species is (or may be) using the habitat to carry out its life processes Indicate if the habitat is being used by the species for reproduction, rearing, hibernation, over-wintering, migration, feeding, resting (including predator avoidance), dispersal, daily movement, or any other life process (please specify). If it is not clear which life process the habitat is supporting, please indicate "unknown". If you require assistance in completing the requested information, please contact the local MNR office species at risk representative.	Utilize trees and large shrubs for maternity roosting. Foraging habitat present throughout natural heritage system, particularly near marshes associated with trees clearing area at the north end (Natural Gas Pipeline easements).	Utilize trees and large shrubs for maternity roosting. Foraging habitat present throughout natural heritage system, particularly near marshes associated with trees clearing area at the north end (Natural Gas Pipeline easements).
Other available information that suggests the effects of the activity, not just the physical (direct) footprint, may overlap with species at risk occurrences and/or habitat (e.g., species expert's opinion, etc.).	Development of stormwater ponds / biowales near the retained woodlands is anticipated to increase foraging habitat for local bat populations.	Development of stormwater ponds / biowales near the retained woodlands is anticipated to increase foraging habitat for local bat populations.
	Species 5	**Species 6**
Species name*	Tricolored Bat	
Species status in Ontario* (provided in the SARO List)	☐ Threatened ☑ Endangered	☐ Threatened ☐ Endangered
Presence/absence of species/habitat at or near the proposed activity location*	☐ individuals of the species **absent** ☐ individuals of the species **present**	☐ individuals of the species **absent** ☐ individuals of the species **present**
Number of individuals observed and how (e.g., visual sighting, auditory observation, etc.) Also indicate life stage of the individuals (e.g., adult, juvenile, fruiting, etc.) where possible, dates the observations were made, the geographic coordinates of the	3 calls were recorded which could be associated with Tricolored Bat or Eastern Red Bat.	

observations, etc.		
Detailed ecological description of the landscape. Include the Ecological Land Classification (ELC), Forest Ecosystem Classification (FEC), or Aquatic Resource Area (ARA) information, slope, aspect, soils, substrate, dominant plant species, associated plant species, etc.. If you require assistance in completing the required information, please contact the local MNR office.	The only calls recorded were associated with the FODM7-2/FODM8	
Description of habitat features on site. Note any key habitat features (e.g., nests, hibernacula, calving areas, dens, roost trees, etc) observed at or near the activity location including the geographic coordinates of the observations. If you require assistance in completing the requested information, please contact the local MNR office species at risk representative.	Large DBH Sugar Maple, American Elm, Green Ash and Manitoba Maples observed throughout. See snag results summary table and Figure 1 for details. Understory species in the woodlands included Chokecherry, Wild Black Current, Wild Red Raspberry, Common Buckthorn, and White Cedar. Groundcover was dominated by Wild Sarsaparilla, Jack-in-the-pulpit, Bittersweet Nightshade, False Solomans Seal, and Spinulous Wood Fern.	
How and when the species is (or may be) using the habitat to carry out its life processes Indicate if the habitat is being used by the species for reproduction, rearing, hibernation, over-wintering, migration, feeding, resting (including predator avoidance), dispersal, daily movement, or any other life process (please specify). If it is not clear which life process the habitat is supporting, please indicate “unknown”. If you require assistance in completing the requested information, please contact the local MNR office species at risk representative.	Utilize trees and large shrubs within woodlands for maternity roosting. Foraging habitat present throughout natural heritage system, particularly near marshes associated with trees clearing area at the north end (Natural Gas Pipeline easements).	
Other available information that suggests the effects of the activity, not just the physical (direct) footprint, may overlap with species at risk occurrences and/or habitat (e.g., species expert's opinion, etc.).	Development of stormwater ponds / biowales near the retained woodlands is anticipated to increase foraging habitat for local bat populations.	

5. Activity and Species at Risk Maps and Photos

Provide one or more maps of appropriate scale that clearly illustrate the following items. In cases where the activity will occur in multiple locations, the following should be illustrated for each location.

- Ecological Land Classifications (ELC), Forest Ecosystem Classifications (FEC), or Aquatic Resource Areas (ARA) for the location and surrounding area (if available);
- Topographic information;
- Any designated natural features;
- Name(s) of any waterbodies occurring at or near the activity location (if applicable);
- Current land uses (if available);
- Location and boundaries (i.e. footprint) of the proposed activity **in relation to the surrounding landscape**;
- Location of each species at risk occurrence and habitat found at or near the proposed activity location. Also, include the location and description of any habitat features (e.g., nest, hibernaculum, calving area, vernal pools, spawning beds) found at or near the proposed activity location; and
- Data sources, scale, north arrow and legend for the maps.

  Use of aerial photography and satellite imagery is strongly encouraged. Please indicate the date aerial photos or satellite images were taken as well as the date maps were created.

  Please list and attach relevant maps, shapefiles, photos and satellite images that are available.

Do not include personal information on maps, aerial photos and satellite images.

List of Attached Documents

Note: The total space for attachments is limited to 25MB. Links to existing FTP sites containing photos and other materials for the proposed activity can be indicated in the list of attached documents space.

160951460_MECP_Fig01_Bat Monitoring Station Locations.pdf
rpt_160951460_arb_20250923_le1.pdf
Snag Survey Results Summary_2656 Conc Rd 4.pdf
CODEFS_ARCH_A012A_ARCHITECTURAL SITE PLAN_CLOCA_250808.pdf
C201 FUNCTIONAL GRADING PLAN_20250806.pdf

6. Species at Risk and Habitat that may be Affected by the Activity

In Table 4, please provide your interpretation of:

- the protected species at risk and habitats that are likely to be affected by the proposed activity; and
- how and to what extent these protected species and habitats may be affected. Where the proponent requires assistance in completing the information in this part of the form, contact the local MNR office species at risk representative.

This information and other information submitted in this form will be considered by MNR when assessing and determining whether a proposed activity is likely to contravene subsections 9(1) or 10(1) of the ESA and thus whether it is advisable for the proponent to apply for and obtain an overall benefit permit under clause 17(2)(c) of the ESA prior to proceeding with the proposed activity to avoid contravening the Act.

Species affected by activity	How and to what extent each species or habitat may be *positively* affected	How and to what extent each species or habitat may be *adversely* affected
Eastern Red Bat	Woodland and isolated trees / hedgerows will be compensated (ecological restoration) on site, in the north-east agricultural field (this field is current under active management - row crops). This compensation area, will be connected and increase the size of the woodlands / natural heritage system. The municipality of Clarington will also support (as recommended in the EIS) the erection of a rocket box at the north end of the compensation area, adjacent to the natural gas pipeline easement, where vegetation can't be restored. This area is ideal as it is open and near existing foraging habitat, including cattail marshes.	Removal of existing potential roosting habitat trees and shrubs.
Hoary Bat	Woodland and isolated trees / hedgerows will be compensated (ecological restoration) on site, in the north-east agricultural field (this field is current under active management - row crops). This compensation area, will be connected and increase the size of the woodlands / natural heritage system. The municipality of Clarington will also support (as recommended in the EIS) the erection of a rocket box at the north end of the compensation area, adjacent to the natural gas pipeline easement, where vegetation can't be restored. This area is ideal as it is open and near existing foraging habitat, including cattail marshes.	Removal of existing potential roosting habitat trees and shrubs.
Silver-haired Bat	Woodland and isolated trees / hedgerows will be compensated (ecological restoration) on site, in the north-east agricultural field (this field is current under active management - row crops). This compensation area, will be connected and increase the size of the woodlands / natural heritage system. The municipality of	Removal of existing potential roosting habitat trees and shrubs.

Species affected by activity	How and to what extent each species or habitat may be *positively* affected	How and to what extent each species or habitat may be *adversely* affected
	Clarington will also support (as recommended in the EIS) the erection of a rocket box at the north end of the compensation area, adjacent to the natural gas pipeline easement, where vegetation can't be restored. This area is ideal as it is open and near existing foraging habitat, including cattail marshes.	
Little Brown Myotis / Myotis species	Woodland and isolated trees / hedgerows will be compensated (ecological restoration) on site, in the north-east agricultural field (this field is current under active management - row crops). This compensation area, will be connected and increase the size of the woodlands / natural heritage system. The municipality of Clarington will also support (as recommended in the EIS) the erection of a rocket box at the north end of the compensation area, adjacent to the natural gas pipeline easement, where vegetation can't be restored. This area is ideal as it is open and near existing foraging habitat, including cattail marshes.	Removal of existing potential roosting habitat trees.
Tricolored Bat	Woodland and isolated trees / hedgerows will be compensated (ecological restoration) on site, in the north-east agricultural field (this field is current under active management - row crops). This compensation area, will be connected and increase the size of the woodlands / natural heritage system. The municipality of Clarington will also support (as recommended in the EIS) the erection of a rocket box at the north end of the compensation area, adjacent to the natural gas pipeline easement, where vegetation can't be restored. This area is ideal as it is open and near existing foraging habitat, including cattail marshes.	Removal of existing potential roosting habitat trees.

7. Submission Information

Date this form was submitted to the local MNR office (yyyy-mm-dd)*

2025-09-29

Please note: the email function will not work if you do not have your automatic email settings established. In these cases, please save a copy of your form, access your email account and attach a copy of the form for email submission to your local MNR. The list of MNR office email addresses is below for your reference.

Email Client Option *

☑ Default Email Application (e.g., MS Outlook)

☐ Internet Email (e.g., Yahoo or Hotmail. Save the form and send it manually to the MNR office by using internet email service.)

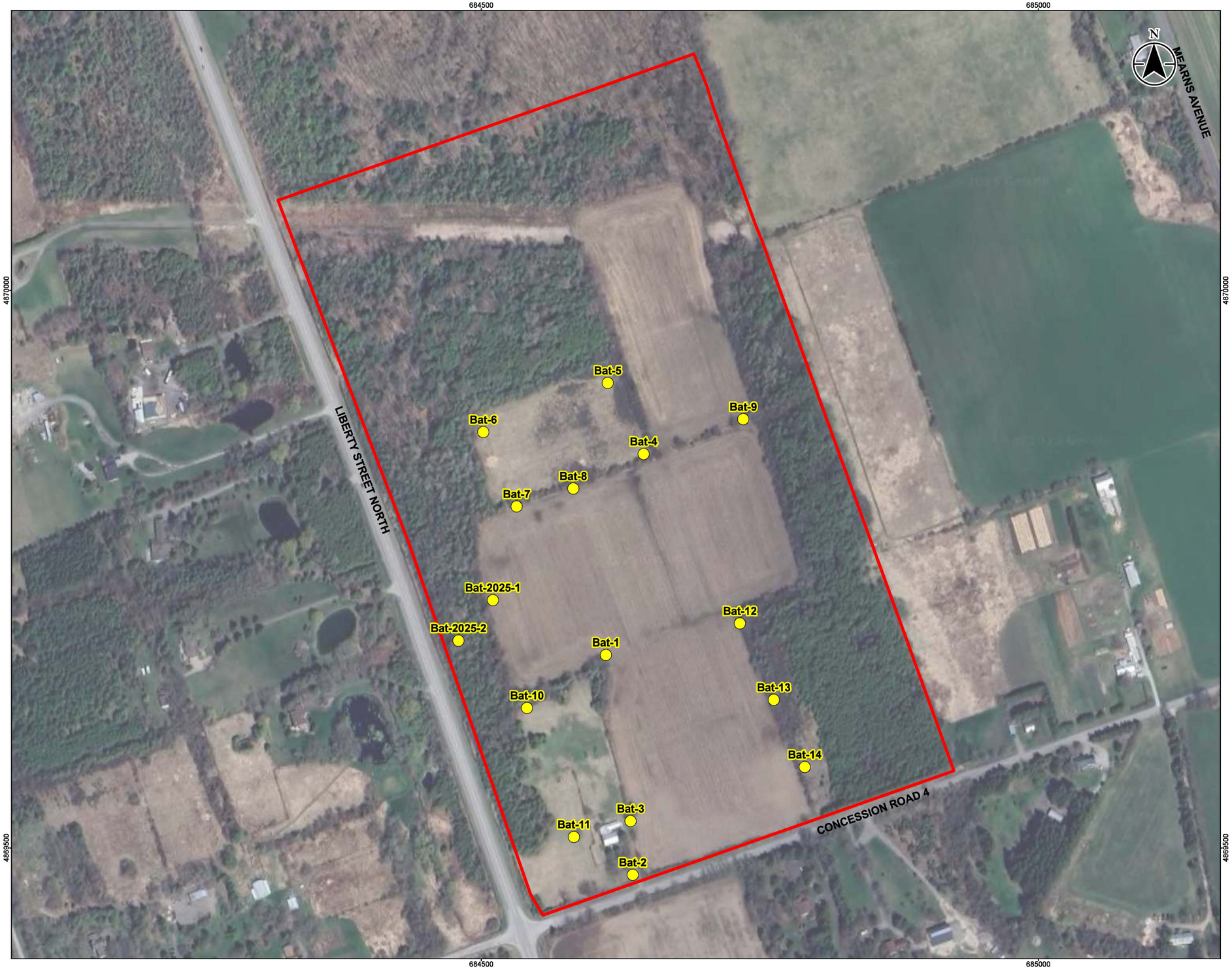
Local MNR office this form is submitted to*	MNR Email Address for reference
Aurora	esa.aurora@ontario.ca

Proposal Title*

Clarington Operations Depot, Emergency Fire Station, and Training Facility project (CODEFS)

Authorization*

☑ I, Lauren Cymbaly (insert name, hereafter "proponent"), confirm that the information provided in this form is accurate and complete to the best of my knowledge. I understand that a summary of the information provided in this form, excluding any personal information or details that could be used to locate or harm an endangered species, may be posted on the Ministry of Natural Resources Species at Risk website and the Environmental Registry. I also understand that this information will be used for the purpose of administering the *Endangered Species Act*, *2007* and its Regulations in accordance with the *Freedom of Information and Protection of Privacy Act*, *1990.*



Stantec

Legend

- Subject Lands
- Bat Monitoring Station

0 100 200 m

1:3,500 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Contains information licensed under the Open Government Licence – Ontario, and the Open Government Licence - Canada, accessed 2025.
3. Orthoimagery provided by Google. Date of imagery, unknown.

Project Location
Municipality of Clarington

160951460 REV1
Prepared by awhite on 2025-09-26
Technical Review by AW on 2025-04-23

Client/Project
MUNICIPALITY OF CLARINGTON
2656 CONCESSION ROAD 4

Figure No.
1

Title
Bat Monitoring Stations

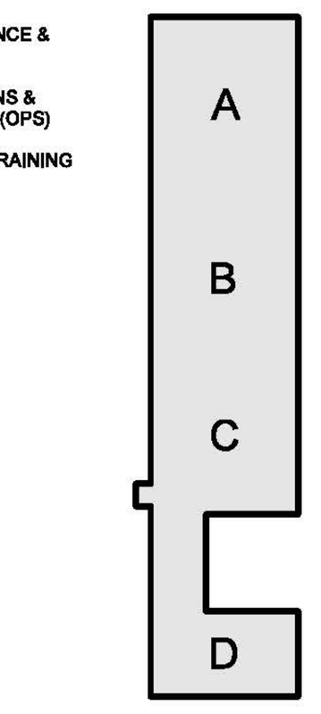
TEMPORARY CATCHMENT BOUNDARY
AREA = 195216.091 m³
CULTIVATED FIELD
TREED AREA
FFE=162.68m
FFE=163.00m
FOOTPRINT OF LEACHING BED
FOOTPRINT OF LEACHING BED
TRENCH DRAIN T/G=161.80
TELECOM TOWER
TRANSFORMER
GENERATOR
CONCESSION ROAD 4
LIBERTY STREET NORTH
LEGEND
PROPOSED LAMP STANDARD
UP PROPOSED UTILITY POLE
HP PROPOSED HYDRO POLE
SIGN PROPOSED SIGN
CB PROPOSED CATCHBASIN
DCB PROPOSED DOUBLE CATCHBASIN
DICB PROPOSED DITCH INLET CATCHBASIN
CBMH PROPOSED CATCHBASIN MANHOLE
DCBMH PROPOSED DOUBLE CATCHBASIN MANHOLE
MH PROPOSED STORM MANHOLE
MH PROPOSED SANITARY MANHOLE
HYD PROPOSED FIRE HYDRANT
WV PROPOSED WATERMAIN VALVE
CS PROPOSED CURB STOP
REDUCER PROPOSED REDUCER
PROPOSED FIRE DEPARTMENT CONNECTION
[123.45] PROPOSED GRADE
2.0% 2.0% PROPOSED DRAINAGE ARROW/SLOPE
PROPOSED SWALE
PROPOSED SWALE WITH SUBDRAIN
PROPOSED OVERLAND FLOW ROUTE
PROPOSED EMBANKMENT (3:1 MAX UNLESS OTHERWISE NOTED)
PROPOSED SANITARY SEWER/SERVICE
PROPOSED STORM SEWER/SERVICE
PROPOSED WATERMAIN/SERVICE
PROPOSED GASMAIN
PROPOSED UNDERGROUND HYDRO LINE
PROPOSED SUBDRAIN
PROPOSED PIPE INSULATION
PROPOSED GUARDRAIL
PROPOSED CHAINLINK FENCE
PROPOSED BOARD FENCE
PROPOSED (LIGHT DUTY) SILT FENCE
PROPOSED EDGE OF PAVEMENT
PROPOSED BUILDING
PROPOSED CONCRETE SURFACE
PROPOSED RIPRAP
PROPOSED LIGHT DUTY ASPHALT SURFACE
File Location: C:\Users\tkeller\DC\ACCDocs\JLR\33163-000-Clarington OPS Centre\Project Files\00-WalterFedy\Plot Files\2024-0458-10_GRD_PLT.dwg

LEGEND:

AREA A & B = FLEET MAINTENANCE & STORAGE (FMS)

AREA C = CREW OPERATIONS & ADMINISTRATION (OPS)

AREA D = FIRE STATION & TRAINING CENTRE (FST)



KEY PLAN

PRELIMINARY DESIGN

THESE DOCUMENTS ARE NOT COMPLETE IN ALL DETAILS AND MAY BE SUBJECT TO CHANGE AS DESIGN DEVELOPMENT AND CODE REVIEW IS ADVANCED.

No.	ISSUE / REVISION	DD/MM/YY
C	ISSUED FOR 50% CLASS A CONSTRUCTION ESTIMATE	26/08/25
B	ISSUED FOR 50% CLIENT REVIEW	11/07/25
A	ISSUED FOR CLASS C ESTIMATE	08/05/25

VERIFY SHEET SIZE AND SCALES. THE BAR TO THE RIGHT IS 25MM IF THIS IS A FULL SIZE DRAWING. 0 25mm

SCALE:

CLIENT: Clarington

1:500 0 5 10 25

CONSULTANT: www.jlrichards.ca

J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS

CONSULTANT: MJMA ARCHITECTURE & DESIGN

CONSULTANT: WALTERFEDY

PROFESSIONAL STAMP

PROJECT NORTH

PROJECT:

MUNICIPALITY OF CLARINGTON

NEW OPERATIONS DEPOT, EMERGENCY SERVICES FIRE STATION, AND TRAINING CENTRE

2656 CONCESSION ROAD 4, BOWMANVILLE, ONTARIO

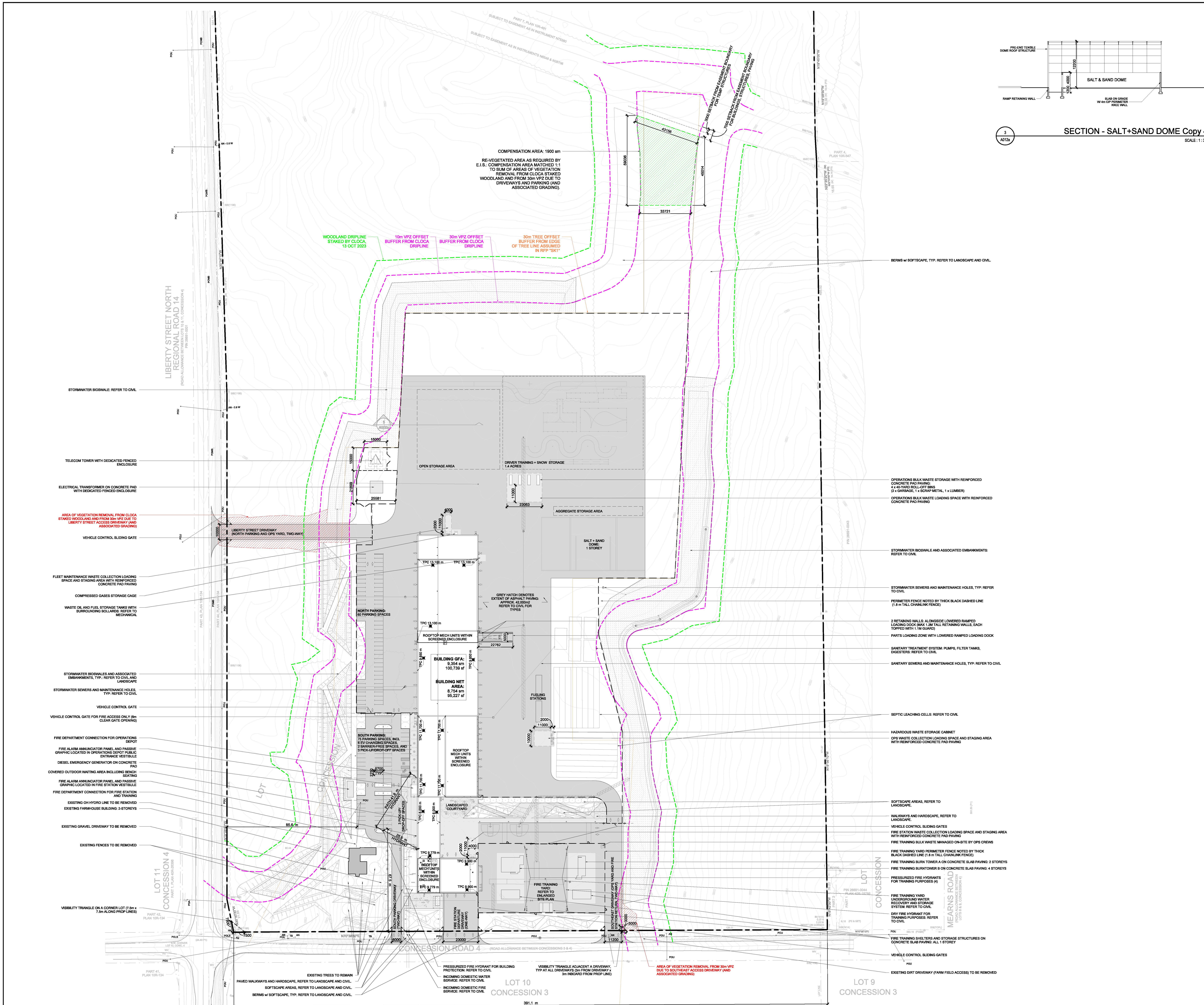
DRAWING:

CODEFS

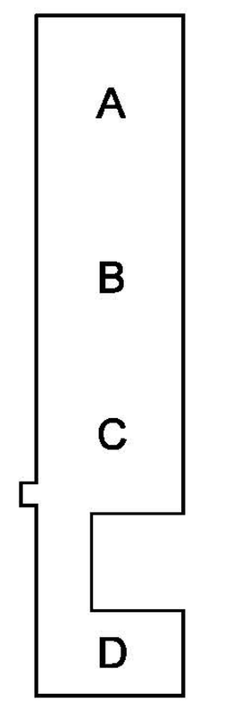
FUNCTIONAL GRADING PLAN

DESIGN:		DRAWING #:	C201
DRAWN:	CC		
CHECKED:	JZ		
JLR #:	33163-000		

PLOT DATE: August 26, 2025 10:54:15 AM



LEGEND:
AREA A & B = FLEET MAINTENANCE & STORAGE (FMS)
AREA C = CREW OPERATIONS & ADMINISTRATION (OPS)
AREA D = FIRE STATION & TRAINING CENTRE (FST)



KEY PLAN

PRELIMINARY DESIGN

THESE DOCUMENTS ARE NOT COMPLETE IN ALL DETAILS AND MAY BE SUBJECT TO CHANGE AS DESIGN DEVELOPMENT AND CODE REVIEW IS ADVANCED.

LEGEND:

CB	CATCH BASIN, REFER TO CIVIL
CBMH	CATCH BASIN MAN HOLE, REFER TO CIVIL
BLD	BOLLARD, REFER TO CIVIL AND STRUCTURAL
CCTV	POLE MOUNTED SECURITY CAMERA, REFER TO ELECTRICAL
SL	STREET LIGHT, REFER TO ELECTRICAL
TPED	TELEPHONE PEDESTAL
FDC	FIRE DEPARTMENT CONNECTION
SANMH	SANITARY MAN HOLE, REFER TO CIVIL
STMMH	STORMWATER MAN HOLE, REFER TO CIVIL

NOTE:
1. UTILITY METERS SHALL NOT BE LOCATED ON BUILDING FACADES THAT FACE STREETS, AND SHALL BE LOCATED DISCREETLY, AWAY FROM PEDESTRIAN TRAVEL ROUTES AND SCREENED FROM PUBLIC VIEW.
2. UTILITY PIPES SERVICING ROOFTOP MECHANICAL EQUIPMENT SHALL NOT BE VISIBLE TO ANY PUBLIC VIEW AND SHALL BE INSTALLED WITHIN THE WALL CONSTRUCTION.

No.	ISSUE / REVISION	DD/MM/YY
B	ISSUED FOR CONTRACTOR PRE-QUALIFICATION REV.A	06/06/25
A	ISSUED FOR CLASS C ESTIMATE	08/05/25

VERIFY SHEET SIZE AND SCALES. THE BAR TO THE RIGHT IS 25mm IF THIS IS A FULL SIZE DRAWING. 0 25mm

SCALE: As indicated

CLIENT: Clarington

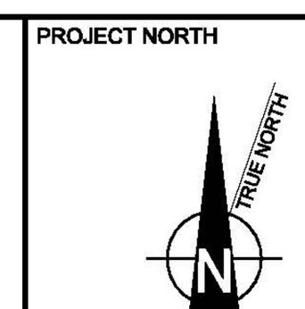
CONSULTANT: www.jlrichards.ca J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS

CONSULTANT: MJMA ARCHITECTURE & DESIGN

CONSULTANT: WALTERFEDY

PROFESSIONAL STAMP

PROJECT NORTH



PROJECT:
MUNICIPALITY OF CLARINGTON
NEW OPERATIONS DEPOT, EMERGENCY SERVICES FIRE STATION, AND TRAINING CENTRE
2656 CONCESSION ROAD 4, BOWMANVILLE, ONTARIO

DRAWING:
ARCHITECTURAL CODEFS
ARCHITECTURAL SITE PLAN - ROOFS - CLOCA

DESIGN:	Designer
DRAWN:	JLR, MJMA-Landscape
CHECKED:	Checker
JLR #:	33163-000
DRAWING #:	A012a

PLOT DATE: 2025-08-08 10:47:06 AM File Location: Autodesk Docs://33163-000-Clarington OPS Centre/33163-000-ARCH-2024.rvt

2656 Concession Road 4, Clarington, Ontario Arborist Report

September 23, 2025

Prepared for:
Municipality of Clarington
40 Temperence Street,
Bowmanville, ON, L1C 3A6

Prepared by:

Stantec Consulting Ltd.
100-300 Hagey Boulevard
Waterloo ON N2L 0A4
Tel.: (519) 579-4410

160951460

This document entitled 2656 Concession Road 4, Clarington, Ontario, Arborist Report was prepared by Stantec Consulting Ltd. (“Stantec”) for the account of Municipality of Clarington (the “Client”), to support the Site Plan Application for development of Fire Fighting Training Facility (the “Project”). In connection thereto, this document may be reviewed and used by the provincial, regional, and municipal government agencies participating in the permitting process in the normal course of their duties. Except as set forth in the previous sentence, any reliance on this document by any third party for any other purpose is strictly prohibited. The material in it reflects Stantec’s professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by _____
(signature)

Jack Legault, OALA, ISA Certified Arborist ON-2888A
Tel.: (519) 497-0480
jack.legault@stantec.com

Reviewed by _____
(signature)

Gary Grewal, ISA Certified Arborist ON-2174A
Tel.: (647) 268-8283
gary.grewal@stantec.com

Table of Contents

LIST OF TABLES

LIST OF APPENDICES

1.0 INTRODUCTION

1.1 EXISTING SITE

Stantec Consulting Limited (Stantec) has been retained by Municipality of Clarington to complete an Arborist Report in support of a Site Plan Application for development of a firefighting training facility in Municipality of Clarington. The project Site is currently rural residential and agricultural land.

1.2 PROPOSED DEVELOPMENT

Clarington wishes to develop a public works yard and fire training facility on the Subject Property. The proposed development includes one large (~1.3 ha) connected operations building/ facility, four small training structures / outbuildings (burn towers), fueling stations, storage areas, parking areas, septic system, stormwater management ponds and a secondary access road (to connect the site to Liberty Street), herein referred to as the “Project”.

2.0 METHODOLOGY

The Site assessment was conducted by Gary Grewal, Certified Arborist, on April 22, June 2 and August 11, 2025. The Site assessment reviewed the trees located within the property boundary, and any additional trees on adjacent properties that may be impacted by the proposed development.

All trees that may be impacted by the project footprint were inventoried and geolocated. A metal tree tag was also placed on all trees that were safely accessible. The data collected for each tree includes tree species, general health condition (trunk integrity, crown condition, crown vigour), diameter at breast height (DBH) or diameter class, dripline radius, height, hazard probability and various other parameters collected according to industry best practices. The tree locations were recorded with a submeter accuracy hand-held GPS unit. Detailed description of field measurements is available in Section 2.1 of this report. Where trees were growing in homogenous groups of size, species, and probable level of construction impacts, a general inventory was conducted which summarized the observed DBH range and overall condition.

A Tree Preservation Plan (located in Appendix A) was prepared to identify the approximate existing tree locations, tree tag identification numbers, the adjusted dripline radius, as well as the recommended action for each inventoried tree. Tree inventory data was compiled along with the recommended actions and further justifications, and is available in Appendix B. All private trees on adjacent properties were observed from a distance.

Tree locations have been identified overlaid on the available survey and design data on Drawing L-900 to L-901, located in Appendix ‘A’. The tree inventory data has been compiled into Table A, located in Appendix ‘B’. The area required to facilitate access to the house and the demolition has been identified on the TPP to identify tree impacts.

2.1 TREE CONDITION RATING

Outlined below are the detailed guidelines utilized for the classification of condition rating:

Good: (Vigour Class 5: Light Decline)
Branch mortality, twig dieback in 11-25% of the crown: broken branches or crown missing based on presence of old snags is less than 26%; minor evidence of decay.

Fair: (Vigour Class 4: Moderate Decline)
Branch mortality, twig dieback in 26-50% of the crown: broken branches or crown area missing based on presence of old snags is 50% or less; decay evident.

Poor: (Vigour Class 3: Severe Decline)
Branch mortality, 50% or more of the crown dead: broken branches or crown area missing based on presence of old snags in more than 50%; decay resulting in high hazard assessment.

Dead: (Vigour Class 2: Dead due to Natural Causes)
Tree is dead, either standing or down: phloem under bark has brown streaks: few epicormic shoots may be present.

Dead: (Vigour Class 1: Dead due to Human Causes)
Tree removed: tree has been sawed or girdled by human activity.

2.1.1 Definitions of Measurements

Tree assessment includes specific measurements as part of the field review. Outlined below are measurements taken as part of the tree review:

- Diameter at Breast Height (DBH): Measurement of the trunk at 1.4 m above grade. Expressed as diameter in centimetres.
- Dripline: Measurement of the approximate extents of the branches as measured from the trunk of the tree. This also represents the general root zone of the tree. Expressed as a radius in metres.
- Height: A visual estimate of the total height of the tree.

3.0 OBSERVATIONS AND ANALYSIS

3.1 OBSERVATIONS

In total, 193 trees with a DBH of 10 cm or greater and 390 stems in 12 vegetation units were inventoried on the Site. The species observed onsite included native, established, and exotic species. A large component of the Site was observed to be ash species in poor to dead condition due to emerald ash borer damage.

Table 1: Observed Species

Family	***Genus species* (common name)**
Betulaceae (Birch family)	*Betula alleghaniensis* (yellow birch)
Cupressaceae (Cypress family)	*Thuja occidentalis* (eastern white cedar)
Fabaceae (Legume family)	*Robinia pseudoacacia* (black locust)
Juglandaceae (walnut family)	*Juglans cinerea* (butternut) *Juglans nigra* (black walnut)
Malvaceae (mallow family)	*Tilia americana* (basswood)
Oleaceae (olive family)	*Fraxinus pennsylvanica* (green ash) *Fraxinus sp.* (ash sp.) *Syringa vulgaris* (common lilac)
Pinaceae (pine family)	*Picea abies* (Norway maple)
Rhamnaceae (Buckthorn family)	*Rhamnus cathartica* (European buckthorn)
Rosaceae (rose family)	*Malus corinaria* (Siberian crabapple) *Malus sp.* (apple sp.) *Prunus serotina* (black cherry)
Salicaceae (Willow family)	*Populus alba* (white poplar) *Populus sp.* (poplar sp.) *Populus tremuloides* (trembling aspen)
Sapindaceae (soapberry family)	*Acer negundo* (Manitoba maple) *Acer saccharum* (sugar maple)
Ulmaceae (elm family)	*Ulmus sp.* (elm sp.)

3.1.1 Rare and Endangered Species Review

The Site was reviewed for tree species covered under the provincial Endangered Species Act in accordance with O. Reg. 230/08. Four (4) butternut (Juglans cinerea) trees (1613, 1616, 1617 and 1631) were observed onsite. All 4 trees are identified for removal. Butternut health assessments (BHAs) were completed for these trees on June 23, 2025. The results determined that these are all Category 1 trees.

The BHAs were submitted to the Ministry of Environment, Conservation and Parks (MECP) on July 9 2025 and submission approved on July 15 2025. Stantec did not rely on Part 5 of O.Reg. 830/21 and further assessments were not requested by MECP within the 30-day window. Removal of the 4 Category 1 butternuts is permitted under the Endangered Species Act..

3.2 TREES RECOMMENDED FOR REMOVAL

A total of 124 living trees observed in the detailed inventory and 329 stems in the general inventory are recommended for removal due to the proposed construction and offsite stormwater management facility. In addition, 25 dead trees will be removed as they could pose a hazard during construction. Justifications for removal due to construction impacts include:

- Removal is necessary for site servicing and roadway construction.
- Removal is necessary for lot grading and construction.
- Removal is necessary for the construction and function of stormwater facilities.

3.3 TREES RECOMMENDED FOR PROTECTION

A total of 61 stems from the general inventory and 44 trees observed in the detailed inventory are recommended for protection within the Site and on adjacent properties. This report does not include trees located beyond the bounds of the detailed inventory which are expected to be protected. Tree protection fencing is to be installed prior to site work and maintained in working order for the duration of construction. Refer to Section 4 for additional recommendations.

4.0 CONSTRUCTION MITIGATION AND MANAGEMENT

4.1 CONSTRUCTION IMPACT

4.1.1 Potential Construction Impacts to Trees

Trees are living organisms that react to changes in their environment. Trees can be damaged during construction without showing signs of damage until some years later. Most of the impacts relate to the removal of roots that results in the slow death of the tree as a result of its inability to absorb sufficient water and nutrients. Contained within this section are descriptions of the potential impacts this project may have on the trees, and impact mitigation methods that are intended to aid in the design and construction process.

4.1.2 Soil Compaction and Root Damage

The leading cause of construction damage to trees is compaction of the soil around the roots or within the Tree Protection Zone (TPZ). The TPZ is the area around the tree or group of trees in which no grading or construction activity may occur. Equipment entering into a TPZ compresses the air pockets around the roots inhibiting the tree from absorbing nutrients and water. This damage ultimately reduces the health of the tree. Accordingly, during the removal stage, equipment use within the preservation zones should be restricted to ensure that the tree's roots are not disturbed, thereby assisting in maintaining their continued health. The TPZ is protected and delineated by the TPF.

4.1.3 Mechanical Damage

Equipment can physically damage the trees through striking the trunk, limbs and/or roots. Felled trees can also cause damage during the tree removal stage of construction. Some damage is unavoidable due to close proximity of adjacent trees; however, through the use of proper equipment and Best Management Practices (BMP) the damage can be minimized. The Contractor should be held responsible for all avoidable damage to the trees during all stages of development. Note: trees shall be felled away from adjacent trees to be retained.

4.1.4 Root Damage

The success of tree preservation is dependent not only on protecting the root zone from compaction and damage, but it is also contingent upon the ability to ensure that the structural roots within the root plate are not disturbed. Impacts to this area may result in the structural failure of these trees.

Excavating soil 1 m outside a tree's dripline, or within a dripline if approved by an ISA Certified Arborist, can damage roots by tearing and splitting back to the stem. This damage can later lead to rot, which can kill the tree. When excavating the top 30-60 cm of soil adjacent to trees, care must be taken. Excavation should cleanly sever the roots prior to stripping and removal of soil. Exposed roots, greater than 2.5 cm diameter, shall be pruned back to the soil face to prevent damage to the tree.

4.2 PROTECTING AND MANAGING TREES DURING CONSTRUCTION

The following recommendations are presented to provide appropriate tree protection and management during the construction for this project.

1. Tree protection fencing shall be installed to protect trees identified for preservation. TPF installation must conform to Ontario Provincial Standards. Upon installation of the tree protection fencing, the Contractor shall contact the Project Arborist to review and approve the fencing and its location prior to commencement of any Site work. This shall be coordinated with municipal staff for approval. The protection fencing shall remain intact throughout the entire protection. The fencing will be inspected weekly and, if required, repaired. The fencing shall be removed at the completion of all Site works.

2. Upon receiving the necessary project approvals and prior to the commencement of tree removals, all trees designated for preservation must be flagged in the field. All designated preservation areas must be left standing and undamaged during site works. Removals are to be completed outside of migratory bird nesting season from April 1 to August 31. Removals may take place during this restricted time only if the requirements of the Migratory Birds Convention Act are met and nesting activity is routinely monitored by qualified individuals (i.e., Wildlife Biologists).

3. The TPZ is the area around a retained tree that is to be protected by tree protection fencing. The TPZ is not to be used for any type of storage (e.g., storage of debris, construction material, surplus soils, and construction equipment). No trenching or tunneling for underground services shall be located within the TPZ. Construction equipment shall not be allowed to idle or exhaust within the TPZ.

4. Trees shall not have any rigging cables or hardware of any sort attached or wrapped around them, nor shall any contaminants be dumped within the protective areas. Furthermore, no contaminants shall be dumped or flushed where they may come into contact with the feeder roots of the trees. In the event that roots from retained trees are exposed, or if it is necessary to remove limbs or portions of trees after construction has commenced, the Project Arborist shall be informed and the proper actions conforming to municipal Policies and By-laws shall be carried out.

5. Upon completion of the tree removals, all felled trees are to be removed from the site. No lumber or brush from the clearing is to be stored on the site. Any chipping, cutting or brush cleanup are to be completed outside of the bird nesting season. These works may take place during this restricted time only if the requirements of the Migratory Birds Convention Act are met and nesting activity is routinely monitored by qualified individuals (i.e., Wildlife Biologists).

6. The following is the process that shall be carried out if tree removals are requested during the restricted time indicated in the Migratory Birds Convention Act:

    - Contact a qualified individual (i.e., Wildlife Biologist) to determine if nesting birds are within the tree removal disturbance area. Stantec has a qualified bird specialist on staff that can be contacted.

- If the bird specialist has determined that there are nesting birds onsite, there will be no tree removals/chipping conducted within the boundary set out by the specialist. Tree removals can resume within this area at the end of the nesting season, August 31st, or if the migratory bird specialist has determined the birds have left.
- If the bird specialist determines there are no migratory birds nesting within the disturbance area, the Contractor has 7 days to conduct removals. At the end of 7 days, if removals and chipping is not complete, the bird specialist will return to the Site and proceed with another assessment. If there are still no birds, work can resume for another 7 days. This process will continue until all removals and chipping is complete.

5.0 DISCLAIMER

The assessment of the trees presented within this report has been made using accepted arboricultural techniques. These include a visual examination of the above-ground parts of each observed tree for structural defects, scars, external indications of decay, evidence of insect presence, discoloured foliage, the general condition of the trees and the surrounding site, as well as the proximity of property and people. None of the trees examined were dissected, cored, probed, or climbed, and detailed root crown examinations involving excavation were not undertaken.

Notwithstanding the recommendations and conclusions made in this report, it must be realized that trees are living organisms and their health and vigour is constantly changing. They are not immune to changes in site conditions or seasonal variations in the weather.

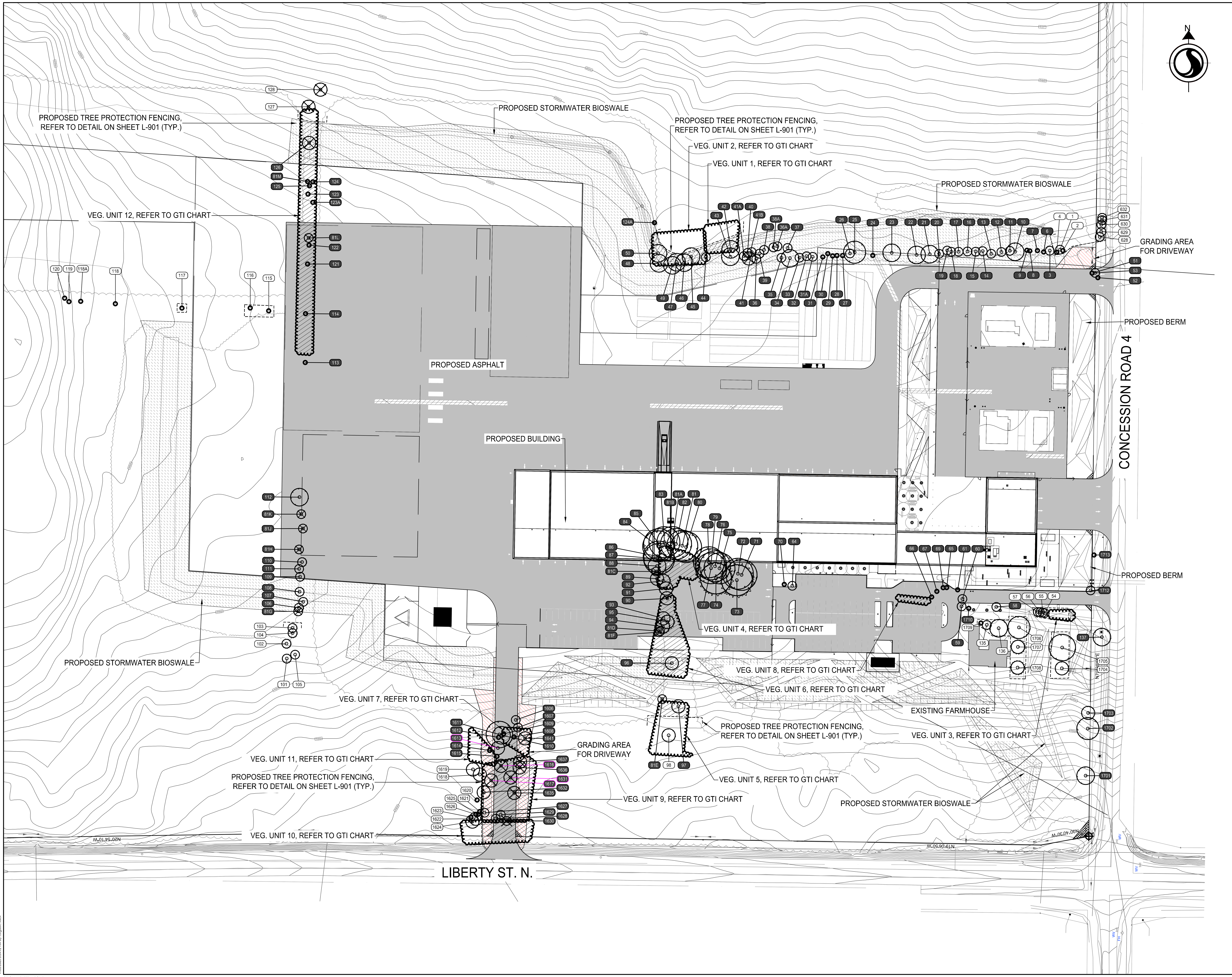
While reasonable efforts have been made to ensure the trees recommended for retention are healthy, no guarantees are offered or implied that these trees or any part of them will remain standing. It is both professionally and practically impossible to predict with absolute certainty the behavior of any single tree or group of trees in all circumstances. Inevitably, a standing tree will always pose some risk. Most trees have the potential for failure if provided with the necessary combinations of stresses and elements. This risk can only be eliminated if the tree is removed.

Every effort has been made to ensure that this assessment is reasonably accurate, and the trees should be re-assessed periodically. The assessment presented in this report is valid at the time of inspection.

6.0 CONCLUSION

The project Site was inventoried for trees with a DBH of 10 cm or greater. A total of 193 trees were inventoried along with 390 stems contained in 12 vegetation units. Forty-four (44) trees and 61 stems will be protected with TPF on Site. A total of 329 stems and 124 trees have been identified for removals as they are within the construction footprint. The Site contains 25 dead trees. All these trees have been identified for removal as well as they could be hazardous during construction. The proposed development requires intensive use of the Site for the construction of roads, servicing, lot grading, and stormwater management. As such, retention opportunities are predominantly available along the margins of the Site.

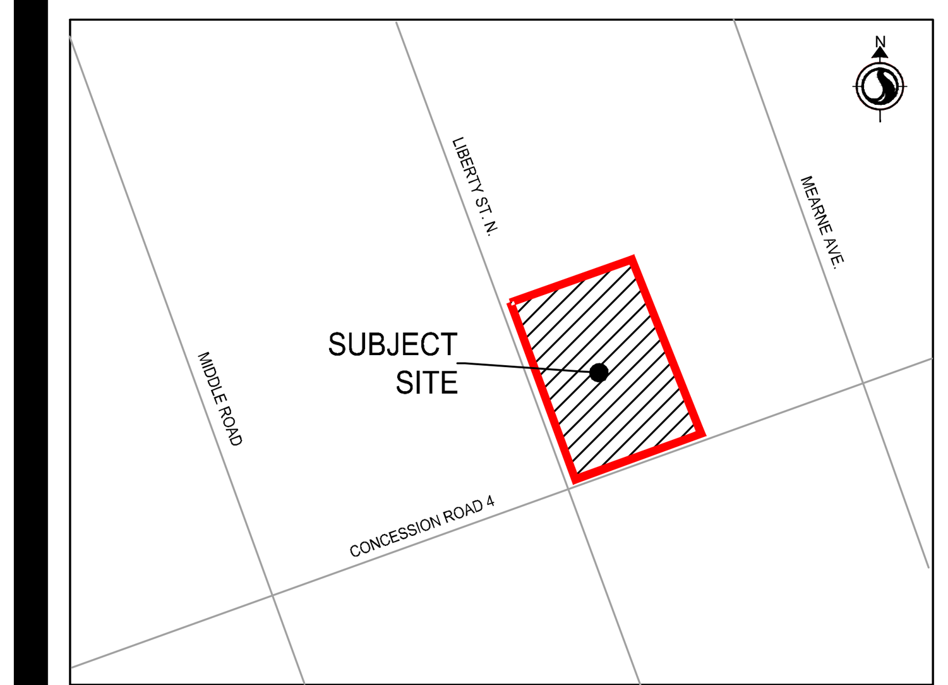
APPENDIX A:
Tree Inventory Plan,
Drawings L-900 to L-901



Stantec

Stantec Consulting Ltd.
100-300 Hagey Boulevard
Waterloo ON N2L 0A4
Tel: (519) 579-4410
www.stantec.com

Key Map NTS.



Legend

- Existing Deciduous Tree
- Existing Coniferous Tree
- Tree to be Retained and Protected Identification Tag
- Tree to be Removed Identification Tag
- Tree to be Removed Identification Tag
- Proposed Tree Protection Fencing
- Existing Vegetation Unit to be Retained and Protected
- Existing Vegetation Unit to be Removed
- Dead Standing Tree
- Proposed Asphalt
- Proposed Concrete
- Proposed Landscaped Berm
- Driveway Grading Area

Revision/Issue	By	Appd	YYYY.MM.DD
2. REVISED PER UPDATED DESIGN	JL	GG	2025.09.23
1. REVISED PER CITY COMMENTS	JL	GG	2025.08.13
ISSUED FOR REVIEW	JL	GG	2025.06.05

File Name: 160951460_L-TM	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD
				2025.08.14

Permit-Seal

CERTIFIED ARBORIST ISA
GARY GREWAL
ON-2174A

Client/Project
Municipality of Clarington, ON

2656 Conc Rd 4 EIS/NHE

Clarington, ON

Title

Tree Management Plan

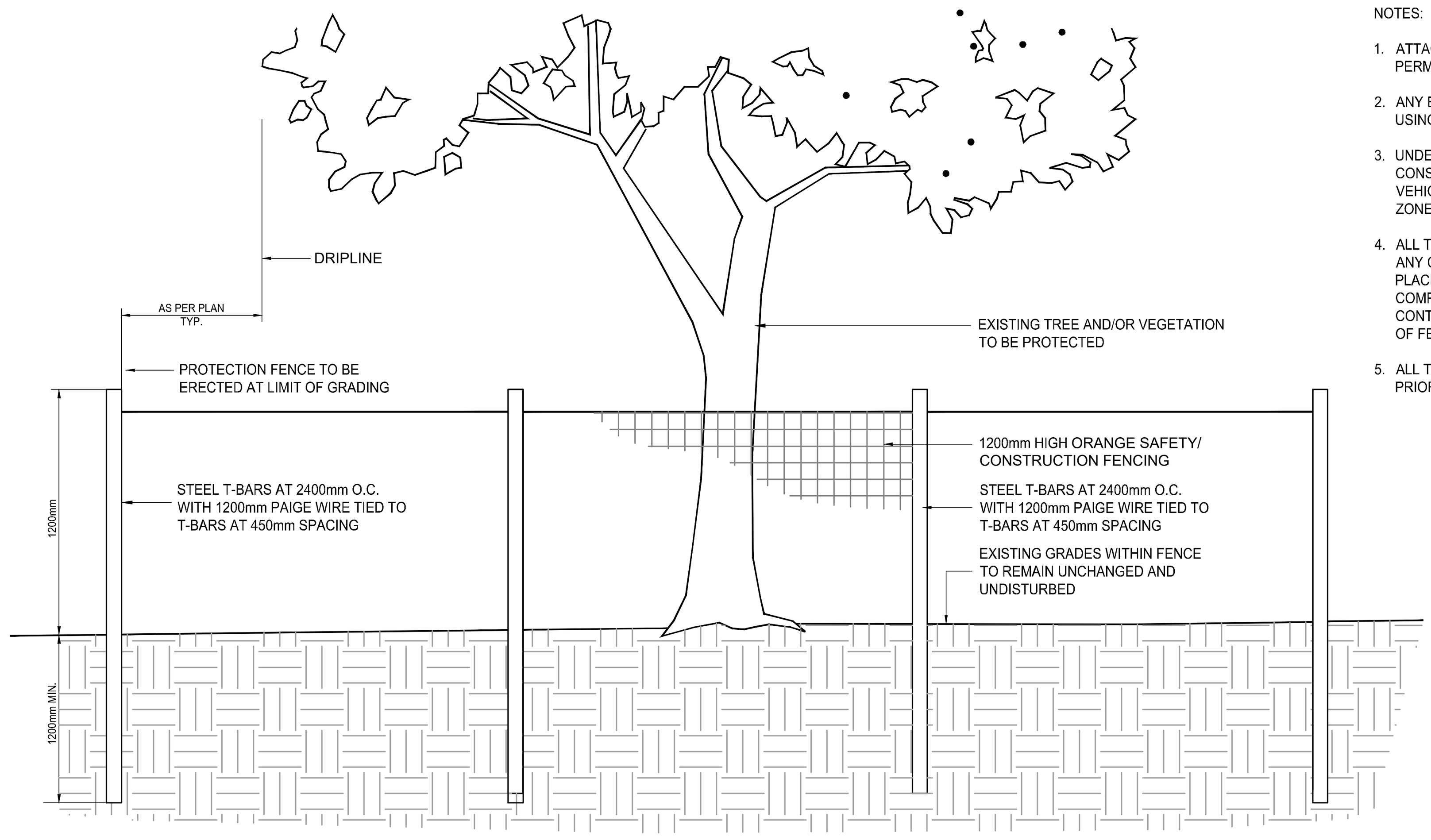
Project No. 160951460

Scale 1:750 (0 7.5 22.5 37.5m)

Revision 2

Sheet 1 of 2

Drawing No. **L-900**



TD 1 — PROPOSED TREE PROTECTION FENCING
N.T.S.

NOTES:

1. ATTACHMENT OF FENCE TO TREES WILL NOT BE PERMITTED.
2. ANY EXPOSED ROOTS ARE TO BE HAND PRUNED USING PROPER ARBORICULTURAL PRACTICES.
3. UNDER NO CIRCUMSTANCES SHALL ANY CONSTRUCTION MATERIALS, EQUIPMENT OR VEHICLES BE PLACED WITHIN THE TREE PROTECTION ZONE.
4. ALL TREE PROTECTION TO BE ERECTED PRIOR TO ANY CONSTRUCTION ACTIVITY AND IS TO REMAIN IN PLACE UNTIL ALL CONSTRUCTION HAS BEEN COMPLETED. OBTAIN WRITTEN APPROVAL FROM CONTRACT ADMINISTRATOR PRIOR TO REMOVAL OF FENCING.
5. ALL TREE PROTECTION FENCING SHALL BE REMOVED PRIOR TO PROJECT FINAL ACCEPTANCE.

GENERAL

1. The Tree Management/Preservation Plan is to be read in conjunction with the associated Arborist Report and shall not be utilized as a standalone document.

TREE PROTECTION FENCING

1. The Contractor shall install Tree Protection Fencing (TPF) to protect trees identified for preservation.
2. All TPF will conform with the Arborist Report and detail(s) included on these plans. Where current governing Municipal/City standards differ, contact Project Arborist or Contract Administrator for direction.
3. No substitutions of materials, products or quantities will be accepted without the prior written permission of the Project Arborist.
4. Upon installation of the TPF, the Contractor shall contact the Project Arborist to review and approve the fencing and location(s) in writing prior to commencement of any site work.
5. The TPF shall remain in the approved locations throughout the duration of the site works and shall not be moved at any time to accommodate construction or site work.
6. The Contractor shall inspect TPF weekly and maintain as required through all stages of development/construction. The TPF shall be removed at the completion of all site works and disturbed areas shall be restored to original condition.

TREE PRESERVATION

1. The Tree Protection Zone (TPZ) is protected and delineated by the TPF or as otherwise defined in the approved Arborist Report. The Contractor is not to proceed in uncertainty.
2. Any potential or incurred injury/damage to adjacent tree(s) identified to be preserved shall be immediately reported to the Project Arborist and reviewed on site. Injury/damage includes any required arboricultural treatment including but not limited to: limb pruning, trunk damage, root exposure or required cutting/removal or any other activity that has the potential to harm the tree.
3. The TPZ is not to be used for any type of storage including materials, equipment or stockpiles.
4. No trenching or tunneling for underground services shall occur within the TPZ.
5. Any equipment use within the TPZ will be restricted throughout all stages of development. This applies to TPZs within or outside of the project limit line.
6. Absolutely no alteration of grades or construction activity is permitted within the TPF and TPZ. Absolutely no flushing of contaminant shall be permitted towards or within the TPZ.
7. When working adjacent to trees to be preserved site preparation measures such as pruning for overhead clearance may be required. Preparatory pruning shall only be performed when completed by or under the direct supervision of an ISA Certified Arborist (or approved qualified person as approved by the Project Arborist).
8. All pruning work shall be performed by a qualified individual and shall be in accordance with current horticultural practices including but not limited to:
   a. Pruning cuts shall be made just beyond the branch collar and should be limited to thinning cuts. Heading cuts will only be accepted in specific cases as directed by an arborist and should be avoided where possible.
   b. Pruning of all stems greater than 50 mm in diameter should be made with a three-cut method to avoid tearing living bark tissue.
   c. No wound dressings shall be applied.

16. Where soil excavation/grading work is required within the rooting zone of a tree to be preserved (the rooting zone often extends beyond the identified TPZ and can be 3 times the dripline radius or more):
   a. Roots shall be cleanly severed before stripping and removing soil to avoid damage to the tree and the root system. Roots to be cut using appropriate equipment (i.e. trencher adapted to this specific use/chainsaw/root pruning machine). Roots may be severed using the clean edge of a straight excavator bucket under supervision of an ISA Certified Arborist.
   b. No attempts to cut existing roots with the digging bucket of any heavy machinery will be permitted as it can cause the roots to tear and pull and be harmful to root regeneration and recovery.
   c. Any exposed roots of a tree to be preserved with a diameter greater than 2.5cm (1 inch) shall be pruned back to the soil face.
   d. An excavation area within the TPZ shall be backfilled immediately and/or roots shall be kept constantly moist with burlap covered with white plastic and checked a minimum of 2 times a day, for a maximum of 48 hours. If roots are to be exposed for a period greater than 48 hours, the exposed area shall be covered with a minimum of 150 mm (6 inches) of mulch and maintained in a moist condition during construction until the area can be properly backfilled.
17. Trees shall not have any rigging cables, fencing, signage or hardware of any sort attached or wrapped around them.
18. No contaminants or toxic materials shall be dumped or flushed where they may come into contact with the feeder roots of trees to be preserved.
19. The Contractor will be held responsible for all avoidable damage to preserved trees during all stages of construction.
20. Watering or other maintenance of trees to be preserved may be required if construction activities are observed to be causing stress or impacting health as determined by the Project Arborist.

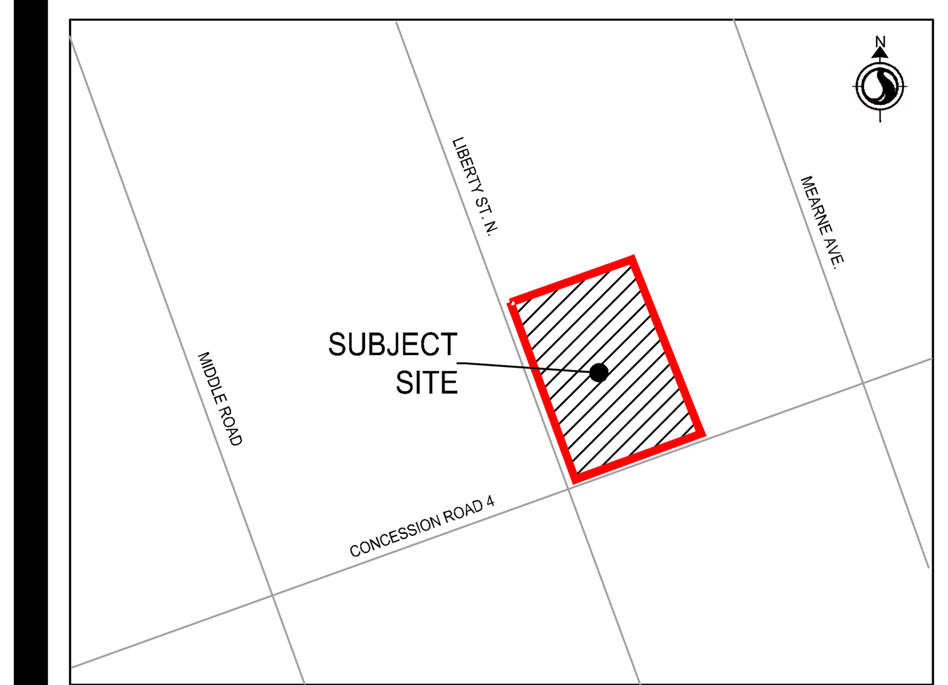
TREE REMOVALS

1. Prior to the commencement of tree removals, all trees designated for removal must be clearly identified in the field.
2. Where possible, removals, chipping, and/or brush removal is to be completed outside of migratory bird nesting season from April 1 to August 31. If removals are to occur within the restricted activity period, due diligence measures, including pre-clearing nest sweeps will be employed to reduce risk to nesting birds protected under the Migratory Birds Convention Act, 1994 and Migratory Birds Regulations. These surveys must be completed by a qualified biologist or ornithologist.
3. Trees shall always be felled away from adjacent preserved trees to prevent avoidable damage to the crowns and stems

Stantec

Stantec Consulting Ltd.
100-300 Hagey Boulevard
Waterloo ON N2L 0A4
Tel: (519) 579-4410
www.stantec.com

Key Map NTS.



Legend

Revision/Issue	By	Appd	YYYY.MM.DD
2. REVISED PER UPDATED DESIGN	JL	GG	2025.09.23
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				2025.08.14

Permit-Seal

CERTIFIED ARBORIST ISA
GARY GREWAL
ON-2174A

Client/Project

Municipality of Clarington, ON

2656 Conc Rd 4 EIS/NHE

Clarington, ON

Title

Tree Management Plan
Details & Notes

Project No. 160951460

Scale

Revision 2

Sheet 2 of 2

Drawing No. L-901

ORIGINAL SHEET - ARCH D

APPENDIX B:
Table A, Detailed Tree Inventory,
Table B, General Tree Inventory

TABLE A. **Detailed Tree Inventory**
2656 Concession Road 4, Clarington, Ontario
Data collected: April 22, June 2, August 11, 2025

Tree ID	Botanical Name	Common Name	DBH (cm)				Total DBH	Dripline Radius (m)	Condition				Comments	Action	Removal/Injury Justification	Permit Type
			Stem 1	Stem 2	Stem 3	Stem 4			Trunk Integrity	Crown Structure	Crown Vigour	Overall Condition				
1	*Ulmus sp.*	Elm sp.	10	-	-	-	10	2.0	Good	Good	Good	Good		Protect - Hoarding		N/A
2	*Rhamnus cathartica*	European Buckthorn	2	-	-	-	2	1.0	Good	Good	Good	Good		Protect - Hoarding		N/A
3	*Malus sp.*	Apple sp.	25	18	21	-	64	2.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
4	*Rhamnus cathartica*	European Buckthorn	18	-	-	-	18	1.0	Good	Good	Good	Good		Protect - Hoarding		N/A
6	*Rhamnus cathartica*	European Buckthorn	10	-	-	-	10	1.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
7	*Rhamnus cathartica*	European Buckthorn	8	-	-	-	8	1.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
8	*Ulmus sp.*	Elm sp.	8	-	-	-	8	1.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
9	*Ulmus sp.*	Elm sp.	4	-	-	-	4	1.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
10	*Ulmus sp.*	Elm sp.	31	-	-	-	31	4.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
11	*Ulmus sp.*	Elm sp.	21	-	-	-	21	2.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
12	*Malus sp.*	Apple sp.	18	-	-	-	18	2.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
13	*Rhamnus cathartica*	European Buckthorn	5	7	4	-	16	2.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
14	*Syringa vulgaris*	Common Lilac	5	-	-	-	5	2.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
15	*Syringa vulgaris*	Common Lilac	5	-	-	-	5	2.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
16	*Syringa vulgaris*	Common Lilac	5	-	-	-	5	2.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
17	*Syringa vulgaris*	Common Lilac	5	-	-	-	5	2.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
18	*Rhamnus cathartica*	European Buckthorn	5	6	-	-	11	2.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
19	*Rhamnus cathartica*	European Buckthorn	10	6	-	-	16	2.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
20	*Malus sp.*	Apple sp.	10	15	16	-	41	2.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
21	*Acer negundo*	Manitoba Maple	24	19	24	18	85	4.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
22	*Acer negundo*	Manitoba Maple	18	19	-	-	37	4.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
23	*Ulmus sp.*	Elm sp.	24	-	-	-	24	4.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
24	*Fraxinus sp.*	Ash sp.	14	-	-	-	14	1.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
25	*Acer negundo*	Manitoba Maple	27	27	20	12	86	5.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
26	*Ulmus sp.*	Elm sp.	14	-	-	-	14	2.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
27	*Thuja occidentalis*	Eastern White Cedar	14	-	-	-	14	1.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
28	*Rhamnus cathartica*	European Buckthorn	9	-	-	-	9	1.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
29	*Rhamnus cathartica*	European Buckthorn	9	-	-	-	9	1.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
30	*Rhamnus cathartica*	European Buckthorn	9	10	-	-	19	1.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
31	*Rhamnus cathartica*	European Buckthorn	9	10	-	-	19	1.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
31A	*Malus sp.*	Apple sp.	21	10	-	-	31	2.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
32	*Syringa vulgaris*	Common Lilac	9	-	-	-	9	2.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
33	*Syringa vulgaris*	Common Lilac	9	-	-	-	9	2.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
34	*Ulmus sp.*	Elm sp.	27	-	-	-	27	4.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
35	*Acer negundo*	Manitoba Maple	15	18	10	7	50	2.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
36A	*Thuja occidentalis*	Eastern White Cedar	15	-	-	-	15	2.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
37	*Thuja occidentalis*	Eastern White Cedar	15	-	-	-	15	2.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
38	*Thuja occidentalis*	Eastern White Cedar	15	-	-	-	15	2.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
38A	*Thuja occidentalis*	Eastern White Cedar	15	-	-	-	15	2.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
39	*Thuja occidentalis*	Eastern White Cedar	15	-	-	-	15	2.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
36	*Acer negundo*	Manitoba Maple	15	18	10	7	50	2.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
40	*Thuja occidentalis*	Eastern White Cedar	15	-	-	-	15	2.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
41	*Thuja occidentalis*	Eastern White Cedar	15	-	-	-	15	2.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
41B	*Fraxinus sp.*	Ash sp.	23	-	-	-	23	3.0	Dead	Dead	Dead	Dead		Remove	Proposed Bioswale Grading	Removal
41A	*Thuja occidentalis*	Eastern White Cedar	15	-	-	-	15	2.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
42	*Ulmus sp.*	Elm sp.	24	-	-	-	24	4.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
43	*Ulmus sp.*	Elm sp.	24	20	-	-	44	4.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
44	*Ulmus sp.*	Elm sp.	24	-	-	-	24	2.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
45	*Acer negundo*	Manitoba Maple	24	20	19	-	63	4.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
46	*Acer negundo*	Manitoba Maple	24	20	19	-	63	4.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
47	*Acer negundo*	Manitoba Maple	24	20	19	-	63	4.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
49	*Acer negundo*	Manitoba Maple	25	20	-	-	45	4.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
48	*Acer negundo*	Manitoba Maple	18	15	-	-	33	4.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
50	*Acer negundo*	Manitoba Maple	18	15	-	-	33	4.0	Good	Good	Good	Good		Remove	Proposed Bioswale Grading	Removal
51	*Thuja occidentalis*	Eastern White Cedar	10	-	-	-	10	1.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
52	*Thuja occidentalis*	Eastern White Cedar	10	-	-	-	10	1.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
53	*Robinia pseudoacacia*	Black Locust	21	10	-	-	31	2.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
54	*Ulmus sp.*	Elm sp.	10	10	-	-	20	2.0	Good	Good	Good	Good		Protect - Hoarding		N/A
55	*Ulmus sp.*	Elm sp.	10	10	-	-	20	2.0	Good	Good	Good	Good		Protect - Hoarding		N/A
56	*Ulmus sp.*	Elm sp.	10	10	-	-	20	2.0	Good	Good	Good	Good		Protect - Hoarding		N/A
57	*Ulmus sp.*	Elm sp.	10	10	-	-	20	2.0	Good	Good	Good	Good		Protect - Hoarding		N/A
58	*Acer negundo*	Manitoba Maple	10	11	-	-	21	2.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
59	*Acer negundo*	Manitoba Maple	13	-	-	-	13	2.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
60	*Acer negundo*	Manitoba Maple	11	10	9	8	38	2.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
61	*Acer negundo*	Manitoba Maple	13	10	7	-	30	1.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
65	*Rhamnus cathartica*	European Buckthorn	13	-	-	-	13	1.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
66	*Fraxinus sp.*	Ash sp.	7	-	-	-	7	1.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal

TABLE A. Detailed Tree Inventory
2656 Concession Road 4, Clarington, Ontario
Data collected: April 22, June 2, August 11, 2025

Tree ID	Botanical Name	Common Name	DBH (cm)				Total DBH	Dripline Radius (m)	Condition				Comments	Action	Removal/Injury Justification	Permit Type
			Stem 1	Stem 2	Stem 3	Stem 4			Trunk Integrity	Crown Structure	Crown Vigour	Overall Condition				
67	*Syringa vulgaris*	Common Lilac	7	-	-	-	7	1.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
69	*Acer negundo*	Manitoba Maple	13	10	7	-	30	1.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
64	*Acer negundo*	Manitoba Maple	26	-	-	-	26	2.0	Good	Good	Good	Good	Co-dominant	Remove	Within Proposed Construction	Removal
70	*Acer negundo*	Manitoba Maple	13	-	-	-	13	1.0	Good	Good	Good	Good	Co-dominant	Remove	Within Proposed Construction	Removal
71	*Tilia americana*	Basswood	23	30	24	21	98	7.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
72	*Tilia americana*	Basswood	23	30	24	21	98	7.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
77	*Tilia americana*	Basswood	23	30	24	21	98	7.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
73	*Thuja occidentalis*	Eastern White Cedar	23	30	24	21	98	7.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
74	*Thuja occidentalis*	Eastern White Cedar	23	30	24	21	98	7.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
75	*Tilia americana*	Basswood	23	30	24	21	98	7.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
76	*Tilia americana*	Basswood	23	30	-	-	53	7.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
78	*Tilia americana*	Basswood	23	30	-	-	53	7.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
79	*Tilia americana*	Basswood	23	29	-	-	52	7.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
80	*Tilia americana*	Basswood	23	29	17	10	79	7.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
81	*Tilia americana*	Basswood	23	29	17	10	79	7.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
81A	*Tilia americana*	Basswood	23	29	17	10	79	7.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
82	*Tilia americana*	Basswood	23	29	17	-	69	7.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
83	*Tilia americana*	Basswood	23	29	17	-	69	7.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
84	*Tilia americana*	Basswood	23	29	-	-	52	7.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
85	*Tilia americana*	Basswood	23	29	-	-	52	7.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
86	*Tilia americana*	Basswood	23	29	-	-	52	7.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
87	*Tilia americana*	Basswood	23	29	-	-	52	7.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
88	*Tilia americana*	Basswood	23	29	-	-	52	4.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
89	*Malus sp.*	Apple sp.	23	-	-	-	23	3.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
90	*Acer negundo*	Manitoba Maple	23	-	-	-	23	3.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
91	*Thuja occidentalis*	Eastern White Cedar	34	-	-	-	34	3.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
92	*Thuja occidentalis*	Eastern White Cedar	34	-	-	-	34	3.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
93	*Acer negundo*	Manitoba Maple	34	10	7	-	51	3.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
95	*Thuja occidentalis*	Eastern White Cedar	34	21	-	-	55	3.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
94	*Thuja occidentalis*	Eastern White Cedar	34	21	-	-	55	3.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
96	*Tilia americana*	Basswood	34	21	-	-	55	3.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
97	*Prunus serotina*	Black Cherry	34	-	-	-	34	3.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
98	*Prunus serotina*	Black Cherry	45	-	-	-	45	3.0	Good	Good	Good	Good		Protect - Hoarding		N/A
101	*Thuja occidentalis*	Eastern White Cedar	21	-	-	-	21	0.0	Good	Good	Good	Good		Protect - Hoarding		N/A
102	*Thuja occidentalis*	Eastern White Cedar	21	-	-	-	21	0.0	Good	Good	Good	Good		Protect - Hoarding		N/A
103	*Thuja occidentalis*	Eastern White Cedar	10	-	-	-	10	0.0	Good	Good	Good	Good		Protect - Hoarding		N/A
104	*Thuja occidentalis*	Eastern White Cedar	10	-	-	-	10	0.0	Good	Good	Good	Good		Protect - Hoarding		N/A
105	*Malus coronaria*	Crabapple	10	-	-	-	10	0.0	Good	Good	Good	Good		Protect - Hoarding		N/A
106	*Thuja occidentalis*	Eastern White Cedar	10	-	-	-	10	0.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
107	*Acer negundo*	Manitoba Maple	10	-	-	-	10	0.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
108	*Thuja occidentalis*	Eastern White Cedar	10	-	-	-	10	0.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
109	*Thuja occidentalis*	Eastern White Cedar	10	-	-	-	10	0.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
110	*Thuja occidentalis*	Eastern White Cedar	10	-	-	-	10	0.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
111	*Tilia americana*	Basswood	27	-	-	-	27	2.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
112	*Ulmus sp.*	Elm sp.	32	-	-	-	32	4.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
113	*Thuja occidentalis*	Eastern White Cedar	17	-	-	-	17	1.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
114	*Acer negundo*	Manitoba Maple	17	-	-	-	17	1.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
115	*Acer negundo*	Manitoba Maple	15	-	-	-	15	1.0	Good	Good	Good	Good		Protect - Hoarding		N/A
116	*Acer negundo*	Manitoba Maple	14	-	-	-	14	1.0	Good	Good	Good	Good		Protect - Hoarding		N/A
117	*Tilia americana*	Basswood	14	-	-	-	14	1.0	Good	Good	Good	Good		Protect - Hoarding		N/A
118	*Tilia americana*	Basswood	14	-	-	-	14	1.0	Good	Good	Good	Good		Protect - Hoarding		N/A
118A	*Tilia americana*	Basswood	14	-	-	-	14	1.0	Good	Good	Good	Good		Protect - Hoarding		N/A
119	*Tilia americana*	Basswood	14	-	-	-	14	1.0	Good	Good	Good	Good		Protect - Hoarding		N/A
120	*Tilia americana*	Basswood	14	-	-	-	14	1.0	Good	Good	Good	Good		Protect - Hoarding		N/A
121	*Tilia americana*	Basswood	24	18	13	-	55	1.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
122	*Rhamnus cathartica*	European Buckthorn	24	18	13	-	55	1.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
123	*Acer negundo*	Manitoba Maple	10	18	-	-	28	1.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
123A	*Acer negundo*	Manitoba Maple	10	8	-	-	18	1.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
124	*Acer negundo*	Manitoba Maple	10	-	-	-	10	1.0	Dead	Dead	Dead	Dead		Remove - Dead	Hazard	N/A
124A	*Acer negundo*	Manitoba Maple	23	-	-	-	23	1.0	Dead	Dead	Dead	Dead	Covered in vines	Remove - Dead	Hazard	N/A
125	*Acer negundo*	Manitoba Maple	8	10	4	-	22	1.0	Dead	Dead	Dead	Dead		Remove - Dead	Hazard	N/A
126	*Acer negundo*	Manitoba Maple	19	27	4	-	50	3.0	Dead	Dead	Dead	Dead		Remove - Dead	Hazard	N/A
127	*Acer negundo*	Manitoba Maple	19	27	-	-	46	3.0	Dead	Dead	Dead	Dead		Protect - Hoarding		N/A
128	*Malus sp.*	Apple sp.	19	17	-	-	36	3.0	Dead	Dead	Dead	Dead		Protect - Hoarding		N/A
135	*Picea abies*	Norway Spruce	34	-	-	-	34	2.0	Good	Good	Good	Good		Protect - Hoarding		N/A
136	*Acer saccharum*	Sugar Maple	39	-	-	-	39	4.0	Good	Good	Good	Good		Protect - Hoarding		N/A
137	*Acer saccharum*	Sugar Maple	39	-	-	-	39	4.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal

TABLE A. **Detailed Tree Inventory**
2656 Concession Road 4, Clarington, Ontario
Data collected: April 22, June 2, August 11, 2025

Tree ID	Botanical Name	Common Name	DBH (cm)				Total DBH	Dripline Radius (m)	Condition				Comments	Action	Removal/Injury Justification	Permit Type
			Stem 1	Stem 2	Stem 3	Stem 4			Trunk Integrity	Crown Structure	Crown Vigour	Overall Condition				
81B	*Tilia americana*	Basswood	23	24	-	-	47	0.0	Dead	Dead	Dead	Dead	Cavity	Remove - Dead	Hazard	N/A
81C	*Acer sp.*	Maple sp.	20	-	-	-	20	0.0	Dead	Dead	Dead	Dead		Remove - Dead	Hazard	N/A
81D	*Fraxinus sp.*	Ash sp.	20	-	-	-	20	0.0	Dead	Dead	Dead	Dead		Remove - Dead	Hazard	N/A
81E	*Fraxinus sp.*	Ash sp.	16	-	-	-	16	0.0	Dead	Dead	Dead	Dead		Remove - Dead	Hazard	N/A
81F	*Fraxinus sp.*	Ash sp.	16	-	-	-	16	0.0	Dead	Dead	Dead	Dead		Remove - Dead	Hazard	N/A
81G	*Fraxinus sp.*	Ash sp.	16	-	-	-	16	0.0	Dead	Dead	Dead	Dead		Remove - Dead	Hazard	N/A
81H	*Fraxinus sp.*	Ash sp.	16	-	-	-	16	0.0	Dead	Dead	Dead	Dead		Remove - Dead	Hazard	N/A
81J	*Fraxinus sp.*	Ash sp.	16	-	-	-	16	0.0	Dead	Dead	Dead	Dead		Remove - Dead	Hazard	N/A
81K	*Fraxinus sp.*	Ash sp.	16	-	-	-	16	0.0	Dead	Dead	Dead	Dead		Remove - Dead	Hazard	N/A
81L	*Fraxinus sp.*	Ash sp.	16	-	-	-	16	0.0	Dead	Dead	Dead	Dead	Covered in vines	Remove - Dead	Hazard	N/A
81M	*Acer negundo*	Manitoba Maple	23	-	-	-	23	1.0	Dead	Dead	Dead	Dead	Failed top	Remove - Dead	Hazard	N/A
1606	*Populus tremuloides*	Trembling Aspen	23	-	-	-	23	2.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
1607	*Populus tremuloides*	Trembling Aspen	16	-	-	-	16	2.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
1608	*Populus tremuloides*	Trembling Aspen	16	-	-	-	16	1.0	Dead	Dead	Dead	Dead		Remove - Dead	Hazard	N/A
1609	*Fraxinus pennsylvanica*	Green Ash	21	-	-	-	21	1.0	Good	Fair	Fair	Fair		Remove	Within Proposed Construction	Removal
1610	*Tilia americana*	Basswood	43	48	-	-	91	4.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
1611	*Tilia americana*	Basswood	65	-	-	-	65	6.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
1612	*Tilia americana*	Basswood	16	-	-	-	16	1.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
1613	*Juglans cinerea*	Butternut	40	-	-	-	40	3.0	Fair	Fair	Poor	Poor		Remove	Within Proposed Construction	Removal
1614	*Fraxinus pennsylvanica*	Green Ash	21	-	-	-	21	1.0	Good	Fair	Fair	Dead		Remove - Dead	Hazard	N/A
1615	*Populus alba*	White Poplar	32	-	-	-	32	1.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
1616	*Juglans cinerea*	Butternut	32	22	-	-	54	3.0	Dead	Dead	Dead	Dead		Remove - Dead	Hazard	N/A
1617	*Juglans cinerea*	Butternut	36	-	-	-	36	3.0	Dead	Dead	Dead	Dead		Remove - Dead	Hazard	N/A
1618	*Acer saccharum*	Sugar Maple	65	-	-	-	65	3.0	Good	Good	Good	Good		Protect - Hoarding		N/A
1619	*Fraxinus pennsylvanica*	Green Ash	65	-	-	-	65	3.0	Dead	Dead	Dead	Dead		Protect - Hoarding		N/A
1632	*Tilia americana*	Basswood	63	-	-	-	63	1619.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
1620	*Acer saccharum*	Sugar Maple	19	-	-	-	19	1.0	Good	Good	Good	Good		Protect - Hoarding		N/A
1621	*Prunus serotina*	Black Cherry	19	-	-	-	19	1.0	Good	Good	Good	Good		Protect - Hoarding		N/A
1622	*Betula alleghaniensis*	Yellow Birch	33	-	-	-	33	3.0	Good	Good	Good	Good		Protect - Hoarding		N/A
1623	*Fraxinus pennsylvanica*	Green Ash	13	-	-	-	13	1.0	Dead	Dead	Dead	Dead		Protect - Hoarding		N/A
1624	*Betula alleghaniensis*	Yellow Birch	33	-	-	-	33	3.0	Good	Good	Good	Good		Protect - Hoarding		N/A
1625	*Fraxinus pennsylvanica*	Green Ash	13	-	-	-	13	1.0	Dead	Dead	Dead	Dead		Protect - Hoarding		N/A
1626	*Betula alleghaniensis*	Yellow Birch	19	-	-	-	19	1.0	Good	Good	Good	Good		Protect - Hoarding		N/A
1627	*Tilia americana*	Basswood	24	-	-	-	24	2.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
1628	*Populus tremuloides*	Trembling Aspen	33	-	-	-	33	2.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
1629	*Populus tremuloides*	Trembling Aspen	21	-	-	-	21	2.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
1630	*Fraxinus pennsylvanica*	Green Ash	21	-	-	-	21	2.0	Dead	Dead	Dead	Dead		Remove - Dead	Hazard	N/A
1635	*Fraxinus pennsylvanica*	Green Ash	40	-	-	-	40	0.0	Dead	Dead	Dead	Dead		Remove - Dead	Hazard	N/A
1631	*Juglans cinerea*	Butternut	32	22	-	-	54	3.0	Dead	Dead	Dead	Dead		Remove - Dead	Hazard	N/A
1636	*Fraxinus pennsylvanica*	Green Ash	21	-	-	-	21	3.0	Dead	Dead	Dead	Dead		Remove - Dead	Hazard	N/A
1637	*Fraxinus pennsylvanica*	Green Ash	21	-	-	-	21	3.0	Dead	Dead	Dead	Dead		Remove - Dead	Hazard	N/A
1641	*Fraxinus pennsylvanica*	Green Ash	21	-	-	-	21	3.0	Dead	Dead	Dead	Dead		Remove - Dead	Hazard	N/A
1701	*Acer saccharum*	Sugar Maple	52	-	-	-	52	4.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
1702	*Acer saccharum*	Sugar Maple	79	-	-	-	79	5.0	Good	Good	Good	Good		Remove	Within Proposed Construction	Removal
1703	*Acer saccharum*	Sugar Maple	40	-	-	-	40	3.0	Good	Fair	Good	Good		Remove	Within Proposed Construction	Removal
1704	*Acer saccharum*	Sugar Maple	53	-	-	-	53	3.0	Good	Good	Good	Good		Protect - Hoarding		N/A
1705	*Acer saccharum*	Sugar Maple	67	-	-	-	67	6.0	Good	Good	Good	Good		Protect - Hoarding		N/A
1706	*Acer saccharum*	Sugar Maple	46	-	-	-	46	5.0	Good	Good	Good	Good		Protect - Hoarding		N/A
1707	*Picea glauca*	White Spruce	37	-	-	-	37	3.0	Good	Good	Good	Good		Protect - Hoarding		N/A
1708	*Picea glauca*	White Spruce	43	-	-	-	43	3.0	Good	Good	Good	Good		Protect - Hoarding		N/A
1709	*Acer negundo*	Manitoba Maple	10	-	-	-	10	1.0	Good	Good	Good	Good		Protect - Hoarding		N/A
1710	*Acer negundo*	Manitoba Maple	13	-	-	-	13	1.0	Poor	Good	Good	Fair		Remove	Proposed Driveway	Removal
1712	*Rhamnus cathartica*	European Buckthorn	11	-	-	-	11	2.0	Good	Good	Good	Good		Remove	Proposed Landscaped Area	Removal
1713	*Ulmus americana*	American Elm	11	-	-	-	11	1.0	Good	Good	Good	Good		Remove	Proposed Landscaped Area	Removal
628	*Thuja occidentalis*	Eastern White Cedar	23	-	-	-	23	2.0	Good	Good	Good	Good		Protect - Hoarding		N/A
629	*Thuja occidentalis*	Eastern White Cedar	23	16	21	-	60	2.0	Good	Good	Good	Good		Protect - Hoarding		N/A
630	*Thuja occidentalis*	Eastern White Cedar	23	26	19	14	82	2.0	Good	Good	Good	Good		Protect - Hoarding		N/A
631	*Thuja occidentalis*	Eastern White Cedar	14	20	-	-	34	2.0	Good	Good	Good	Good		Protect - Hoarding		N/A
632	*Thuja occidentalis*	Eastern White Cedar	19	-	-	-	19	2.0	Good	Good	Good	Good		Protect - Hoarding		N/A

1. 'Total 'Action' Trees

Protect - Hoarding:	44
Protect - No Hoarding	0
Protect- Reduced TPZ:	0
Remove - Dead:	25
Remove - Construction:	124
Total:	**193**

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2656 Concession Road 4, Clarington, Ontario
Data collected: April 22, June 2, August 11, 2025

Tree ID	Botanical Name	Common Name	DBH (cm)				Total DBH	Dripline Radius (m)	Condition				Comments	Action	Removal/Injury Justification	Permit Type
			Stem 1	Stem 2	Stem 3	Stem 4			Trunk Integrity	Crown Structure	Crown Vigour	Overall Condition				

2. Total Trees of Significant, Pruning, Hazard

Pruning Required:	0
# of hazard trees Injured, No Permit:	**0**
# of hazard trees Removed, No Permit:	**0**

3. Total Permits Required

Tree Removal Permits:	124
Tree Injury Permits	0
Total Municipal Permits Required:	**124**

TABLE B. **General Tree Inventory**
2656 Concession Road 4, Clarington, Ontario
Data collected: April 22, June 2, August 11, 2025

Vegetation Unit 1

Quantity	Botanical Name	Common Name	DBH Range (cm)	Condition				Comments	Action	Removal/Injury Justification
				Trunk Integrity	Crown Structure	Crown Vigour	Overall Condition			
6	*Thuja occidentalis*	Eastern White Cedar	11-15	Good	Good	Good	Good		Protect - Hoarding	
4	*Thuja occidentalis*	Eastern White Cedar	11-15	Good	Good	Good	Good		Remove	Within Construction Area

Vegetation Unit 2

Quantity	Botanical Name	Common Name	DBH Range (cm)	Condition				Comments	Action	Removal/Injury Justification
				Trunk Integrity	Crown Structure	Crown Vigour	Overall Condition			
4	*Acer negundo*	Manitoba Maple	6-10	Good	Good	Good	Good		Protect - Hoarding	
8	*Rhamnus cathartica*	European Buckthorn	6-10	Good	Good	Good	Good		Protect - Hoarding	
6	*Acer negundo*	Manitoba Maple	6-10	Good	Good	Good	Good		Remove	Within Construction Area
12	*Rhamnus cathartica*	European Buckthorn	6-10	Good	Good	Good	Good		Remove	Within Construction Area

Vegetation Unit 3

Quantity	Botanical Name	Common Name	DBH Range (cm)	Condition				Comments	Action	Removal/Injury Justification
				Trunk Integrity	Crown Structure	Crown Vigour	Overall Condition			
8	*Syringa vulgaris*	Common Lilac	1-5	Good	Good	Good	Good		Protect - Hoarding	
2	*Syringa vulgaris*	Common Lilac	1-5	Good	Good	Good	Good		Remove	Within Construction Area

Vegetation Unit 4

Quantity	Botanical Name	Common Name	DBH Range (cm)	Condition				Comments	Action	Removal/Injury Justification
				Trunk Integrity	Crown Structure	Crown Vigour	Overall Condition			
20	*Thuja occidentalis*	Eastern White Cedar	11-15	Good	Good	Good	Good		Remove	Within Construction Area

Vegetation Unit 5

Quantity	Botanical Name	Common Name	DBH Range (cm)	Condition				Comments	Action	Removal/Injury Justification
				Trunk Integrity	Crown Structure	Crown Vigour	Overall Condition			
7	*Thuja occidentalis*	Eastern White Cedar	1-5	Good	Good	Good	Good		Protect - Hoarding	
3	*Thuja occidentalis*	Eastern White Cedar	1-5	Good	Good	Good	Good		Remove	Within Construction Area

TABLE B. **General Tree Inventory**
2656 Concession Road 4, Clarington, Ontario
Data collected: April 22, June 2, August 11, 2025

Vegetation Unit 6

Quantity	Botanical Name	Common Name	DBH Range (cm)	Condition				Comments	Action	Removal/Injury Justification
				Trunk Integrity	Crown Structure	Crown Vigour	Overall Condition			
30	*Rhamnus cathartica*	European Buckthorn	1-5	Good	Good	Good	Good		Remove	Within Construction Area

Vegetation Unit 7

Quantity	Botanical Name	Common Name	DBH Range (cm)	Condition				Comments	Action	Removal/Injury Justification
				Trunk Integrity	Crown Structure	Crown Vigour	Overall Condition			
25	*Rhamnus cathartica*	European Buckthorn	1-5	Good	Good	Good	Good		Remove	Within Construction Area

Vegetation Unit 8

Quantity	Botanical Name	Common Name	DBH Range (cm)	Condition				Comments	Action	Removal/Injury Justification
				Trunk Integrity	Crown Structure	Crown Vigour	Overall Condition			
10	*Syringa vulgaris*	Common Lilac	1-5	Good	Good	Good	Good		Remove	Within Construction Area

Vegetation Unit 9

Quantity	Botanical Name	Common Name	DBH Range (cm)	Condition				Comments	Action	Removal/Injury Justification
				Trunk Integrity	Crown Structure	Crown Vigour	Overall Condition			
50	*Thuja occidentalis*	Eastern White Cedar	6-9	Good	Good	Good	Good		Remove	Within Construction Area
100	*Thuja occidentalis*	Eastern White Cedar	10-15	Good	Good	Good	Good		Remove	Within Construction Area

Vegetation Unit 10

Quantity	Botanical Name	Common Name	DBH Range (cm)	Condition				Comments	Action	Removal/Injury Justification
				Trunk Integrity	Crown Structure	Crown Vigour	Overall Condition			
20	*Rhamnus cathartica*	European Buckthorn	6-9	Good	Good	Good	Good		Remove	Within Construction Area

TABLE B. **General Tree Inventory**
2656 Concession Road 4, Clarington, Ontario
Data collected: April 22, June 2, August 11, 2025

Vegetation Unit 11

Quantity	Botanical Name	Common Name	DBH Range (cm)	Condition				Comments	Action	Removal/Injury Justification
				Trunk Integrity	Crown Structure	Crown Vigour	Overall Condition			
25	*Thuja occidentalis*	Eastern White Cedar	6-9	Good	Good	Good	Good		Protect - Hoarding	
25	*Thuja occidentalis*	Eastern White Cedar	6-9	Good	Good	Good	Good		Remove	Within Construction Area

Vegetation Unit 12

Quantity	Botanical Name	Common Name	DBH Range (cm)	Condition				Comments	Action	Removal/Injury Justification
				Trunk Integrity	Crown Structure	Crown Vigour	Overall Condition			
3	*Rhamnus cathartica*	European Buckthorn	6-9	Good	Good	Good	Good		Protect - Hoarding	
22	*Rhamnus cathartica*	European Buckthorn	6-9	Good	Good	Good	Good		Remove	

1. 'Total 'Action' Trees

Protect - Hoarding:	61
Remove - Construction:	329
Total:	**390**

2. Total Trees of Significant, Pruning, Hazard

Pruning Required:	0
# of hazard trees Removed, No Permit:	**0**

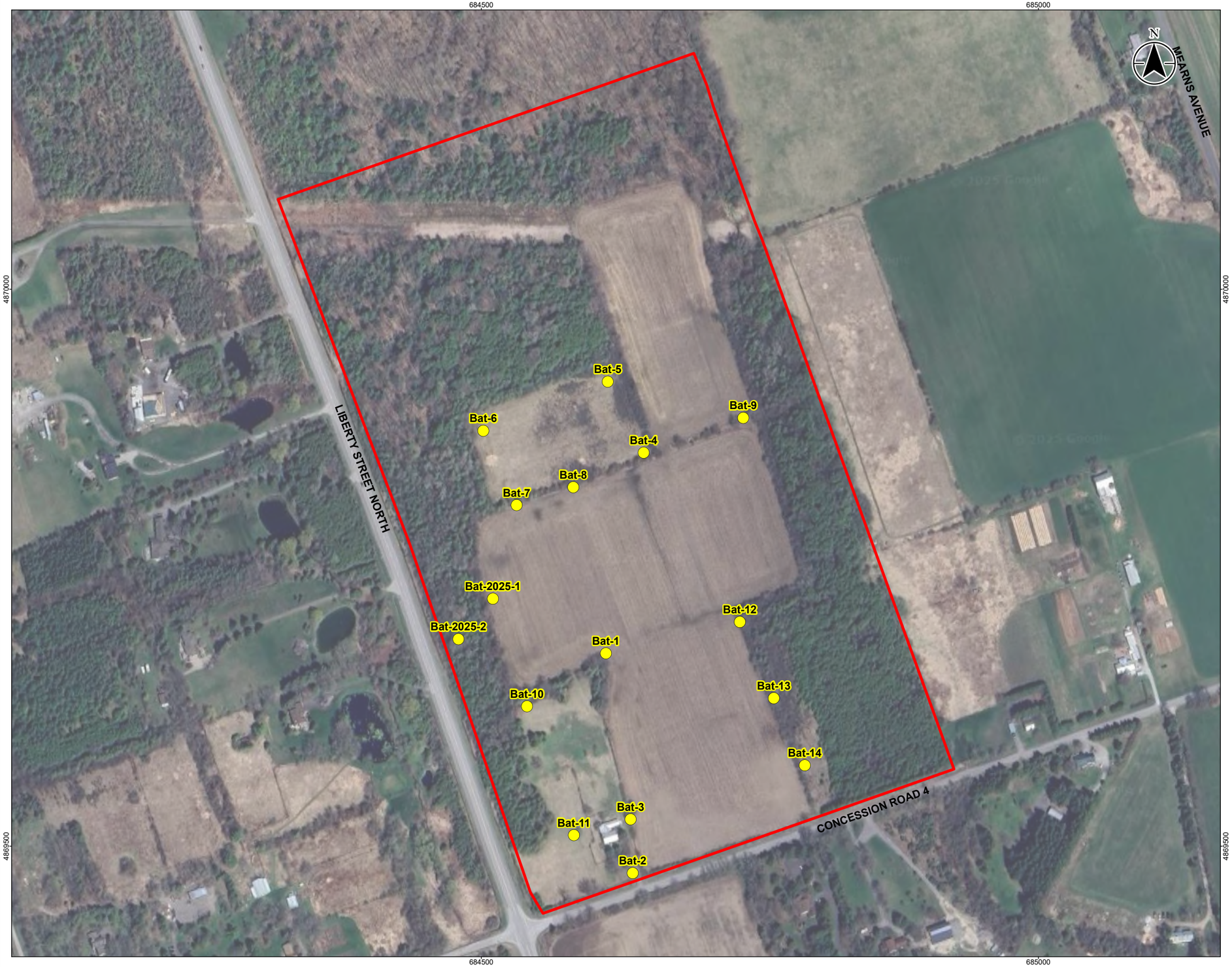
3. Total Permits Required

Tree Removal Permits:	0
Total Municipal Permits Required:	**0**

4. Total Compensation Required

Compensation Required for Trees Removed:	0
Total Compensation Required (Qty. of Trees):	**0**

Tree No.	Action	Scientific Name	Common Name	Largest Stem DBH	Dripline Radius (m)	Overall Condition	ELC Community	Nearest ARU	General Location (quadrant) on Subject Lands	ARU Data Recording Period / Results	
										5/22/2024 to 6/11/2024	6/11/2025 to 6/30/2025
3	Remove	*Malus sp.*	Apple sp.	25	2	Good	THD				
6	Remove	*Rhamnus cathartica*	European Buckthorn	10	1	Good	THD				
10	Remove	*Ulmus sp.*	Elm sp.	31	4	Good	THD				
11	Remove	*Ulmus sp.*	Elm sp.	21	2	Good	THD				
12	Remove	*Malus sp.*	Apple sp.	18	2	Good	THD			Eastern Red Bat (11)	
19	Remove	*Rhamnus cathartica*	European Buckthorn	10	2	Good	THD	Bat-14	South-East	Hoary Bat (93)	NA
20	Remove	*Malus sp.*	Apple sp.	16	2	Good	THD			Silver-haired Bat (59)	
21	Remove	*Acer negundo*	Manitoba Maple	24	4	Good	THD				
51	Remove	*Thuja occidentalis*	Eastern White Cedar	10	1	Good	N/A; Hedgerow				
52	Remove	*Thuja occidentalis*	Eastern White Cedar	10	1	Good	N/A; Hedgerow				
53	Remove	*Robinia pseudoacacia*	Black Locust	21	2	Good	N/A; Hedgerow				
22	Remove	*Acer negundo*	Manitoba Maple	19	4	Good	THD				
23	Remove	*Ulmus sp.*	Elm sp.	24	4	Good	THD				
24	Remove	*Fraxinus sp.*	Ash sp.	14	1	Good	THD				
25	Remove	*Acer negundo*	Manitoba Maple	27	5	Good	THD				
26	Remove	*Ulmus sp.*	Elm sp.	14	2	Good	THD				
27	Remove	*Thuja occidentalis*	Eastern White Cedar	14	1	Good	THD				
30	Remove	*Rhamnus cathartica*	European Buckthorn	10	1	Good	THD			Eastern Red Bat (6)	
31	Remove	*Rhamnus cathartica*	European Buckthorn	10	1	Good	THD	Bat-13	South-East	Hoary Bat (126)	NA
31A	Remove	*Malus sp.*	Apple sp.	21	2	Good	THD			Silver-haired Bat (35)	
34	Remove	*Ulmus sp.*	Elm sp.	27	4	Good	THD				
35	Remove	*Acer negundo*	Manitoba Maple	18	2	Good	THD				
36A	Remove	*Thuja occidentalis*	Eastern White Cedar	15	2	Good	THD				
37	Remove	*Thuja occidentalis*	Eastern White Cedar	15	2	Good	THD				
38	Remove	*Thuja occidentalis*	Eastern White Cedar	15	2	Good	THD				
38A	Remove	*Thuja occidentalis*	Eastern White Cedar	15	2	Good	THD				
39	Remove	*Thuja occidentalis*	Eastern White Cedar	15	2	Good	THD				
36	Remove	*Acer negundo*	Manitoba Maple	18	2	Good	THD				
40	Remove	*Thuja occidentalis*	Eastern White Cedar	15	2	Good	THD				
41	Remove	*Thuja occidentalis*	Eastern White Cedar	15	2	Good	THD				
41B	Remove	*Fraxinus sp.*	Ash sp.	23	3	Dead	THD				
41A	Remove	*Thuja occidentalis*	Eastern White Cedar	15	2	Good	THD				
42	Remove	*Ulmus sp.*	Elm sp.	24	4	Good	THD			Eastern Red Bat (9)	
43	Remove	*Ulmus sp.*	Elm sp.	24	4	Good	THD	Bat-12	South-East	Hoary Bat (78)	NA
44	Remove	*Ulmus sp.*	Elm sp.	24	2	Good	THD			Silver-haired Bat (41)	
45	Remove	*Acer negundo*	Manitoba Maple	24	4	Good	THD				
46	Remove	*Acer negundo*	Manitoba Maple	24	4	Good	THD				
47	Remove	*Acer negundo*	Manitoba Maple	24	4	Good	THD				
49	Remove	*Acer negundo*	Manitoba Maple	25	4	Good	THD				
48	Remove	*Acer negundo*	Manitoba Maple	18	4	Good	THD				
50	Remove	*Acer negundo*	Manitoba Maple	18	4	Good	THD				
137	Remove	*Acer saccharum*	Sugar Maple	39	4	Good	N/A; Hedgerow			Eastern Red Bat (80)	
1702	Remove	*Acer saccharum*	Sugar Maple	79	5	Good	N/A; Hedgerow			Hoary Bat (130)	
1703	Remove	*Acer saccharum*	Sugar Maple	40	3	Good	N/A; Hedgerow	Bat-2	South-West	Silver-haired Bat (24)	NA
1712	Remove	*Rhamnus cathartica*	European Buckthorn	11	2	Good	N/A; Hedgerow			Little Brown Myotics (2)	
1713	Remove	*Ulmus americana*	American Elm	11	1	Good	N/A; Hedgerow			Myotis Species (1)	
1701	Remove	*Acer saccharum*	Sugar Maple	52	4	Good	N/A; Hedgerow	Bat-11	South-West	Eastern Red Bat (46) Hoary Bat (203) Silver-haired Bat (62)	NA
1710	Remove	*Acer negundo*	Manitoba Maple	13	1	Fair	Isolated Tree				
58	Remove	*Acer negundo*	Manitoba Maple	11	2	Good	Isolated Tree in MEMM3				
59	Remove	*Acer negundo*	Manitoba Maple	13	2	Good	Isolated Tree in MEMM3			Eastern Red Bat (25)	
60	Remove	*Acer negundo*	Manitoba Maple	11	2	Good	Isolated Tree in MEMM3	Bat-3	South-West	Hoary Bat (184)	NA
61	Remove	*Acer negundo*	Manitoba Maple	13	1	Good	Isolated Tree in MEMM3			Silver-haired Bat (45)	
65	Remove	*Rhamnus cathartica*	European Buckthorn	13	1	Good	Isolated Tree in MEMM3			Little Brown Myotis (1)	
69	Remove	*Acer negundo*	Manitoba Maple	13	1	Good	Isolated Tree in MEMM3				
64	Remove	*Acer negundo*	Manitoba Maple	26	2	Good	Isolated Tree in MEMM3				
70	Remove	*Acer negundo*	Manitoba Maple	13	1	Good	Isolated Tree in MEMM3				
71	Remove	*Tilia americana*	Basswood	30	7	Good	N/A; Hedgerow (interface of MEMM3 and OAG)				
72	Remove	*Tilia americana*	Basswood	30	7	Good	N/A; Hedgerow				
77	Remove	*Tilia americana*	Basswood	30	7	Good	N/A; Hedgerow				
73	Remove	*Thuja occidentalis*	Eastern White Cedar	30	7	Good	N/A; Hedgerow				
74	Remove	*Thuja occidentalis*	Eastern White Cedar	30	7	Good	N/A; Hedgerow				
75	Remove	*Tilia americana*	Basswood	30	7	Good	N/A; Hedgerow				
76	Remove	*Tilia americana*	Basswood	30	7	Good	N/A; Hedgerow				
78	Remove	*Tilia americana*	Basswood	30	7	Good	N/A; Hedgerow				
79	Remove	*Tilia americana*	Basswood	29	7	Good	N/A; Hedgerow				
80	Remove	*Tilia americana*	Basswood	29	7	Good	N/A; Hedgerow				
81	Remove	*Tilia americana*	Basswood	29	7	Good	N/A; Hedgerow				
81A	Remove	*Tilia americana*	Basswood	29	7	Good	N/A; Hedgerow				
81B	Remove - Dead	*Tilia americana*	Basswood	24	0	Dead	N/A; Hedgerow				
81C	Remove - Dead	*Acer sp.*	Maple sp.	20	0	Dead	N/A; Hedgerow			Eastern Red Bat (76)	
81G	Remove - Dead	*Fraxinus sp.*	Ash sp.	16	0	Dead	N/A; Hedgerow	Bat-1	South-West	Hoary Bat (177)	NA
81H	Remove - Dead	*Fraxinus sp.*	Ash sp.	16	0	Dead	N/A; Hedgerow			Silver-haired Bat (36)	
81J	Remove - Dead	*Fraxinus sp.*	Ash sp.	16	0	Dead	N/A; Hedgerow			Little Brown Myotis (2)	
81K	Remove - Dead	*Fraxinus sp.*	Ash sp.	16	0	Dead	N/A; Hedgerow				
82	Remove	*Tilia americana*	Basswood	29	7	Good	N/A; Hedgerow				
83	Remove	*Tilia americana*	Basswood	29	7	Good	N/A; Hedgerow				
84	Remove	*Tilia americana*	Basswood	29	7	Good	N/A; Hedgerow				
85	Remove	*Tilia americana*	Basswood	29	7	Good	N/A; Hedgerow				
86	Remove	*Tilia americana*	Basswood	29	7	Good	N/A; Hedgerow				
87	Remove	*Tilia americana*	Basswood	29	7	Good	N/A; Hedgerow				
88	Remove	*Tilia americana*	Basswood	29	4	Good	N/A; Hedgerow				
89	Remove	*Malus sp.*	Apple sp.	23	3	Good	N/A; Hedgerow				
90	Remove	*Acer negundo*	Manitoba Maple	23	3	Good	N/A; Hedgerow				
91	Remove	*Thuja occidentalis*	Eastern White Cedar	34	3	Good	N/A; Hedgerow				
92	Remove	*Thuja occidentalis*	Eastern White Cedar	34	3	Good	N/A; Hedgerow				
93	Remove	*Acer negundo*	Manitoba Maple	34	3	Good	N/A; Hedgerow				
95	Remove	*Thuja occidentalis*	Eastern White Cedar	34	3	Good	N/A; Hedgerow				
94	Remove	*Thuja occidentalis*	Eastern White Cedar	34	3	Good	N/A; Hedgerow				
96	Remove	*Tilia americana*	Basswood	34	3	Good	N/A; Hedgerow			Eastern Red Bat (96)	
97	Remove	*Prunus serotina*	Black Cherry	34	3	Good	N/A; Hedgerow			Hoary Bat (205)	
81D	Remove - Dead	*Fraxinus sp.*	Ash sp.	20	0	Dead	N/A; Hedgerow	Bat-10	South-West	Silver-haired Bat (50)	NA
81F	Remove - Dead	*Fraxinus sp.*	Ash sp.	16	0	Dead	N/A; Hedgerow			Little Brown Myotis (2)	
81E	Remove - Dead	*Fraxinus sp.*	Ash sp.	16	0	Dead	N/A; Hedgerow				
1606	Remove	*Populus tremuloides*	Trembling Aspen	23	2	Good	FODM7-2/FODM8				
1607	Remove	*Populus tremuloides*	Trembling Aspen	16	2	Good	FODM7-2/FODM8				
1608	Remove - Dead	*Populus tremuloides*	Trembling Aspen	16	1	Dead	FODM7-2/FODM8				
1609	Remove	*Fraxinus pennsylvanica*	Green Ash	21	1	Fair	FODM7-2/FODM8				
1610	Remove	*Tilia americana*	Basswood	48	4	Good	FODM7-2/FODM8				
1611	Remove	*Tilia americana*	Basswood	65	6	Good	FODM7-2/FODM8				
1612	Remove	*Tilia americana*	Basswood	16	1	Good	FODM7-2/FODM8				
1613	Remove	*Juglans cinerea*	Butternut	40	3	Poor	FODM7-2/FODM8				
1614	Remove - Dead	*Fraxinus pennsylvanica*	Green Ash	21	1	Dead	FODM7-2/FODM8				
1615	Remove	*Populus alba*	White Poplar	32	1	Good	FODM7-2/FODM8				
1616	Remove - Dead	*Juglans cinerea*	Butternut	32	3	Dead	FODM7-2/FODM8				
1617	Remove - Dead	*Juglans cinerea*	Butternut	36	3	Dead	FODM7-2/FODM8	Bat-2025-1/Bat-2025-2	Central-West	NA	Bat-2025-1: Eastern Red Bat (290) Hoary Bat (519) Silver-haired Bat (110) Eastern Red Bat or Tricolored Bat (3) Bat-2025-2: Eastern Red Bat (2) Hoary Bat (57) Silver-haired Bat (27)
1632	Remove	*Tilia americana*	Basswood	63	1619	Good	FODM7-2/FODM8				
1627	Remove	*Tilia americana*	Basswood	24	2	Good	FODM7-2/FODM8				
1628	Remove	*Populus tremuloides*	Trembling Aspen	33	2	Good	FODM7-2/FODM8				
1629	Remove	*Populus tremuloides*	Trembling Aspen	21	2	Good	FODM7-2/FODM8				
1630	Remove - Dead	*Fraxinus pennsylvanica*	Green Ash	21	2	Dead	FODM7-2/FODM8				
1635	Remove - Dead	*Fraxinus pennsylvanica*	Green Ash	40	0	Dead	FODM7-2/FODM8				
1631	Remove - Dead	*Juglans cinerea*	Butternut	32	3	Dead	FODM7-2/FODM8				
1636	Remove - Dead	*Fraxinus pennsylvanica*	Green Ash	21	3	Dead	FODM7-2/FODM8				
1637	Remove - Dead	*Fraxinus pennsylvanica*	Green Ash	21	3	Dead	FODM7-2/FODM8				
1641	Remove - Dead	*Fraxinus pennsylvanica*	Green Ash	21	3	Dead	FODM7-2/FODM8				
106	Remove	*Thuja occidentalis*	Eastern White Cedar	10	0	Good	N/A; Hedgerow			Eastern Red Bat (86)	
107	Remove	*Acer negundo*	Manitoba Maple	10	0	Good	N/A; Hedgerow			Hoary Bat (225)	
108	Remove	*Thuja occidentalis*	Eastern White Cedar	10	0	Good	N/A; Hedgerow	Bat-7	Central-West	Silver-haired Bat (48)	NA
109	Remove	*Thuja occidentalis*	Eastern White Cedar	10	0	Good	N/A; Hedgerow			Little Brown Myotis (1)	
110	Remove	*Thuja occidentalis*	Eastern White Cedar	10	0	Good	N/A; Hedgerow			Myotis Species (1)	
111	Remove	*Tilia americana*	Basswood	27	2	Good	N/A; Hedgerow				
112	Remove	*Ulmus sp.*	Elm sp.	32	4	Good	N/A; Hedgerow	Bat-8	Central	Eastern Red Bat (58) Hoary Bat (75) Silver-haired Bat (57)	NA
113	Remove	*Thuja occidentalis*	Eastern White Cedar	17	1	Good	N/A; Hedgerow				
114	Remove	*Acer negundo*	Manitoba Maple	17	1	Good	N/A; Hedgerow			Eastern Red Bat (24)	
121	Remove	*Tilia americana*	Basswood	24	1	Good	N/A; Hedgerow	Bat-4	Central	Hoary Bat (135)	NA
122	Remove	*Rhamnus cathartica*	European Buckthorn	24	1	Good	N/A; Hedgerow			Silver-haired Bat (40)	
81L	Remove - Dead	*Fraxinus sp.*	Ash sp.	16	0	Dead	N/A; Hedgerow			Little Brown Myotis (1)	
81M	Remove - Dead	*Acer negundo*	Manitoba Maple	23	1	Dead	N/A; Hedgerow				
123	Remove	*Acer negundo*	Manitoba Maple	18	1	Good	N/A; Hedgerow				
123A	Remove	*Acer negundo*	Manitoba Maple	10	1	Good	N/A; Hedgerow			Eastern Red Bat (34)	
124	Remove - Dead	*Acer negundo*	Manitoba Maple	10	1	Dead	N/A; Hedgerow	Bat-9	Central-East	Hoary Bat (74)	NA
124A	Remove - Dead	*Acer negundo*	Manitoba Maple	23	1	Dead	N/A; Hedgerow			Silver-haired Bat (77)	
125	Remove - Dead	*Acer negundo*	Manitoba Maple	10	1	Dead	N/A; Hedgerow				
126	Remove - Dead	*Acer negundo*	Manitoba Maple	27	3	Dead	N/A; Hedgerow				



Stantec

Legend

- Subject Lands
- Bat Monitoring Station

0 100 200 m

1:3,500 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Contains information licensed under the Open Government Licence – Ontario, and the Open Government Licence - Canada, accessed 2025.
3. Orthoimagery provided by Google. Date of imagery, unknown.

Project Location
Municipality of Clarington

160951460 REV1
Prepared by awhite on 2025-09-26
Technical Review by AW on 2025-04-23

Client/Project
MUNICIPALITY OF CLARINGTON
2656 CONCESSION ROAD 4

Figure No.
1

Title
Bat Monitoring Stations

Tree No.	Action	Scientific Name	Common Name	Largest Stem DBH	Dripline Radius (m)	Overall Condition	ELC Community	Nearest ARU	General Location (quadrant) on Subject Lands	ARU Data Recording Period / Results	
										5/22/2024 to 6/11/2024	6/11/2025 to 6/30/2025
3	Remove	*Malus sp.*	Apple sp.	25	2	Good	THD				
6	Remove	*Rhamnus cathartica*	European Buckthorn	10	1	Good	THD				
10	Remove	*Ulmus sp.*	Elm sp.	31	4	Good	THD				
11	Remove	*Ulmus sp.*	Elm sp.	21	2	Good	THD				
12	Remove	*Malus sp.*	Apple sp.	18	2	Good	THD			Eastern Red Bat (11)	
19	Remove	*Rhamnus cathartica*	European Buckthorn	10	2	Good	THD	Bat-14	South-East	Hoary Bat (93)	NA
20	Remove	*Malus sp.*	Apple sp.	16	2	Good	THD			Silver-haired Bat (59)	
21	Remove	*Acer negundo*	Manitoba Maple	24	4	Good	THD				
51	Remove	*Thuja occidentalis*	Eastern White Cedar	10	1	Good	N/A; Hedgerow				
52	Remove	*Thuja occidentalis*	Eastern White Cedar	10	1	Good	N/A; Hedgerow				
53	Remove	*Robinia pseudoacacia*	Black Locust	21	2	Good	N/A; Hedgerow				
22	Remove	*Acer negundo*	Manitoba Maple	19	4	Good	THD				
23	Remove	*Ulmus sp.*	Elm sp.	24	4	Good	THD				
24	Remove	*Fraxinus sp.*	Ash sp.	14	1	Good	THD				
25	Remove	*Acer negundo*	Manitoba Maple	27	5	Good	THD				
26	Remove	*Ulmus sp.*	Elm sp.	14	2	Good	THD				
27	Remove	*Thuja occidentalis*	Eastern White Cedar	14	1	Good	THD				
30	Remove	*Rhamnus cathartica*	European Buckthorn	10	1	Good	THD			Eastern Red Bat (6)	
31	Remove	*Rhamnus cathartica*	European Buckthorn	10	1	Good	THD	Bat-13	South-East	Hoary Bat (126)	NA
31A	Remove	*Malus sp.*	Apple sp.	21	2	Good	THD			Silver-haired Bat (35)	
34	Remove	*Ulmus sp.*	Elm sp.	27	4	Good	THD				
35	Remove	*Acer negundo*	Manitoba Maple	18	2	Good	THD				
36A	Remove	*Thuja occidentalis*	Eastern White Cedar	15	2	Good	THD				
37	Remove	*Thuja occidentalis*	Eastern White Cedar	15	2	Good	THD				
38	Remove	*Thuja occidentalis*	Eastern White Cedar	15	2	Good	THD				
38A	Remove	*Thuja occidentalis*	Eastern White Cedar	15	2	Good	THD				
39	Remove	*Thuja occidentalis*	Eastern White Cedar	15	2	Good	THD				
36	Remove	*Acer negundo*	Manitoba Maple	18	2	Good	THD				
40	Remove	*Thuja occidentalis*	Eastern White Cedar	15	2	Good	THD				
41	Remove	*Thuja occidentalis*	Eastern White Cedar	15	2	Good	THD				
41B	Remove	*Fraxinus sp.*	Ash sp.	23	3	Dead	THD				
41A	Remove	*Thuja occidentalis*	Eastern White Cedar	15	2	Good	THD				
42	Remove	*Ulmus sp.*	Elm sp.	24	4	Good	THD			Eastern Red Bat (9)	
43	Remove	*Ulmus sp.*	Elm sp.	24	4	Good	THD	Bat-12	South-East	Hoary Bat (78)	NA
44	Remove	*Ulmus sp.*	Elm sp.	24	2	Good	THD			Silver-haired Bat (41)	
45	Remove	*Acer negundo*	Manitoba Maple	24	4	Good	THD				
46	Remove	*Acer negundo*	Manitoba Maple	24	4	Good	THD				
47	Remove	*Acer negundo*	Manitoba Maple	24	4	Good	THD				
49	Remove	*Acer negundo*	Manitoba Maple	25	4	Good	THD				
48	Remove	*Acer negundo*	Manitoba Maple	18	4	Good	THD				
50	Remove	*Acer negundo*	Manitoba Maple	18	4	Good	THD				
137	Remove	*Acer saccharum*	Sugar Maple	39	4	Good	N/A; Hedgerow			Eastern Red Bat (80)	
1702	Remove	*Acer saccharum*	Sugar Maple	79	5	Good	N/A; Hedgerow			Hoary Bat (130)	
1703	Remove	*Acer saccharum*	Sugar Maple	40	3	Good	N/A; Hedgerow	Bat-2	South-West	Silver-haired Bat (24)	NA
1712	Remove	*Rhamnus cathartica*	European Buckthorn	11	2	Good	N/A; Hedgerow			Little Brown Myotics (2)	
1713	Remove	*Ulmus americana*	American Elm	11	1	Good	N/A; Hedgerow			Myotis Species (1)	
1701	Remove	*Acer saccharum*	Sugar Maple	52	4	Good	N/A; Hedgerow	Bat-11	South-West	Eastern Red Bat (46) Hoary Bat (203) Silver-haired Bat (62)	NA
1710	Remove	*Acer negundo*	Manitoba Maple	13	1	Fair	Isolated Tree				
58	Remove	*Acer negundo*	Manitoba Maple	11	2	Good	Isolated Tree in MEMM3				
59	Remove	*Acer negundo*	Manitoba Maple	13	2	Good	Isolated Tree in MEMM3			Eastern Red Bat (25)	
60	Remove	*Acer negundo*	Manitoba Maple	11	2	Good	Isolated Tree in MEMM3	Bat-3	South-West	Hoary Bat (184)	NA
61	Remove	*Acer negundo*	Manitoba Maple	13	1	Good	Isolated Tree in MEMM3			Silver-haired Bat (45)	
65	Remove	*Rhamnus cathartica*	European Buckthorn	13	1	Good	Isolated Tree in MEMM3			Little Brown Myotis (1)	
69	Remove	*Acer negundo*	Manitoba Maple	13	1	Good	Isolated Tree in MEMM3				
64	Remove	*Acer negundo*	Manitoba Maple	26	2	Good	Isolated Tree in MEMM3				
70	Remove	*Acer negundo*	Manitoba Maple	13	1	Good	Isolated Tree in MEMM3				
71	Remove	*Tilia americana*	Basswood	30	7	Good	N/A; Hedgerow (interface of MEMM3 and OAG)				
72	Remove	*Tilia americana*	Basswood	30	7	Good	N/A; Hedgerow				
77	Remove	*Tilia americana*	Basswood	30	7	Good	N/A; Hedgerow				
73	Remove	*Thuja occidentalis*	Eastern White Cedar	30	7	Good	N/A; Hedgerow				
74	Remove	*Thuja occidentalis*	Eastern White Cedar	30	7	Good	N/A; Hedgerow				
75	Remove	*Tilia americana*	Basswood	30	7	Good	N/A; Hedgerow				
76	Remove	*Tilia americana*	Basswood	30	7	Good	N/A; Hedgerow				
78	Remove	*Tilia americana*	Basswood	30	7	Good	N/A; Hedgerow				
79	Remove	*Tilia americana*	Basswood	29	7	Good	N/A; Hedgerow				
80	Remove	*Tilia americana*	Basswood	29	7	Good	N/A; Hedgerow				
81	Remove	*Tilia americana*	Basswood	29	7	Good	N/A; Hedgerow				
81A	Remove	*Tilia americana*	Basswood	29	7	Good	N/A; Hedgerow				
81B	Remove - Dead	*Tilia americana*	Basswood	24	0	Dead	N/A; Hedgerow				
81C	Remove - Dead	*Acer sp.*	Maple sp.	20	0	Dead	N/A; Hedgerow			Eastern Red Bat (76)	
81G	Remove - Dead	*Fraxinus sp.*	Ash sp.	16	0	Dead	N/A; Hedgerow	Bat-1	South-West	Hoary Bat (177)	NA
81H	Remove - Dead	*Fraxinus sp.*	Ash sp.	16	0	Dead	N/A; Hedgerow			Silver-haired Bat (36)	
81J	Remove - Dead	*Fraxinus sp.*	Ash sp.	16	0	Dead	N/A; Hedgerow			Little Brown Myotis (2)	
81K	Remove - Dead	*Fraxinus sp.*	Ash sp.	16	0	Dead	N/A; Hedgerow				
82	Remove	*Tilia americana*	Basswood	29	7	Good	N/A; Hedgerow				
83	Remove	*Tilia americana*	Basswood	29	7	Good	N/A; Hedgerow				
84	Remove	*Tilia americana*	Basswood	29	7	Good	N/A; Hedgerow				
85	Remove	*Tilia americana*	Basswood	29	7	Good	N/A; Hedgerow				
86	Remove	*Tilia americana*	Basswood	29	7	Good	N/A; Hedgerow				
87	Remove	*Tilia americana*	Basswood	29	7	Good	N/A; Hedgerow				
88	Remove	*Tilia americana*	Basswood	29	4	Good	N/A; Hedgerow				
89	Remove	*Malus sp.*	Apple sp.	23	3	Good	N/A; Hedgerow				
90	Remove	*Acer negundo*	Manitoba Maple	23	3	Good	N/A; Hedgerow				
91	Remove	*Thuja occidentalis*	Eastern White Cedar	34	3	Good	N/A; Hedgerow				
92	Remove	*Thuja occidentalis*	Eastern White Cedar	34	3	Good	N/A; Hedgerow				
93	Remove	*Acer negundo*	Manitoba Maple	34	3	Good	N/A; Hedgerow				
95	Remove	*Thuja occidentalis*	Eastern White Cedar	34	3	Good	N/A; Hedgerow				
94	Remove	*Thuja occidentalis*	Eastern White Cedar	34	3	Good	N/A; Hedgerow				
96	Remove	*Tilia americana*	Basswood	34	3	Good	N/A; Hedgerow				
97	Remove	*Prunus serotina*	Black Cherry	34	3	Good	N/A; Hedgerow			Eastern Red Bat (96)	
81D	Remove - Dead	*Fraxinus sp.*	Ash sp.	20	0	Dead	N/A; Hedgerow	Bat-10	South-West	Hoary Bat (205)	NA
81F	Remove - Dead	*Fraxinus sp.*	Ash sp.	16	0	Dead	N/A; Hedgerow			Silver-haired Bat (50)	
81E	Remove - Dead	*Fraxinus sp.*	Ash sp.	16	0	Dead	N/A; Hedgerow			Little Brown Myotis (2)	
1606	Remove	*Populus tremuloides*	Trembling Aspen	23	2	Good	FODM7-2/FODM8				
1607	Remove	*Populus tremuloides*	Trembling Aspen	16	2	Good	FODM7-2/FODM8				
1608	Remove - Dead	*Populus tremuloides*	Trembling Aspen	16	1	Dead	FODM7-2/FODM8				
1609	Remove	*Fraxinus pennsylvanica*	Green Ash	21	1	Fair	FODM7-2/FODM8				
1610	Remove	*Tilia americana*	Basswood	48	4	Good	FODM7-2/FODM8				
1611	Remove	*Tilia americana*	Basswood	65	6	Good	FODM7-2/FODM8				
1612	Remove	*Tilia americana*	Basswood	16	1	Good	FODM7-2/FODM8				
1613	Remove	*Juglans cinerea*	Butternut	40	3	Poor	FODM7-2/FODM8				
1614	Remove - Dead	*Fraxinus pennsylvanica*	Green Ash	21	1	Dead	FODM7-2/FODM8				
1615	Remove	*Populus alba*	White Poplar	32	1	Good	FODM7-2/FODM8				
1616	Remove - Dead	*Juglans cinerea*	Butternut	32	3	Dead	FODM7-2/FODM8	Bat-2025-1/Bat-2025-2	Central-West	NA	Bat-2025-1: Eastern Red Bat (290) Hoary Bat (519) Silver-haired Bat (110) Eastern Red Bat or Tricolored Bat (3) Bat-2025-2: Eastern Red Bat (2) Hoary Bat (57) Silver-haired Bat (27)
1617	Remove - Dead	*Juglans cinerea*	Butternut	36	3	Dead	FODM7-2/FODM8				
1632	Remove	*Tilia americana*	Basswood	63	1619	Good	FODM7-2/FODM8				
1627	Remove	*Tilia americana*	Basswood	24	2	Good	FODM7-2/FODM8				
1628	Remove	*Populus tremuloides*	Trembling Aspen	33	2	Good	FODM7-2/FODM8				
1629	Remove	*Populus tremuloides*	Trembling Aspen	21	2	Good	FODM7-2/FODM8				
1630	Remove - Dead	*Fraxinus pennsylvanica*	Green Ash	21	2	Dead	FODM7-2/FODM8				
1635	Remove - Dead	*Fraxinus pennsylvanica*	Green Ash	40	0	Dead	FODM7-2/FODM8				
1631	Remove - Dead	*Juglans cinerea*	Butternut	32	3	Dead	FODM7-2/FODM8				
1636	Remove - Dead	*Fraxinus pennsylvanica*	Green Ash	21	3	Dead	FODM7-2/FODM8				
1637	Remove - Dead	*Fraxinus pennsylvanica*	Green Ash	21	3	Dead	FODM7-2/FODM8				
1641	Remove - Dead	*Fraxinus pennsylvanica*	Green Ash	21	3	Dead	FODM7-2/FODM8				
106	Remove	*Thuja occidentalis*	Eastern White Cedar	10	0	Good	N/A; Hedgerow				
107	Remove	*Acer negundo*	Manitoba Maple	10	0	Good	N/A; Hedgerow			Eastern Red Bat (86)	
108	Remove	*Thuja occidentalis*	Eastern White Cedar	10	0	Good	N/A; Hedgerow	Bat-7	Central-West	Hoary Bat (225)	
109	Remove	*Thuja occidentalis*	Eastern White Cedar	10	0	Good	N/A; Hedgerow			Silver-haired Bat (48)	NA
110	Remove	*Thuja occidentalis*	Eastern White Cedar	10	0	Good	N/A; Hedgerow			Little Brown Myotis (1)	
111	Remove	*Tilia americana*	Basswood	27	2	Good	N/A; Hedgerow			Myotis Species (1)	
112	Remove	*Ulmus sp.*	Elm sp.	32	4	Good	N/A; Hedgerow	Bat-8	Central	Eastern Red Bat (58) Hoary Bat (75) Silver-haired Bat (57)	NA
113	Remove	*Thuja occidentalis*	Eastern White Cedar	17	1	Good	N/A; Hedgerow				
114	Remove	*Acer negundo*	Manitoba Maple	17	1	Good	N/A; Hedgerow			Eastern Red Bat (24)	
121	Remove	*Tilia americana*	Basswood	24	1	Good	N/A; Hedgerow	Bat-4	Central	Hoary Bat (135)	NA
122	Remove	*Rhamnus cathartica*	European Buckthorn	24	1	Good	N/A; Hedgerow			Silver-haired Bat (40)	
81L	Remove - Dead	*Fraxinus sp.*	Ash sp.	16	0	Dead	N/A; Hedgerow			Little Brown Myotis (1)	
81M	Remove - Dead	*Acer negundo*	Manitoba Maple	23	1	Dead	N/A; Hedgerow				
123	Remove	*Acer negundo*	Manitoba Maple	18	1	Good	N/A; Hedgerow				
123A	Remove	*Acer negundo*	Manitoba Maple	10	1	Good	N/A; Hedgerow			Eastern Red Bat (34)	
124	Remove - Dead	*Acer negundo*	Manitoba Maple	10	1	Dead	N/A; Hedgerow	Bat-9	Central-East	Hoary Bat (74)	NA
124A	Remove - Dead	*Acer negundo*	Manitoba Maple	23	1	Dead	N/A; Hedgerow			Silver-haired Bat (77)	
125	Remove - Dead	*Acer negundo*	Manitoba Maple	10	1	Dead	N/A; Hedgerow				
126	Remove - Dead	*Acer negundo*	Manitoba Maple	27	3	Dead	N/A; Hedgerow				

Cymbaly, Lauren

From: Species at Risk (MECP) <SAROntario@ontario.ca>
Sent: Wednesday, October 1, 2025 11:07 AM
To: Cymbaly, Lauren
Cc: Spisani, Sean; Randall, Jennifer; 'ofizeeli@clarington.net'
Subject: RE: Information Gathering Form -SAR Bats, 2656 Concession Road 4 (CODEFS) Expedited Project Timeline
Attachments: Applying for a New Permit Under the Amended Endangered Species Act, 2007.pdf; Information Gathering Form (IGF) Guidance Under the Amended Endangered Species Act, 2007.pdf; C-Permit Application Form (CPAF) Guidance Under the Amended Endangered Species Act, 2007.pdf

Hi Lauren,

Thank you for submitting your Information Gathering Form (IGF) to the Ministry of the Environment, Conservation and Parks (MECP) Species at Risk Branch.

This email provides confirmation that we have received your IGF submission on September 29, 2025. Your submission is in queue for a Species at Risk Branch team member to review and they will reach out to you directly with comments.

Please note that the *Protect Ontario by Unleashing our Economy Act, 2025* (Bill 5) received Royal Assent on June 5, 2025, and as a result, the ESA has been immediately amended and will be in effect until such time as the *Species Conservation Act, 2025* (SCA) is proclaimed into force at a future date. For more information on the amended ESA and guidance to help you determine next steps in the authorization process, please review the attached *Applying for a New Permit Under the Amended Endangered Species Act, 2007*. These changes are intended to streamline permit applications and approvals and help projects proceed faster while continuing to provide important protections for species at risk and their habitats.

The documents listed below are attached for your information and outline the recent amendments to the ESA, guidance to help you determine next steps in the authorization process, and guidance on applying for a permit under the amended ESA. We encourage you to review these documents to understand how the changes may impact your submission.

- *Applying for a New Permit Under the Amended Endangered Species Act, 2007*
- *Information Gathering Form (IGF) Guidance Under the Amended Endangered Species Act, 2007*
- *C-Permit Application Form (CPAF) Guidance Under the Amended Endangered Species Act, 2007*

If you have questions regarding the implementation of protections under the amended ESA, need clarity on applying the amended legislation, or have questions about submitting a permit application, please contact SAROntario@ontario.ca.

Please note that it may take a few weeks to receive a response, as the Species at Risk Branch is experiencing a high volume of requests. Thank you for informing us of your project's critical date, this information will help us to understand the urgency and prioritize your request accordingly.

Thank you,

Species at Risk Branch | Direction des espèces en peril

Ministry of the Environment, Conservation and Parks | Ministère de l'Environnement, de la Protection de la nature et des Parc
SAROntario@ontario.ca

Ontario

From: Cymbaly, Lauren <Lauren.Cymbaly@stantec.com>
Sent: September 29, 2025 2:13 PM
To: Enhanced Service Activation (ESA) (MPBSDP) <ESA@ontario.ca>; Species at Risk (MECP) <SAROntario@ontario.ca>
Cc: Spisani, Sean <Sean.Spisani@stantec.com>
Subject: Information Gathering Form -SAR Bats, 2656 Concession Road 4 (CODEFS) Expedited Project Timeline
Importance: High

Hi,

I have just received a bounce back to the email from esa.aurora@ontario.ca. Please see below and let me know if there is another email address other than esa@ontario.ca I should be sending this to.

Thanks in advance,

Kind Regards,

Lauren Cymbaly, M.E.S.
Associate, Senior Ecologist / Project Manager
Stantec
100 – 401 Wellington Street West, Toronto ON M5V 1E7
Phone: (416) 786-1302
Fax: (416) 596-6680
Lauren.Cymbaly@stantec.com

From: Cymbaly, Lauren
Sent: Monday, September 29, 2025 1:52 PM
To: esa.aurora@ontario.ca; Species at Risk (MECP) <sarontario@ontario.ca>
Cc: Spisani, Sean <Sean.Spisani@stantec.com>; Randall, Jennifer <Jennifer.Randall@stantec.com>; Fizeeli, Obaed <ofizeeli@clarington.net>
Subject: Information Gathering Form -SAR Bats, 2656 Concession Road 4 (CODEFS) Expedited Project Timeline
Importance: High

Good afternoon,

Please see attached IGF to support the development of the Clarington Operations Depot, Emergency Fire Station, and Training Facility project (CODEFS). The attachments are also in the IGF but I recognize occasionally there can be glitches, so I've attached them separately to the email as well.

As below, we're hoping for an expedited review / permit issuance.

If you have any questions concerning the technical elements of the form or the project at large, please don't hesitate to contact us any time.

Kind Regards,

Lauren Cymbaly, M.E.S.
Associate, Senior Ecologist / Project Manager
Stantec
100 – 401 Wellington Street West, Toronto ON M5V 1E7
Phone: (416) 786-1302
Fax: (416) 596-6680
Lauren.Cymbaly@stantec.com

From: Fizeeli, Obaed <OFizeeli@clarington.net>
Sent: Tuesday, September 16, 2025 1:44 PM
To: Cymbaly, Lauren <Lauren.Cymbaly@stantec.com>
Cc: Esseghaier, Kaela <KEsseghaier@clarington.net>; Chanthirakumar, Shyam <SChanthirakumar@clarington.net>; Cowan, Randy <rcowan@clarington.net>
Subject: CODEFS - Expedited Project Timeline
Importance: High

Good Afternoon, Lauren,

As discussed, the Municipality of Clarington is working on an expedited timeline to start construction activities for the Clarington Operations Depot, Emergency Fire Station, and Training Facility project (CODEFS) to meet the requirements of the grant we have received by the Province through the Skills Development Fund. We have received this grant with a specific disbursement period that requires meeting the grant's terms, conditions, and timeline. As such, we have a firm committed date of November 1st to commence construction as part of this agreement. The terms of this agreement stipulate that construction includes tree clearing activities. In order to provide much needed training facilities for Clarington and the Region of Durham we hope to expedite permit approvals and commence tree clearing activities prior to November 1st.

Best regards,

Obaed Fizeeli, M.Eng., P.Eng.
Project Manager
Planning and Infrastructure Services
Municipality of Clarington

40 Temperance Street, Bowmanville ON L1C 3A6
905-623-3379 ext. 2452 | 1-800-563-1195
www.clarington.net

Caution: This email originated from outside of Stantec. Please take extra precaution.

Attention: Ce courriel provient de l'extérieur de Stantec. Veuillez prendre des précautions supplémentaires.

Atención: Este correo electrónico proviene de fuera de Stantec. Por favor, tome precauciones adicionales.

Cymbaly, Lauren

From: Cymbaly, Lauren
Sent: Tuesday, July 15, 2025 4:39 PM
To: Species at Risk (MECP)
Subject: RE: BHA Submissions - 2656 Concession Road 4, Bowmanville, Ontario

Thank you SARO team. In this case, we are not requesting Ministry examination of the trees.

Thank you for confirming receipt of the assessments and for further instruction on future submissions. I will relay the information to our Stantec BHEs and ecology staff.

I hope you're enjoying your summer.

Best regards,
Lauren

Lauren Cymbaly, M.E.S.
Associate, Senior Ecologist / Project Manager
Stantec
100 – 401 Wellington Street West, Toronto ON M5V 1E7
Phone: (416) 786-1302
Fax: (416) 596-6680
Lauren.Cymbaly@stantec.com

From: Species at Risk (MECP) <SAROntario@ontario.ca>
Sent: Tuesday, July 15, 2025 4:30 PM
To: Cymbaly, Lauren <Lauren.Cymbaly@stantec.com>
Subject: RE: BHA Submissions - 2656 Concession Road 4, Bowmanville, Ontario

Good afternoon Lauren,

Thank you for submitting your completed Butternut Health Assessments (BHA) to the Species at Risk Branch of the Ministry of the Environment, Conservation and Parks (MECP).

Please use this email as receipt of your approved submission, dated **July 9, 2025.**

If you intend to rely on *Part 5 of the Ontario Regulation 830/21* for the 4 trees identified in the BHA, then you are eligible to do so **30-days** following the date that the BHA was submitted to the Species at Risk Branch.

In future, for the field marked "Butternut Health Expert's Report Number" in the Data Collection Form, please complete the field with the first 3 letters of the assessor's last name, followed by the 3 digits of their successive reports. In this case, it would be *HEA100*, as you have correctly identified in the Report Template.

Please reach out if you have any questions.

Thank you kindly,
Species at Risk Branch

From: Cymbaly, Lauren <Lauren.Cymbaly@stantec.com>
Sent: Wednesday, July 9, 2025 12:28 PM
To: Species at Risk (MECP) <SAROntario@ontario.ca>
Cc: Heagle, Ted <Ted.Heagle@stantec.com>; Chanthirakumar, Shyam <schanthirakumar@clarington.net>; SParish <SParish@clarington.net>
Subject: BHA Submissions - 2656 Concession Road 4, Bowmanville, Ontario

Good afternoon,

Stantec has been retained to compete an Environmental Impact Study and Arborist report in support of proposed redevelopment activities at municipal address 2656 Concession Road 4 in Bowmanville Ontario.

Four Butternuts were observed on site. Stantec recently completed BHA assessments for the four trees. The results indicate that these are Category 1 trees.

Please see attached for your records and let us know if you have any questions.

Kind regards,
Lauren

Lauren Cymbaly, M.E.S.
Associate, Senior Ecologist / Project Manager
Stantec
100 – 401 Wellington Street West, Toronto ON M5V 1E7
Phone: (416) 786-1302
Fax: (416) 596-6680
Lauren.Cymbaly@stantec.com

Appendix C Vascular Plant List

Appendix C: Vascular Plant Observations

Family[1]	Scientific Name[2]	Common Name[3]	S-Rank[4]	SARO Status[5]	COSEWIC Status[6]	Coefficient of Conservatism[8]	Coefficient of Wetness[9]
Anacardiaceae	*Rhus glabra*	Smooth Sumac	S5	-	-	7	5
Anacardiaceae	*Rhus typhina*	Staghorn Sumac	S5	-	-	1	3
Anacardiaceae	*Toxicodendron radicans*	Poison Ivy	S5	-	-	2	0
Apiaceae	*Daucus carota*	Wild Carrot	SE5	-	-	-	5
Apocynaceae	*Asclepias syriaca*	Common Milkweed	S5	-	-	0	5
Apocynaceae	*Vincetoxicum rossicum*	European Swallowwort	SE5	-	-	-	5
Araceae	*Arisaema triphyllum*	Jack-in-the-pulpit	S5	-	-	5	-3
Araceae	*Lemna minor*	Small Duckweed	S5	-	-	5	-5
Araliaceae	*Aralia nudicaulis*	Wild Sarsaparilla	S5	-	-	4	3
Araliaceae	*Hydrocotyle americana*	American Water Pennywort	S4S5	-	-	7	-5
Asparagaceae	*Polygonatum pubescens*	Hairy Solomon's Seal	S5	-	-	5	5
Asteraceae	*Achillea millefolium*	Common Yarrow	SE5?	-	-	-	3
Asteraceae	*Ambrosia artemisiifolia*	Common Ragweed	S5	-	-	0	3
Asteraceae	*Arctium minus*	Common Burdock	SE5	-	-	-	3
Asteraceae	*Arctium tomentosum*	Woolly Burdock	SE1	-	-	-	3
Asteraceae	*Bidens frondosa*	Devil's Beggarticks	S5	-	-	3	-3
Asteraceae	*Bidens polylepis*	Awnless Beggarticks	SEH	-	-	-	-3
Asteraceae	*Carduus nutans*	Nodding Thistle	SE5	-	-	-	3
Asteraceae	*Cichorium intybus*	Wild Chicory	SE5	-	-	-	5
Asteraceae	*Cirsium arvense*	Canada Thistle	SE5	-	-	-	3
Asteraceae	*Cirsium vulgare*	Bull Thistle	SE5	-	-	-	3
Asteraceae	*Erigeron annuus*	Annual Fleabane	S5	-	-	0	3
Asteraceae	*Eutrochium maculatum*	Spotted Joe Pye Weed	S5	-	-	3	-5
Asteraceae	*Hieracium lachenalii*	Common Hawkweed	SE2?	-	-	-	5

Appendix C: Vascular Plant Observations

Family[1]	Scientific Name[2]	Common Name[3]	S-Rank[4]	SARO Status[5]	COSEWIC Status[6]	Coefficient of Conservatism[8]	Coefficient of Wetness[9]
Asteraceae	*Lactuca biennis*	Tall Blue Lettuce	S5	-	-	6	0
Asteraceae	*Lactuca serriola*	Prickly Lettuce	SE5	-	-	-	3
Asteraceae	*Leucanthemum vulgare*	Oxeye Daisy	SE5	-	-	-	5
Asteraceae	*Matricaria chamomilla*	Wild Chamomile	SE3	-	-	-	5
Asteraceae	*Pilosella aurantiaca*	Orange Hawkweed	SE5	-	-	-	5
Asteraceae	*Solidago altissima*	Tall Goldenrod	S5	-	-	1	3
Asteraceae	*Solidago canadensis var. canadensis*	Canada Goldenrod	S5	-	-	1	3
Asteraceae	*Sonchus arvensis*	Field Sow-thistle	SE5	-	-	-	3
Asteraceae	*Sonchus asper*	Prickly Sow-thistle	SE5	-	-	-	3
Asteraceae	*Symphyotrichum ericoides*	White Heath Aster	S5	-	-	4	3
Asteraceae	*Symphyotrichum lanceolatum*	Panicled Aster	S5	-	-	3	-3
Asteraceae	*Symphyotrichum lateriflorum var. lateriflorum*	Calico Aster	S5	-	-	3	0
Asteraceae	*Symphyotrichum novae-angliae*	New England Aster	S5	-	-	2	-3
Asteraceae	*Taraxacum officinale*	Common Dandelion	SE5	-	-	-	3
Asteraceae	*Tragopogon dubius*	Yellow Goatsbeard	SE5	-	-	-	5
Asteraceae	*Tussilago farfara*	Coltsfoot	SE5	-	-	-	3
Balsaminaceae	*Impatiens capensis*	Spotted Jewelweed	S5	-	-	4	-3
Betulaceae	*Betula alleghaniensis*	Yellow Birch	S5	-	-	6	0
Betulaceae	*Betula papyrifera*	Paper Birch	S5	-	-	2	3
Brassicaceae	*Barbarea vulgaris*	Bitter Wintercress	SE5	-	-	-	0
Brassicaceae	*Hesperis matronalis*	Dame's Rocket	SE5	-	-	-	3
Caprifoliaceae	*Dipsacus fullonum*	Common Teasel	SE5	-	-	-	3
Caprifoliaceae	*Lonicera morrowii*	Morrow's Honeysuckle	SE3	-	-	-	3

Appendix C: Vascular Plant Observations

Family[1]	Scientific Name[2]	Common Name[3]	S-Rank[4]	SARO Status[5]	COSEWIC Status[6]	Coefficient of Conservatism[8]	Coefficient of Wetness[9]
Caprifoliaceae	*Lonicera tatarica*	Tatarian Honeysuckle	SE5	-	-	-	3
Convolvulaceae	*Convolvulus arvensis*	Field Bindweed	SE5	-	-	-	5
Cornaceae	*Cornus alternifolia*	Alternate-leaved Dogwood	S5	-	-	6	3
Cornaceae	*Cornus sericea*	Red-osier Dogwood	S5	-	-	2	-3
Cucurbitaceae	*Echinocystis lobata*	Wild Cucumber	S5	-	-	3	-3
Cupressaceae	*Thuja occidentalis*	Eastern White Cedar	S5	-	-	4	-3
Dryopteridaceae	*Dryopteris carthusiana*	Spinulose Wood Fern	S5	-	-	5	-3
Fabaceae	*Glycine max*	Soybean	SE2	-	-	-	5
Fabaceae	*Lotus corniculatus*	Garden Bird's-foot Trefoil	SE5	-	-	-	3
Fabaceae	*Medicago lupulina*	Black Medick	SE5	-	-	-	3
Fabaceae	*Medicago sativa*	Alfalfa	SE5	-	-	-	5
Fabaceae	*Melilotus albus*	White Sweet-clover	SE5	-	-	-	3
Fabaceae	*Trifolium pratense*	Red Clover	SE5	-	-	-	3
Fabaceae	*Trifolium repens*	White Clover	SE5	-	-	-	3
Fabaceae	*Vicia cracca*	Tufted Vetch	SE5	-	-	-	5
Fagaceae	*Quercus rubra*	Northern Red Oak	S5	-	-	6	3
Grossulariaceae	*Ribes americanum*	American Black Currant	S5	-	-	4	-3
Hypericaceae	*Hypericum perforatum*	Common St. John's-wort	SE5	-	-	-	5
Juglandaceae	*Juglans cinerea*	Butternut	S2?	END	END	6	3
Lamiaceae	*Glechoma hederacea*	Ground-ivy	SE5	-	-	-	3
Lamiaceae	*Leonurus cardiaca*	Common Motherwort	SE5	-	-	-	5
Lamiaceae	*Mentha canadensis*	Canada Mint	S5	-	-	3	-3
Lamiaceae	*Mentha x villosa var. alopecuroides*	Woolly Mint	SE1	-	-	-	-

Appendix C: Vascular Plant Observations

Family[1]	Scientific Name[2]	Common Name[3]	S-Rank[4]	SARO Status[5]	COSEWIC Status[6]	Coefficient of Conservatism[8]	Coefficient of Wetness[9]
Lythraceae	*Lythrum salicaria*	Purple Loosestrife	SE5	-	-	-	-5
Malvaceae	*Malva neglecta*	Common Mallow	SE5	-	-	-	5
Malvaceae	*Tilia americana*	Basswood	S5	-	-	4	3
Malvaceae	*Tilia cordata*	Little-leaved Linden	SE1	-	-	-	5
Oleaceae	*Fraxinus pennsylvanica*	Red Ash	S4	-	-	3	-3
Oleaceae	*Ligustrum vulgare*	European Privet	SE5	-	-	-	3
Oleaceae	*Syringa vulgaris*	Common Lilac	SE5	-	-	-	5
Onagraceae	*Circaea alpina*	Small Enchanter's Nightshade	S5	-	-	6	-3
Onagraceae	*Circaea canadensis*	Broad-leaved Enchanter's Nightshade	S5	-	-	2	3
Onagraceae	*Oenothera biennis*	Common Evening-primrose	S5	-	-	0	3
Onocleaceae	*Onoclea sensibilis*	Sensitive Fern	S5	-	-	4	-3
Oxalidaceae	*Oxalis stricta*	Upright Yellow Wood-sorrel	SE5	-	-	-	3
Papaveraceae	*Chelidonium majus*	Greater Celandine	SE5	-	-	-	5
Pinaceae	*Abies balsamea*	Balsam Fir	S5	-	-	5	-3
Pinaceae	*Picea abies*	Norway Spruce	SE3	-	-	-	5
Pinaceae	*Picea glauca*	White Spruce	S5	-	-	6	3
Pinaceae	*Picea pungens*	Blue Spruce	SE1	-	-	-	3
Pinaceae	*Pinus nigra*	Austrian Pine	SE3	-	-	-	5
Pinaceae	*Pinus strobus*	Eastern White Pine	S5	-	-	4	3
Pinaceae	*Pinus sylvestris*	Scots Pine	SE5	-	-	-	3
Plantaginaceae	*Linaria vulgaris*	Butter-and-eggs	SE5	-	-	-	5
Plantaginaceae	*Plantago lanceolata*	English Plantain	SE5	-	-	-	3
Plantaginaceae	*Plantago major*	Common Plantain	SE5	-	-	-	3

Appendix C: Vascular Plant Observations

Family[1]	Scientific Name[2]	Common Name[3]	S-Rank[4]	SARO Status[5]	COSEWIC Status[6]	Coefficient of Conservatism[8]	Coefficient of Wetness[9]
Plantaginaceae	*Plantago media*	Hoary Plantain	SE3	-	-	-	5
Poaceae	*Agrostis stolonifera*	Creeping Bentgrass	SE5	-	-	-	-3
Poaceae	*Bromus inermis*	Smooth Brome	SE5	-	-	-	5
Poaceae	*Dactylis glomerata*	Orchard Grass	SE5	-	-	-	3
Poaceae	*Elymus repens*	Quackgrass	SE5	-	-	-	3
Poaceae	*Lolium perenne*	Perennial Ryegrass	SE4	-	-	-	3
Poaceae	*Phalaris arundinacea*	Reed Canarygrass	S5	-	-	0	-3
Poaceae	*Phleum pratense*	Common Timothy	SE5	-	-	-	3
Poaceae	*Phragmites australis*	Common Reed	SU	-	-	0	-3
Poaceae	*Poa pratensis*	Kentucky Bluegrass	S5	-	-	0	3
Poaceae	*Zea mays*	Corn	SE1	-	-	-	5
Polygonaceae	*Persicaria hydropiper*	Marshpepper Smartweed	SE5	-	-	-	-5
Polygonaceae	*Persicaria longiseta*	Long-bristled Smartweed	SE1	-	-	-	0
Polygonaceae	*Persicaria maculosa*	Spotted Lady's-thumb	SE5	-	-	-	-3
Polygonaceae	*Rumex acetosella*	Sheep Sorrel	SE5	-	-	-	3
Polygonaceae	*Rumex crispus*	Curled Dock	SE5	-	-	-	0
Ranunculaceae	*Ranunculus acris*	Common Buttercup	SE5	-	-	-	0
Ranunculaceae	*Ranunculus repens*	Creeping Buttercup	SE5	-	-	-	0
Rhamnaceae	*Rhamnus cathartica*	European Buckthorn	SE5	-	-	-	0
Rosaceae	*Crataegus monogyna*	English Hawthorn	SE4	-	-	-	3
Rosaceae	*Crataegus phaenopyrum*	Washington Hawthorn	SE1	-	-	-	-
Rosaceae	*Crataegus pruinosa*	Frosted Hawthorn	S5	-	-	4	5
Rosaceae	*Geum aleppicum*	Yellow Avens	S5	-	-	2	0
Rosaceae	*Geum canadense*	Canada Avens	S5	-	-	3	0

Appendix C: Vascular Plant Observations

Family[1]	Scientific Name[2]	Common Name[3]	S-Rank[4]	SARO Status[5]	COSEWIC Status[6]	Coefficient of Conservatism[8]	Coefficient of Wetness[9]
Rosaceae	*Malus baccata*	Siberian Crabapple	SE1	-	-	-	5
Rosaceae	*Malus pumila*	Common Apple	SE4	-	-	-	5
Rosaceae	*Prunus serotina*	Black Cherry	S5	-	-	3	3
Rosaceae	*Prunus virginiana*	Chokecherry	S5	-	-	2	3
Rosaceae	*Rosa multiflora*	Multiflora Rose	SE5				
Rosaceae	*Rubus idaeus*	Red Raspberry	S5	-	-	2	3
Rosaceae	*Rubus occidentalis*	Black Raspberry	S5	-	-	2	5
Rosaceae	*Spiraea alba*	White Meadowsweet	S5	-	-	3	-3
Rosaceae	*Spiraea japonica*	Japanese Meadowsweet	SE1	-	-	-	5
Rosaceae	*Spiraea salicifolia*	Willow-leaved Meadowsweet	SE1	-	-	-	5
Rubiaceae	*Galium mollugo*	Smooth Bedstraw	SE5	-	-	-	5
Salicaceae	*Populus alba*	White Poplar	SE5	-	-	-	5
Salicaceae	*Populus balsamifera*	Balsam Poplar	S5	-	-	4	-3
Salicaceae	*Populus deltoides*	Eastern Cottonwood	S5	-	-	4	0
Salicaceae	*Populus grandidentata*	Large-toothed Aspen	S5	-	-	5	5
Salicaceae	*Populus sp.*	Poplar sp.	-	-	-	-	-
Salicaceae	*Populus tremuloides*	Trembling Aspen	S5	-	-	2	0
Salicaceae	*Populus x canadensis*	(Populus deltoides X Populus nigra)	SNA	-	-	-	-
Salicaceae	*Salix alba*	White Willow	SE4	-	-	-	-3
Salicaceae	*Salix bebbiana*	Bebb's Willow	S5	-	-	4	-3
Salicaceae	*Salix discolor*	Pussy Willow	S5	-	-	3	-3
Salicaceae	*Salix euxina*	Crack Willow	SE	-	-	-	0
Salicaceae	*Salix interior*	Sandbar Willow	S5	-	-	1	-3

Appendix C: Vascular Plant Observations

Family[1]	Scientific Name[2]	Common Name[3]	S-Rank[4]	SARO Status[5]	COSEWIC Status[6]	Coefficient of Conservatism[8]	Coefficient of Wetness[9]
Salicaceae	*Salix sp.*	Willow sp.	-	-	-	-	-
Salicaceae	*Salix viminalis*	Basket Willow	SE2	-	-	-	-3
Salicaceae	*Salix x sepulcralis*	(Salix alba X Salix babylonica)	SNA	-	-	-	-
Sapindaceae	*Acer negundo*	Manitoba Maple	S5	-	-	0	0
Sapindaceae	*Acer platanoides*	Norway Maple	SE5	-	-	-	5
Sapindaceae	*Acer rubrum*	Red Maple	S5	-	-	4	0
Sapindaceae	*Acer saccharinum*	Silver Maple	S5	-	-	5	-3
Sapindaceae	*Acer saccharum*	Sugar Maple	S5	-	-	4	3
Sapindaceae	*Acer x freemanii*	(Acer rubrum X Acer saccharinum)	SNA	-	-	6	-5
Scrophulariaceae	*Verbascum thapsus*	Common Mullein	SE5	-	-	-	5
Solanaceae	*Solanum dulcamara*	Bittersweet Nightshade	SE5	-	-	-	0
Thelypteridaceae	*Parathelypteris noveboracensis*	New York Fern	S4S5	-	-	7	0
Typhaceae	*Typha angustifolia*	Narrow-leaved Cattail	SE5	-	-	-	-5
Ulmaceae	*Ulmus americana*	White Elm	S5	-	-	3	-3
Urticaceae	*Boehmeria cylindrica*	Small-spike False Nettle	S5	-	-	4	-5
Viburnaceae	*Sambucus canadensis*	Common Elderberry	S5	-	-	5	-3
Vitaceae	*Parthenocissus vitacea*	Thicket Creeper	S5	-	-	4	3
Vitaceae	*Vitis riparia*	Riverbank Grape	S5	-	-	0	0

Notes:

[1] **Family Name:** The scientific name of a species as published by the Natural Heritage Information Centre hosted by the Ministry of Natural Resources and Forestry/Land Information Ontario.

[2] **Scientific Name:** The scientific name of a species as published by the Natural Heritage Information Centre hosted by the Ministry of Natural Resources and Forestry/Land Information Ontario.

[3] **Common Name:** The common English name of a species as published by the Natural Heritage Information Centre hosted by the Ministry of Natural Resources and Forestry/Land Information Ontario.

[4] **S-Rank:** Subnational Rank is the conservation status of a species within a particular province, territory or state. In this scenario, it is the provincial level ranking system as published by the Natural Heritage Information Centre hosted by hosted by the Ministry of Natural Resources and Forestry/Land Information Ontario.

[5] **SARO Status:** Species at Risk in Ontario (Provincial Status as defined by the Endangered Species Act, 2007 as amended).

[6] **COSEWIC Status:** Status as defined by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

[7] **LOCAL STATUS (TRCA):** Local rank assigned by the Toronto and Region Conservation Authority (TRCA) updated for 2023. Based on the methodology of: Toronto and Region Conservation Authority. 2017. Annual Local Occurrence Score and Local Rank Update, Terrestrial Fauna and Flora Species, and Vegetation Communities. Environmental Monitoring and Data Management Section, July 2017.

[8] **Coefficient of Conservatism:** This value, ranging from 0 (low) to 10 (high), is based on a species tolerance of disturbance and fidelity to a specific habitat integrity. The Coefficient of Conservatism is listed as published by the Natural Heritage Information (Oldham, M.J., Bakowsky, W.d., Surtherland, D.A. 1995. Floristic Quality Assessment System for Southern Ontario. Natural Heritage Information Centre, Ontario Ministry of Natural Resources, Peterborough, Ontario. 69 pp.)

[9] **Coefficient of Wetness:** This value, ranging from -5 (obligate wetland) to 5 (upland) provides the probability of a species occurring in wetland or upland habitats. The Coefficient of Wetness reflects a species' affinity for wet soil conditions as published by the Natural Heritage Information hosted by the Ministry of Natural Resources and Forestry/Land Information Ontario.

Species at Risk Act and COSEWIC Acronyms

END: Endangered

THR: Threatened

SC: Special Concern

EXT: Extirpated

NAR: Not at Risk

Subnational Rankings (S RANK)

SNR: Unranked

SU: Unrankable – Currently unrankable due to lack of information

SNA: Not applicable – A conservation status rank is not applicable because the species is not a suitable target for conservation activities

S#S#: Range Rank – A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species

?: Indicates uncertainty in the assigned rank

S1: Critically Imperiled – Critically imperiled in the province (often 5 or fewer occurrences)

S2: Imperiled – Imperiled in the province, very few populations (often 20 or fewer),

S3: Vulnerable – Vulnerable in the province, relatively few populations (often 80 or fewer)

S4: Apparently Secure – Uncommon but not rare

S5: Secure – Common, widespread, and abundant in the province

SX: Presumed extirpated

SH: Possibly Extirpated (Historical)

SE: if an element is known to occur as an exotic in Ontario, the status value assigned is SE. A? qualifier added to that value indicates uncertainty about whether it is exotic or native. Numeric ranks of 1 through 5 added to the exotic status indicates the element's abundance in Ontario, with 1 indicating the least abundant and 5 the most.

Local TRCA Rankings

L1: Species of Regional Conservation Concern – regionally scarce due to either accidental occurrence or extreme sensitivity to human impacts

L2: Species of Regional Conservation Concern – somewhat more abundant and generally slightly less sensitive than L1 species

L3: Species of Regional Conservation Concern – generally less sensitive and more abundant than L1 and L2 ranked species

L4: Species of Urban Concern – occur throughout the region but could show declines if urban impacts are not mitigated effectively

L5: Species that are considered secure throughout the region

L+: Introduced species – not native to the Toronto region

LX: Extirpated species – species not recorded in the region in the past 10 years

L+?: Species is probably introduced to the Toronto Region

LU: Species rank is not verified within the Toronto region

Appendix D Wildlife Records

Appendix D.1: Avifauna Records and Observations

Family[1]	Scientific Name[2]	Common Name[3]	S-Rank[4]	SARO Status[5]	COSEWIC Status[6]	SARA Status[7]	Source
Accipitridae	*Accipiter cooperii*	Cooper's Hawk	S4	NAR	NAR	-	OBBA
Accipitridae	*Accipiter striatus*	Sharp-shinned Hawk	S5	NAR	NAR	-	OBBA
Accipitridae	*Buteo jamaicensis*	Red-tailed Hawk	S5	NAR	NAR	-	OBBA
Accipitridae	*Buteo platypterus*	Broad-winged Hawk	S5B	-	-	-	OBBA
Accipitridae	*Circus hudsonius*	Northern Harrier	S5B,S4N	NAR	NAR	-	OBBA
Alaudidae	*Eremophila alpestris*	Horned Lark	S4	-	-	-	OBBA
Alcedinidae	*Megaceryle alcyon*	Belted Kingfisher	S5B,S4N	-	-	-	OBBA
Anatidae	*Aix sponsa*	Wood Duck	S5B,S3N	-	-	-	OBBA
Anatidae	*Anas crecca*	Green-winged Teal	S4B,S4N,S5M	-	-	-	OBBA
Anatidae	*Anas platyrhynchos*	Mallard	S5	-	-	-	OBBA
Anatidae	*Anas rubripes*	American Black Duck	S4	-	-	-	OBBA
Anatidae	*Branta canadensis*	Canada Goose	S5	-	-	-	OBBA
Anatidae	*Cygnus buccinator*	Trumpeter Swan	S4	NAR	NAR	-	OBBA
Anatidae	*Cygnus olor*	Mute Swan	SE	-	-	-	OBBA
Anatidae	*Lophodytes cucullatus*	Hooded Merganser	S5	-	-	-	OBBA
Anatidae	*Mareca strepera*	Gadwall	S4B,S4N,S5M	-	-	-	OBBA
Anatidae	*Spatula discors*	Blue-winged Teal	S3B,S4M	-	-	-	OBBA
Apodidae	*Chaetura pelagica*	Chimney Swift	S3B	THR	THR	THR	OBBA
Ardeidae	*Ardea herodias*	Great Blue Heron	S4	-	-	-	OBBA
Ardeidae	*Butorides virescens*	Green Heron	S4B	-	-	-	OBBA
Ardeidae	*Ixobrychus exilis*	Least Bittern	S4B	THR	THR	THR	OBBA
Bombycillidae	*Bombycilla cedrorum*	Cedar Waxwing	S5	-	-	-	OBBA, Stantec 2024
Caprimulgidae	*Antrostomus vociferus*	Eastern Whip-poor-will	S4B	SC	SC	SC	OBBA

Appendix D.1: Avifauna Records and Observations

Family[1]	Scientific Name[2]	Common Name[3]	S-Rank[4]	SARO Status[5]	COSEWIC Status[6]	SARA Status[7]	Source
Cardinalidae	*Cardinalis cardinalis*	Northern Cardinal	S5	-	-	-	OBBA, Stantec 2024 & 2025
Cardinalidae	*Passerina cyanea*	Indigo Bunting	S5B	-	-	-	OBBA, Stantec 2024 & 2025
Cardinalidae	*Pheucticus ludovicianus*	Rose-breasted Grosbeak	S5B	-	-	-	OBBA, Stantec 2024
Cardinalidae	*Piranga olivacea*	Scarlet Tanager	S5B	-	-	-	OBBA
Cathartidae	*Cathartes aura*	Turkey Vulture	S5B,S3N	-	-	-	OBBA, Stantec 2024
Certhiidae	*Certhia americana*	Brown Creeper	S5	-	-	-	OBBA
Charadriidae	*Charadrius melodus*	Piping Plover	S1B	END	END	-	iNaturalist
Charadriidae	*Charadrius vociferus*	Killdeer	S4B	-	-	-	OBBA
Columbidae	*Columba livia*	Rock Pigeon	SE	-	-	-	OBBA
Columbidae	*Zenaida macroura*	Mourning Dove	S5	-	-	-	OBBA, Stantec 2024
Corvidae	*Corvus brachyrhynchos*	American Crow	S5	-	-	-	OBBA, Stantec 2024
Corvidae	*Corvus corax*	Common Raven	S5	-	-	-	OBBA
Corvidae	*Cyanocitta cristata*	Blue Jay	S5	-	-	-	OBBA, Stantec 2024 & 2025
Cuculidae	*Coccyzus americanus*	Yellow-billed Cuckoo	S4B	-	-	-	OBBA
Cuculidae	*Coccyzus erythropthalmus*	Black-billed Cuckoo	S4S5B	-	-	-	OBBA, Stantec 2024
Falconidae	*Falco columbarius*	Merlin	S5	NAR	NAR	-	OBBA
Falconidae	*Falco peregrinus*	Peregrine Falcon	S4	SC	NAR	SC	OBBA
Falconidae	*Falco sparverius*	American Kestrel	S4	-	-	-	OBBA
Fringillidae	*Haemorhous mexicanus*	House Finch	SE	-	-	-	OBBA

Appendix D.1: Avifauna Records and Observations

Family[1]	Scientific Name[2]	Common Name[3]	S-Rank[4]	SARO Status[5]	COSEWIC Status[6]	SARA Status[7]	Source
Fringillidae	*Haemorhous purpureus*	Purple Finch	S5	-	-	-	OBBA
Fringillidae	*Spinus pinus*	Pine Siskin	S5	-	-	-	OBBA
Fringillidae	*Spinus tristis*	American Goldfinch	S5	-	-	-	OBBA, Stantec 2024 & 2025
Hirundinidae	*Hirundo rustica*	Barn Swallow	S4B	SC	SC	THR	OBBA
Hirundinidae	*Riparia riparia*	Bank Swallow	S4B	THR	THR	THR	OBBA
Hirundinidae	*Stelgidopteryx serripennis*	Northern Rough-winged Swallow	S4B	-	-	-	OBBA
Hirundinidae	*Tachycineta bicolor*	Tree Swallow	S4S5B	-	-	-	OBBA
Icteridae	*Agelaius phoeniceus*	Red-winged Blackbird	S5	-	-	-	OBBA, Stantec 2024
Icteridae	*Dolichonyx oryzivorus*	Bobolink	S4B	THR	SC	THR	NHIC, OBBA
Icteridae	*Icterus galbula*	Baltimore Oriole	S4B	-	-	-	OBBA, Stantec 2024 & 2025
Icteridae	*Icterus spurius*	Orchard Oriole	S4B	-	-	-	OBBA
Icteridae	*Molothrus ater*	Brown-headed Cowbird	S5	-	-	-	OBBA
Icteridae	*Quiscalus quiscula*	Common Grackle	S5	-	-	-	OBBA, Stantec 2024
Icteridae	*Sturnella magna*	Eastern Meadowlark	S4B,S3N	THR	THR	THR	NHIC, OBBA, Stantec 2024
Laridae	*Larus argentatus*	Herring Gull	S4B,S5N	-	-	-	OBBA
Laridae	*Larus delawarensis*	Ring-billed Gull	S5	-	-	-	OBBA
Mimidae	*Dumetella carolinensis*	Gray Catbird	S5B,S3N	-	-	-	OBBA, Stantec 2024
Mimidae	*Mimus polyglottos*	Northern Mockingbird	S4	-	-	-	OBBA
Mimidae	*Toxostoma rufum*	Brown Thrasher	S4B	-	-	-	OBBA

Family[1]	Scientific Name[2]	Common Name[3]	S-Rank[4]	SARO Status[5]	COSEWIC Status[6]	SARA Status[7]	Source
Odontophoridae	*Colinus virginianus*	Northern Bobwhite	S1?	END	END	END	NHIC, OBBA
Pandionidae	*Pandion haliaetus*	Osprey	S5B	-	-	-	OBBA
Paridae	*Poecile atricapillus*	Black-capped Chickadee	S5	-	-	-	OBBA, Stantec 2024
Parulidae	*Geothlypis philadelphia*	Mourning Warbler	S5B	-	-	-	OBBA, Stantec 2024
Parulidae	*Geothlypis trichas*	Common Yellowthroat	S5B,S3N	-	-	-	OBBA, Stantec 2024 & 2025
Parulidae	*Leiothlypis ruficapilla*	Nashville Warbler	S5B	-	-	-	OBBA
Parulidae	*Mniotilta varia*	Black-and-white Warbler	S5B	-	-	-	OBBA, Stantec 2024
Parulidae	*Parkesia noveboracensis*	Northern Waterthrush	S5B	-	-	-	OBBA, Stantec 2024
Parulidae	*Seiurus aurocapilla*	Ovenbird	S5B	-	-	-	OBBA, Stantec 2024
Parulidae	*Setophaga coronata*	Yellow-rumped Warbler	S5B,S4N	-	-	-	OBBA
Parulidae	*Setophaga fusca*	Blackburnian Warbler	S5B	-	-	-	OBBA
Parulidae	*Setophaga pensylvanica*	Chestnut-sided Warbler	S5B	-	-	-	OBBA, Stantec 2024
Parulidae	*Setophaga petechia*	Yellow Warbler	S5B	-	-	-	OBBA, Stantec 2024 & 2025
Parulidae	*Setophaga pinus*	Pine Warbler	S5B,S3N	-	-	-	OBBA
Parulidae	*Setophaga ruticilla*	American Redstart	S5B	-	-	-	OBBA, Stantec 2024
Parulidae	*Setophaga virens*	Black-throated Green Warbler	S5B	-	-	-	OBBA, Stantec 2025
Parulidae	*Vermivora cyanoptera*	Blue-winged Warbler	S4B	-	-	-	OBBA, Stantec 2024

Family[1]	Scientific Name[2]	Common Name[3]	S-Rank[4]	SARO Status[5]	COSEWIC Status[6]	SARA Status[7]	Source
Passerellidae	*Ammodramus savannarum*	Grasshopper Sparrow	S4B	SC	SC	-	OBBA
Passerellidae	*Melospiza georgiana*	Swamp Sparrow	S5B,S4N	-	-	-	OBBA, Stantec 2024
Passerellidae	*Melospiza melodia*	Song Sparrow	S5	-	-	-	OBBA, Stantec 2024 & 2025
Passerellidae	*Passerculus sandwichensis*	Savannah Sparrow	S5B,S3N	-	-	-	OBBA, Stantec 2024
Passerellidae	*Pipilo erythrophthalmus*	Eastern Towhee	S4B,S3N	-	-	-	OBBA
Passerellidae	*Pooecetes gramineus*	Vesper Sparrow	S4B	-	-	-	OBBA, Stantec 2024
Passerellidae	*Spizella pallida*	Clay-colored Sparrow	S4B	-	-	-	OBBA
Passerellidae	*Spizella passerina*	Chipping Sparrow	S5B,S3N	-	-	-	OBBA, Stantec 2024
Passerellidae	*Spizella pusilla*	Field Sparrow	S4B,S3N	-	-	-	OBBA
Passerellidae	*Zonotrichia albicollis*	White-throated Sparrow	S5	-	-	-	OBBA
Passeridae	*Passer domesticus*	House Sparrow	SE	-	-	-	OBBA
Phalacrocoracidae	*Nannopterum auritum*	Double-crested Cormorant	S5B,S4N	NAR	NAR	-	iNaturalist
Phasianidae	*Meleagris gallopavo*	Wild Turkey	S5	-	-	-	OBBA, Stantec 2024
Picidae	*Colaptes auratus*	Northern Flicker	S5	-	-	-	OBBA, Stantec 2024
Picidae	*Dryobates pubescens*	Downy Woodpecker	S5	-	-	-	OBBA, Stantec 2024
Picidae	*Dryobates villosus*	Hairy Woodpecker	S5	-	-	-	OBBA, Stantec 2024
Picidae	*Dryocopus pileatus*	Pileated Woodpecker	S5	-	-	-	OBBA, Stantec 2024
Picidae	*Melanerpes carolinus*	Red-bellied Woodpecker	S5	-	-	-	NHIC, OBBA

Appendix D.1: Avifauna Records and Observations

Family[1]	Scientific Name[2]	Common Name[3]	S-Rank[4]	SARO Status[5]	COSEWIC Status[6]	SARA Status[7]	Source
Picidae	*Melanerpes erythrocephalus*	Red-headed Woodpecker	S3	END	END	END	OBBA
Picidae	*Sphyrapicus varius*	Yellow-bellied Sapsucker	S5B,S3N	-	-	-	OBBA
Podicipedidae	*Podilymbus podiceps*	Pied-billed Grebe	S4B,S2N	-	-	-	OBBA
Polioptilidae	*Polioptila caerulea*	Blue-gray Gnatcatcher	S4B	-	-	-	OBBA
Rallidae	*Gallinula galeata*	Common Gallinule	S3B	-	-	-	OBBA
Rallidae	*Porzana carolina*	Sora	S5B	-	-	-	OBBA
Rallidae	*Rallus limicola*	Virginia Rail	S4S5B	-	-	-	OBBA
Regulidae	*Regulus satrapa*	Golden-crowned Kinglet	S5	-	-	-	Stantec 2024
Scolopacidae	*Actitis macularius*	Spotted Sandpiper	S5B	-	-	-	OBBA
Scolopacidae	*Gallinago delicata*	Wilson's Snipe	S5B	-	-	-	Stantec 2024
Scolopacidae	*Scolopax minor*	American Woodcock	S4B	-	-	-	OBBA
Sittidae	*Sitta canadensis*	Red-breasted Nuthatch	S5	-	-	-	OBBA, Stantec 2024
Sittidae	*Sitta carolinensis*	White-breasted Nuthatch	S5	-	-	-	OBBA
Strigidae	*Bubo virginianus*	Great Horned Owl	S4	-	-	-	iNaturalist, OBBA
Strigidae	*Megascops asio*	Eastern Screech-Owl	S4	NAR	NAR		OBBA
Strigidae	*Strix varia*	Barred Owl	S5	-	-	-	OBBA, Stantec 2024
Sturnidae	*Sturnus vulgaris*	European Starling	SE	-	-	-	iNaturalist, OBBA, Stantec 2024
Trochilidae	*Archilochus colubris*	Ruby-throated Hummingbird	S5B	-	-	-	OBBA
Troglodytidae	*Cistothorus palustris*	Marsh Wren	S4B,S3N	-	-	-	OBBA

Family[1]	Scientific Name[2]	Common Name[3]	S-Rank[4]	SARO Status[5]	COSEWIC Status[6]	SARA Status[7]	Source
Troglodytidae	*Troglodytes aedon*	House Wren	S5B	-	-	-	OBBA, Stantec 2024
Troglodytidae	*Troglodytes hiemalis*	Winter Wren	S5B,S4N	-	-	-	OBBA
Turdidae	*Catharus fuscescens*	Veery	S5B	-	-	-	OBBA, Stantec 2024
Turdidae	*Hylocichla mustelina*	Wood Thrush	S4B	SC	THR	THR	NHIC, OBBA, Stantec 2024 & 2025
Turdidae	*Sialia sialis*	Eastern Bluebird	S5B,S4N	NAR	NAR	-	OBBA
Turdidae	*Turdus migratorius*	American Robin	S5	-	-	-	OBBA, Stantec 2024
Tyrannidae	*Contopus virens*	Eastern Wood-pewee	S4B	SC	SC	SC	NHIC, OBBA, Stantec 2024
Tyrannidae	*Empidonax alnorum*	Alder Flycatcher	S5B	-	-	-	OBBA, Stantec 2024
Tyrannidae	*Empidonax minimus*	Least Flycatcher	S5B	-	-	-	OBBA, Stantec 2024
Tyrannidae	*Empidonax traillii*	Willow Flycatcher	S4B	-	-	-	OBBA
Tyrannidae	*Myiarchus crinitus*	Great Crested Flycatcher	S5B	-	-	-	OBBA, Stantec 2024 & 2025
Tyrannidae	*Sayornis phoebe*	Eastern Phoebe	S5B	-	-	-	OBBA, Stantec 2024
Tyrannidae	*Tyrannus tyrannus*	Eastern Kingbird	S4B	-	-	-	OBBA, Stantec 2024
Vireonidae	*Vireo gilvus*	Warbling Vireo	S5B	-	-	-	OBBA, Stantec 2024
Vireonidae	*Vireo olivaceus*	Red-eyed Vireo	S5B	-	-	-	OBBA, Stantec 2024
Vireonidae	*Vireo solitarius*	Blue-headed Vireo	S5B	-	-	-	OBBA

Appendix D.1: Avifauna Records and Observations

Notes:

[1] **Family Name:** The Family name of a species as published by the Natural Heritage Information Centre hosted by the Ministry of Natural Resources / Land Information Ontario.

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[5] **SARO Status:** Species at Risk in Ontario (Provincial Status as defined by the Endangered Species Act, 2007 as amended).

[6] **COSEWIC Status:** Status as defined by the Committee on the Status of Endangered Wildlife in Canada.

[7] **SARA Status:** Federal status as defined by the Species at Risk Act.

References:

eBird: eBird. 2024. eBird Species Observation Database. Accessed September 2024. Note no eBird Hotspot records present in Study Area. Available Online: https://ebird.org/hotspots

iNaturalist: iNaturalist. 2024. iNaturalist Species Observation Database. Accessed September 2024. Available Online: https://www.inaturalist.org/

NHIC: Natural Heritage Information Centre database review (Ministry of Natural Resources/Land Information Ontario).

OBBA: Cadman, M. D., D.A. Sutherland, G.G. Beck, D. Lepage, A.R. Couturier. 2007. Atlas of the Breeding Birds of Ontario, 2001-2005. (eds) Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of natural resources, and Ontario Nature, Toronto, xxii + 318pp

Stantec 2024: Stantec 2024 field program as described in Section 3.3.

Endangered Species Act and Species at Risk Act Acronyms

END: Endangered

THR: Threatened

SC: Special Concern

EXT: Extirpated

NAR: Not at Risk

Subnational Rankings (S-Rank)

SNR: Unranked

SU: Unrankable – Currently unrankable due to lack of information

SNA: Not applicable – A conservation status rank is not applicable because the species is not a suitable target for conservation activities

S#S#: Range Rank – A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species

?: Indicates uncertainty in the assigned rank

S1: Critically Imperiled – Critically imperiled in the province (often 5 or fewer occurrences)

S2: Imperiled – Imperiled in the province, very few populations (often 20 or fewer),

S3: Vulnerable – Vulnerable in the province, relatively few populations (often 80 or fewer)

S4: Apparently Secure – Uncommon but not rare

S5: Secure – Common, widespread, and abundant in the province

SX: Presumed extirpated

SH: Possibly Extirpated (Historical)

SE: if an element is known to occur as an exotic in Ontario, the status value assigned is SE. A? qualifier added to that value indicates uncertainty about whether it is exotic or native. Numeric ranks of 1 through 5 added to the exotic status indicates the element's abundance in Ontario, with 1 indicating the least abundant and 5 the most.

Appendix D.2: Herpetofauna Records and Observations

Family[1]	Scientific Name[2]	Common Name[3]	S-Rank[4]	SARO Status[5]	COSEWIC Status[6]	SARA Status[7]	Source
Ambystomatidae	*Ambystoma maculatum*	Spotted Salamander	S4	-	-	-	ORAA
Bufonidae	*Anaxyrus americanus*	American Toad	S5	-	-	-	ORAA, Stantec 2024
Chelydridae	*Chelydra serpentina*	Snapping Turtle	S4	SC	SC	SC	iNaturalist, ORAA
Colubridae	*Diadophis punctatus*	Ring-necked Snake	S4	-	-	-	ORAA
Colubridae	*Lampropeltis triangulum*	Eastern Milksnake	S4	NAR	SC	SC	iNaturalist, ORAA
Colubridae	*Storeria dekayi*	DeKay's Brownsnake	S5	NAR	NAR	-	ORAA
Colubridae	*Thamnophis sirtalis sirtalis*	Eastern Gartersnake	S5	-	-	-	ORAA
Emydidae	*Chrysemys picta marginata*	Midland Painted Turtle	S4	-	SC	SC	ORAA
Hylidae	*Dryophytes versicolor*	Gray Treefrog	S5	-	-	-	ORAA, Stantec 2024
Hylidae	*Pseudacris crucifer*	Spring Peeper	S5	-	-	-	iNaturalist, ORAA
Hylidae	*Pseudacris maculata pop. 1*	Western Chorus Frog - Great Lakes - St. Lawrence - Canadian Shield population	S4	NAR	THR	THR	ORAA
Plethodontidae	*Plethodon cinereus*	Eastern Red-backed Salamander	S5	-	-	-	ORAA
Proteidae	*Necturus maculosus*	Mudpuppy	S4	NAR	SC	-	ORAA
Ranidae	*Lithobates catesbeianus*	American Bullfrog	S4	-	-	-	ORAA
Ranidae	*Lithobates clamitans*	Green Frog	S5	-	-	-	ORAA, Stantec 2024
Ranidae	*Lithobates palustris*	Pickerel Frog	S4	NAR	NAR	-	ORAA
Ranidae	*Lithobates pipiens*	Northern Leopard Frog	S5	NAR	NAR	-	ORAA
Ranidae	*Lithobates sylvaticus*	Wood Frog	S5	-	-	-	ORAA
Salamandridae	*Notophthalmus viridescens viridescens*	Red-spotted Newt	S5	-	-	-	ORAA

Notes:

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[5] **SARO Status:** Species at Risk in Ontario (Provincial Status as defined by the Endangered Species Act, 2007 as amended).

[6] **COSEWIC Status:** Status as defined by the Committee on the Status of Endangered Wildlife in Canada.

[7] **SARA Status:** Federal status as defined by the Species at Risk Act.

References:

NHIC: Natural Heritage Information Centre database review (Ministry of Natural Resources/Land Information Ontario).

iNaturalist: iNaturalist. 2024. iNaturalist Species Observation Database. Accessed September 2024. Available Online: https://www.inaturalist.org/

ORAA: Ontario Nature. 2019. Ontario Reptile and Amphibian Atlas. Accessed September 2024. Available Online: https://ontarionature.org/programs/community-science/reptile-amphibian-atlas/species/

Stantec 2024: Stantec 2024 field program as described in Section 3.3

Endangered Species Act and Species at Risk Act Acronyms

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SC: Special Concern

EXT: Extirpated

NAR: Not at Risk

Subnational Rankings (S-Rank)

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SU: Unrankable – Currently unrankable due to lack of information

SNA: Not applicable – A conservation status rank is not applicable because the species is not a suitable target for conservation activities

S#S#: Range Rank – A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species

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S2: Imperiled – Imperiled in the province, very few populations (often 20 or fewer),

S3: Vulnerable – Vulnerable in the province, relatively few populations (often 80 or fewer)

S4: Apparently Secure – Uncommon but not rare

S5: Secure – Common, widespread, and abundant in the province

SX: Presumed extirpated

SH: Possibly Extirpated (Historical)

SE: if an element is known to occur as an exotic in Ontario, the status value assigned is SE. A ? qualifier added to that value indicates uncertainty about whether it is exotic or native. Numeric ranks of 1 through 5 added to the exotic status indicates the element's abundance in Ontario, with 1 indicating the least abundant and 5 the most.

Appendix D.3: Mammalian Records and Observations

Family[1]	Scientific Name[2]	Common Name[3]	S-Rank[4]	SARO Status[5]	COSEWIC Status[6]	SARA Status[7]	Source
Canidae	*Canis latrans*	Coyote	S5	-	-	-	iNaturalist, Stantec
Canidae	*Canis sp. cf. lycaon*	Eastern Wolf	S2	THR	THR	SC	iNaturalist
Canidae	*Vulpes vulpes*	Red Fox	S5	-	-	-	iNaturalist, Stantec
Castoridae	*Castor canadensis*	Beaver	S5	-	-	-	iNaturalist
Cervidae	*Alces alces*	Moose	S5	-	-	-	iNaturalist
Cervidae	*Odocoileus virginianus*	White-tailed Deer	S5	-	-	-	iNaturalist, Stantec
Cricetidae	*Microtus pennsylvanicus*	Meadow Vole	S5	-	-	-	iNaturalist
Cricetidae	*Ondatra zibethicus*	Muskrat	S5	-	-	-	iNaturalist
Cricetidae	*Peromyscus leucopus*	White-footed Mouse	S5	-	-	-	iNaturalist
Cricetidae	*Peromyscus maniculatus*	Deer Mouse	S5	-	-	-	iNaturalist
Didelphidae	*Didelphis virginiana*	Virginia Opossum	S4	-	-	-	iNaturalist
Dipodidae	*Napaeozapus insignis*	Woodland Jumping Mouse	S5	-	-	-	iNaturalist
Dipodidae	*Zapus hudsonius*	Meadow Jumping Mouse	S5	-	-	-	iNaturalist
Erethizontidae	*Erethizon dorsatum*	Porcupine	S5	-	-	-	iNaturalist
Leporidae	*Lepus americanus*	Snowshoe Hare	S5	-	-	-	iNaturalist
Leporidae	*Sylvilagus floridanus*	Eastern Cottontail	S5	-	-	-	iNaturalist
Mephitidae	*Mephitis mephitis*	Striped Skunk	S5	-	-	-	iNaturalist
Muridae	*Mus musculus*	House Mouse	SE	-	-	-	iNaturalist
Muridae	*Rattus norvegicus*	Norway Rat	SE	-	-	-	iNaturalist
Mustelidae	*Lontra canadensis*	North American River Otter	S5	-	-	-	iNaturalist
Mustelidae	*Mustela richardsonii*	American Ermine	S5	-	-	-	iNaturalist
Mustelidae	*Neogale frenata*	Long-tailed Weasel	S4	-	-	-	iNaturalist
Mustelidae	*Neogale vison*	American Mink	S4	-	-	-	iNaturalist
Mustelidae	*Pekania pennanti*	Fisher	S5	-	-	-	iNaturalist

Appendix D.3: Mammalian Records and Observations

Family[1]	Scientific Name[2]	Common Name[3]	S-Rank[4]	SARO Status[5]	COSEWIC Status[6]	SARA Status[7]	Source
Procyonidae	*Procyon lotor*	Northern Raccoon	S5	-	-	-	iNaturalist
Sciuridae	*Glaucomys sabrinus*	Northern Flying Squirrel	S5	-	-	-	iNaturalist
Sciuridae	*Glaucomys volans*	Southern Flying Squirrel	S4	NAR	NAR	-	iNaturalist
Sciuridae	*Marmota monax*	Woodchuck	S5	-	-	-	iNaturalist
Sciuridae	*Sciurus carolinensis*	Eastern Gray Squirrel	S5	-	-	-	iNaturalist
Sciuridae	*Tamias striatus*	Eastern Chipmunk	S5	-	-	-	iNaturalist
Sciuridae	*Tamiasciurus hudsonicus*	Red Squirrel	S5	-	-	-	iNaturalist
Soricidae	*Blarina brevicauda*	Northern Short-tailed Shrew	S5	-	-	-	iNaturalist
Soricidae	*Sorex cinereus*	Masked Shrew	S5	-	-	-	iNaturalist
Soricidae	*Sorex fumeus*	Smoky Shrew	S5	-	-	-	iNaturalist
Talpidae	*Condylura cristata*	Star-nosed Mole	S5	-	-	-	iNaturalist
Talpidae	*Parascalops breweri*	Hairy-tailed Mole	S4	-	-	-	iNaturalist
Ursidae	*Ursus americanus*	American Black Bear	S5	NAR	NAR	-	iNaturalist
Vespertilionidae	*Eptesicus fuscus*	Big Brown Bat	S4	-	-	-	iNaturalist, Stantec
Vespertilionidae	*Lasionycteris noctivagans*	Silver-haired Bat	S3	END	END	-	COSEWIC 2023, Dobbyn 1994, Stantec
Vespertilionidae	*Lasiurus borealis*	Eastern Red Bat	S3	END	END	-	COSEWIC 2023, Dobbyn 1994, Stantec
Vespertilionidae	*Lasiurus cinereus*	Northern Hoary Bat	S3	END	END	-	COSEWIC 2023, iNaturalist, Stantec
Vespertilionidae	*Myotis leibii*	Eastern Small-footed Myotis	S2S3	END	-	-	iNaturalist, Stantec*
Vespertilionidae	*Myotis lucifugus*	Little Brown Myotis	S3	END	END	END	COSEWIC 2013, Dobbyn 1994, iNaturalist, Stantec

Appendix D.3: Mammalian Records and Observations

Family[1]	Scientific Name[2]	Common Name[3]	S-Rank[4]	SARO Status[5]	COSEWIC Status[6]	SARA Status[7]	Source
Vespertilionidae	*Myotis septentrionalis*	Northern Myotis	S3	END	END	END	COSEWIC 2013, Dobbyn 1994, Stantec*
Vespertilionidae	*Perimyotis subflavus*	Tricolored Bat	S3	END	END	END	COSEWIC 2013, Stantec*

Notes:

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6 **COSEWIC Status:** Status as defined by the Committee on the Status of Endangered Wildlife in Canada.

7 **SARA Status:** Federal status as defined by the Species at Risk Act.

References:

COSEWIC 2013: COSEWIC. 2013. COSEWIC assessment and status report on the Little Brown Myotis Myotis lucifugus, Northern Myotis Myotis septentrionalis and Tri-colored Bat Perimyotis subflavus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxiv + 93 pp.

COSEWIC 2023: COSEWIC. 2023. COSEWIC assessment and status report on the Hoary Bat *Lasiurus cinereus*, Eastern Red Bat *Lasiurus borealis* and Silver-haired Bat, *Lasionycteris noctivagans*, in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxi + 100 pp.

Dobbyn 1994: Dobbyn, J. 1994. Atlas of the Mammals of Ontario. Federation of Ontario Naturalists.

iNaturalist: Available online from**:** *https://www.inaturalist.org/observations?place_id=27584&view=species&iconic_taxa=Mammalia*. The database was accessed on April 10, 2024. The database was filtered for mammalian records found within the Regional Municipality of Durham.

NHIC: Natural Heritage Information Centre database review (Ministry of Natural Resources / Land Information Ontario), available online from: *https://www.lioapplications.lrc.gov.on.ca/Natural_Heritage/index.html?viewer=Natural_Heritage.Natural_Heritage&locale=en-CA*.

Note, no mammalian records were found. The database was accessed on April 10, 2024.

Stantec: Stantec 2024-2025 field program as described in Section 3.3.

Stantec*: Potentially observed during Stantec 2024-2025 field program as described in Section 4.3.5 (unconfirmed *Myotis* sp. Recordings)

Appendix D.3: Mammalian Records and Observations

Endangered Species Act and Species at Risk Act Acronyms

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S3: Vulnerable – Vulnerable in the province, relatively few populations (often 80 or fewer)

S4: Apparently Secure – Uncommon but not rare

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Appendix D.4: Insect Records and Observations

Family[1]	Scientific Name[2]	Common Name[3]	S-Rank[4]	SARO Status[5]	COSEWIC Status[6]	SARA Status[7]	Source(s)
Aeshnidae	*Aeshna constricta*	Lance-tipped Darner	S5	-	-	-	OOA
Aeshnidae	*Anax junius*	Common Green Darner	S5	-	-	-	OOA
Coenagrionidae	*Amphiagrion saucium*	Eastern Red Damsel	S4	-	-	-	OOA
Coenagrionidae	*Enallagma aspersum*	Azure Bluet	S4	-	-	-	OOA
Coenagrionidae	*Enallagma civile*	Familiar Bluet	S5	-	-	-	OOA
Coenagrionidae	*Enallagma ebrium*	Marsh Bluet	S5	-	-	-	OOA
Coenagrionidae	*Enallagma vernale*	Vernal Bluet	S4	-	-	-	OOA
Coenagrionidae	*Ischnura posita*	Fragile Forktail	S4	-	-	-	OOA
Coenagrionidae	*Ischnura verticalis*	Eastern Forktail	S5	-	-	-	OOA
Coenagrionidae	*Nehalennia irene*	Sedge Sprite	S5	-	-	-	OOA
Cordulegastridae	*Cordulegaster diastatops*	Delta-spotted Spiketail	S4	-	-	-	OOA
Erebidae	*Ctenucha virginica*	Virginia Ctenucha Moth	S5	-	-	-	OMA
Erebidae	*Cycnia tenera*	Delicate Cycnia Moth	S4	-	-	-	OMA
Erebidae	*Halysidota tessellaris*	Banded Tussock Moth	S5	-	-	-	OMA
Erebidae	*Lophocampa caryae*	Hickory Tussock Moth	S5	-	-	-	OMA
Erebidae	*Pyrrharctia isabella*	Isabella Tiger Moth	S5	-	-	-	OMA
Erebidae	*Spilosoma virginica*	Virginia Tiger Moth	S5	-	-	-	OMA
Gomphidae	*Stylurus scudderi*	Zebra Clubtail	S4	-	-	-	OOA
Hesperiidae	*Anatrytone logan*	Delaware Skipper	S4	-	-	-	OBA
Hesperiidae	*Ancyloxypha numitor*	Least Skipper	S5	-	-	-	OBA
Hesperiidae	*Carterocephalus palaemon*	Arctic Skipper	S5	-	-	-	OBA
Hesperiidae	*Epargyreus clarus*	Silver-spotted Skipper	S4	-	-	-	OBA
Hesperiidae	*Erynnis baptisiae*	Wild Indigo Duskywing	S4	-	-	-	OBA
Hesperiidae	*Erynnis icelus*	Dreamy Duskywing	S5	-	-	-	OBA

Family[1]	Scientific Name[2]	Common Name[3]	S-Rank[4]	SARO Status[5]	COSEWIC Status[6]	SARA Status[7]	Source(s)
Hesperiidae	*Erynnis juvenalis*	Juvenal's Duskywing	S5	-	-	-	OBA
Hesperiidae	*Euphyes vestris*	Dun Skipper	S5	-	-	-	OBA
Hesperiidae	*Hesperia leonardus*	Leonard's Skipper	S4	-	-	-	OBA
Hesperiidae	*Pholisora catullus*	Common Sootywing	S4	-	-	-	OBA
Hesperiidae	*Poanes hobomok*	Hobomok Skipper	S5	-	-	-	OBA
Hesperiidae	*Polites mystic*	Long Dash Skipper	S5	-	-	-	OBA
Hesperiidae	*Polites origenes*	Crossline Skipper	S4	-	-	-	OBA
Hesperiidae	*Polites peckius*	Peck's Skipper	S5	-	-	-	OBA
Hesperiidae	*Polites themistocles*	Tawny-edged Skipper	S5	-	-	-	OBA
Hesperiidae	*Thorybes pylades*	Northern Cloudywing	S5	-	-	-	OBA
Hesperiidae	*Thymelicus lineola*	European Skipper	SE	-	-	-	OBA
Hesperiidae	*Wallengrenia egeremet*	Northern Broken-Dash	S5	-	-	-	OBA
Lasiocampidae	*Malacosoma americana*	Eastern Tent Caterpillar Moth	S5	-	-	-	OMA
Lestidae	*Lestes congener*	Spotted Spreadwing	S5	-	-	-	OOA
Lestidae	*Lestes disjunctus*	Northern Spreadwing	S5	-	-	-	OOA
Lestidae	*Lestes rectangularis*	Slender Spreadwing	S5	-	-	-	OOA
Lestidae	*Lestes unguiculatus*	Lyre-tipped Spreadwing	S5	-	-	-	OOA
Libellulidae	*Celithemis elisa*	Calico Pennant	S5	-	-	-	OOA
Libellulidae	*Erythemis simplicicollis*	Eastern Pondhawk	S5	-	-	-	OOA
Libellulidae	*Leucorrhinia intacta*	Dot-tailed Whiteface	S5	-	-	-	OOA
Libellulidae	*Libellula luctuosa*	Widow Skimmer	S5	-	-	-	OOA
Libellulidae	*Libellula pulchella*	Twelve-spotted Skimmer	S5	-	-	-	OOA
Libellulidae	*Pantala flavescens*	Wandering Glider	S4	-	-	-	OOA
Libellulidae	*Plathemis lydia*	Common Whitetail	S5	-	-	-	OOA

Family[1]	Scientific Name[2]	Common Name[3]	S-Rank[4]	SARO Status[5]	COSEWIC Status[6]	SARA Status[7]	Source(s)
Libellulidae	*Sympetrum costiferum*	Saffron-winged Meadowhawk	S4	-	-	-	OOA
Libellulidae	*Sympetrum internum*	Cherry-faced Meadowhawk	S5	-	-	-	OOA
Libellulidae	*Sympetrum obtrusum*	White-faced Meadowhawk	S5	-	-	-	OOA
Libellulidae	*Sympetrum semicinctum*	Band-winged Meadowhawk	S4	-	-	-	OOA
Libellulidae	*Sympetrum vicinum*	Autumn Meadowhawk	S5	-	-	-	OOA
Libellulidae	*Tramea lacerata*	Black Saddlebags	S4	-	-	-	OOA
Lycaenidae	*Callophrys niphon*	Eastern Pine Elfin	S5	-	-	-	OBA
Lycaenidae	*Celastrina lucia*	Northern Azure	S5	-	-	-	OBA
Lycaenidae	*Celastrina neglecta*	Summer Azure	S5	-	-	-	OBA
Lycaenidae	*Cupido comyntas*	Eastern Tailed Blue	S5	-	-	-	OBA
Lycaenidae	*Glaucopsyche lygdamus*	Silvery Blue	S5	-	-	-	OBA
Lycaenidae	*Lycaena hyllus*	Bronze Copper	S5	-	-	-	OBA
Lycaenidae	*Lycaena phlaeas*	American Copper	S5	-	-	-	OBA
Lycaenidae	*Satyrium acadica*	Acadian Hairstreak	S4	-	-	-	OBA
Lycaenidae	*Satyrium calanus*	Banded Hairstreak	S4	-	-	-	OBA
Lycaenidae	*Satyrium caryaevorus*	Hickory Hairstreak	S4	-	-	-	OBA
Lycaenidae	*Satyrium liparops*	Striped Hairstreak	S5	-	-	-	OBA
Lycaenidae	*Satyrium titus*	Coral Hairstreak	S5	-	-	-	OBA
Noctuidae	*Melanchra adjuncta*	Hitched Arches Moth	S5?	-	-	-	iNaturalist
Nymphalidae	*Boloria bellona*	Meadow Fritillary	S5	-	-	-	OBA
Nymphalidae	*Boloria selene*	Silver-bordered Fritillary	S5	-	-	-	OBA
Nymphalidae	*Cercyonis pegala*	Common Wood-Nymph	S5	-	-	-	OBA
Nymphalidae	*Chlosyne harrisii*	Harris's Checkerspot	S4	-	-	-	OBA
Nymphalidae	*Coenonympha tullia*	Common Ringlet	S5	-	-	-	OBA

Appendix D.4: Insect Records and Observations

Family[1]	Scientific Name[2]	Common Name[3]	S-Rank[4]	SARO Status[5]	COSEWIC Status[6]	SARA Status[7]	Source(s)
Nymphalidae	*Danaus plexippus*	Monarch	S2N,S4B	SC	END	SC	OBA, Stantec 2024
Nymphalidae	*Junonia coenia*	Common Buckeye	SNA	-	-	-	OBA
Nymphalidae	*Lethe anthedon*	Northern Pearly-Eye	S5	-	-	-	OBA
Nymphalidae	*Lethe eurydice*	Eyed Brown	S5	-	-	-	OBA
Nymphalidae	*Libytheana carinenta*	American Snout	SNA	-	-	-	OBA
Nymphalidae	*Limenitis archippus*	Viceroy	S5	-	-	-	OBA
Nymphalidae	*Limenitis arthemis arthemis*	White Admiral	S5	-	-	-	iNaturalist, OBA
Nymphalidae	*Limenitis arthemis astyanax*	Red-spotted Purple	S5	-	-	-	OBA
Nymphalidae	*Megisto cymela*	Little Wood-Satyr	S5	-	-	-	OBA
Nymphalidae	*Nymphalis antiopa*	Mourning Cloak	S5	-	-	-	OBA
Nymphalidae	*Nymphalis l-album*	Compton Tortoiseshell	S5	-	-	-	OBA
Nymphalidae	*Phyciodes cocyta*	Northern Crescent	S5	-	-	-	OBA,
Nymphalidae	*Phyciodes tharos*	Pearl Crescent	S4	-	-	-	OBA
Nymphalidae	*Polygonia comma*	Eastern Comma	S5	-	-	-	OBA
Nymphalidae	*Polygonia interrogationis*	Question Mark	S5	-	-	-	OBA
Nymphalidae	*Polygonia progne*	Gray Comma	S5	-	-	-	OBA
Nymphalidae	*Speyeria aphrodite*	Aphrodite Fritillary	S5	-	-	-	OBA
Nymphalidae	*Speyeria cybele*	Great Spangled Fritillary	S5	-	-	-	OBA
Nymphalidae	*Vanessa atalanta*	Red Admiral	S5B	-	-	-	OBA
Nymphalidae	*Vanessa cardui*	Painted Lady	S5B	-	-	-	OBA
Nymphalidae	*Vanessa virginiensis*	American Lady	S5	-	-	-	iNaturalist, OBA
Papilionidae	*Heraclides cresphontes*	Giant Swallowtail	S4	-	-	-	OBA
Papilionidae	*Papilio canadensis*	Canadian Tiger Swallowtail	S5	-	-	-	OBA

Family[1]	Scientific Name[2]	Common Name[3]	S-Rank[4]	SARO Status[5]	COSEWIC Status[6]	SARA Status[7]	Source(s)
Papilionidae	*Papilio polyxenes*	Black Swallowtail	S5	-	-	-	OBA
Papilionidae	*Pterourus canadensis x glaucus*	Midsummer Tiger Swallowtail	-	-	-	-	OBA
Papilionidae	*Pterourus glaucus complex*	Tiger Swallowtail Complex	-	-	-	-	OBA
Pieridae	*Colias eurytheme*	Orange Sulphur	S5	-	-	-	OBA
Pieridae	*Colias philodice*	Clouded Sulphur	S5	-	-	-	OBA
Pieridae	*Euchloe olympia*	Olympia Marble	S4	-	-	-	OBA
Pieridae	*Pieris oleracea*	Mustard White	S4	-	-	-	OBA
Pieridae	*Pieris rapae*	Cabbage White	SE	-	-	-	OBA
Saturniidae	*Actias luna*	Luna Moth	S5	-	-	-	OMA
Saturniidae	Antheraea polyphemus	Polyphemus Moth	S5	-	-	-	OMA
Saturniidae	*Dryocampa rubicunda*	Rosy Maple Moth	S5	-	-	-	OMA
Saturniidae	*Eacles imperialis pini*	Pine Imperial Moth	-	-	-	-	OMA
Saturniidae	*Hyalophora cecropia*	Cecropia Moth	S4S5	-	-	-	OMA
Sphingidae	*Ceratomia undulosa*	Waved Sphinx Moth	S5	-	-	-	OMA
Sphingidae	*Eumorpha pandorus*	Pandorus Sphinx Moth	S5	-	-	-	OMA
Sphingidae	*Paonias excaecata*	Blind-eyed Sphinx Moth	S5	-	-	-	OMA
Sphingidae	*Paonias myops*	Small-eyed Sphinx Moth	S5	-	-	-	OMA
Sphingidae	*Smerinthus cerisyi*	One-eyed Sphinx Moth	S5	-	-	-	OMA
Sphingidae	*Sphinx kalmiae*	Laurel Sphinx Moth	S5	-	-	-	iNaturalist
Tephritidae	*Eurosta solidaginis*	Goldenrod Gall Fly	-	-	-	-	iNaturalist

Notes:

[1] **Family Name:** The Family name of a species as published by the Natural Heritage Information Centre hosted by the Ministry of Natural Resources/Land Information Ontario.

[2] **Scientific Name:** The scientific name of a species as published by the Natural Heritage Information Centre hosted by the Ministry of Natural Resources/Land Information Ontario.

[3] **Common Name:** The common English name of a species as published by the Natural Heritage Information Centre hosted by the Ministry of Natural Resources/Land Information Ontario.

[4] **S-Rank:** Subnational Rank (S-Rank) is the conservation status of a species or plant community within a particular province, territory or state. In this scenario, it is the provincial-level ranking system as published by the Natural Heritage Information Centre hosted by the Ministry of Natural Resources/Land Information Ontario.

[5] **SARO Status:** Species at Risk in Ontario (Provincial Status as defined by the Endangered Species Act, 2007 as amended).

[6] **COSEWIC Status**: Status as defined by the Committee on the Status of Endangered Wildlife in Canada.

[7] **SARA Status:** Federal status as defined by the Species at Risk Act.

Source(s):

iNaturalist: iNaturalist. 2024. iNaturalist Species Observation Database. Accessed September 2024. Available Online: https://www.inaturalist.org/

OBA: Macnaughton, A., Layberry, R., Cavasin, R., Edwards, B., and Jones, C. 2023. Ontario Butterfly Atlas [web application]. Listowel, Ontario. Available online: https://www.ontarioinsects.org/atlas/

OMA: Kaposi, D., Macnaughton, A., and Edwards, B. 2020. Ontario Moth Atlas. Accessed September 2024. Available Online: https://www.ontarioinsects.org/moth/

OOA: Ontario Odonata Atlas Database. 2024. Natural Heritage Information Centre, Ontario Ministry of Natural Resources and Forestry. Species list from atlas squares " 17PJ86," “17PJ87” queried on September 2024.

Stantec 2024: Stantec 2024 field program as described in Section 3.3.

Endangered Species Act and Species at Risk Act Acronyms

END: Endangered

THR: Threatened

SC: Special Concern

EXT: Extirpated

NAR: Not at Risk

Subnational Rankings (S-Rank)

SNR: Unranked

SU: Unrankable – Currently unrankable due to lack of information

SNA: Not applicable – A conservation status rank is not applicable because the species is not a suitable target for conservation activities

S#S#: Range Rank – A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species

?: Indicates uncertainty in the assigned rank

S1: Critically Imperiled – Critically imperiled in the province (often 5 or fewer occurrences)

S2: Imperiled – Imperiled in the province, very few populations (often 20 or fewer),

S3: Vulnerable – Vulnerable in the province, relatively few populations (often 80 or fewer)

S4: Apparently Secure – Uncommon but not rare

S5: Secure – Common, widespread, and abundant in the province

SX: Presumed extirpated

SH: Possibly Extirpated (Historical)

SE: if an element is known to occur as an exotic in Ontario, the status value assigned is SE. A ? qualifier added to that value indicates uncertainty about whether it is exotic or native. Numeric ranks of 1 through 5 added to the exotic status indicates the element's abundance in Ontario, with 1 indicating the least abundant and 5 the most.

Appendix D.5: Fish Records and Observations

Family[1]	Scientific Name[2]	Common Name[3]	S-Rank[4]	SARO Status[5]	COSEWIC Status[6]	SARA Status[7]	Spawning Season[8]	Thermal Preference[9]	Source
Catostomidae	*Catostomus commersonii*	White Sucker	S5	-	-	-	Spring	Cool	MNRF 2024
Centrarchidae	*Ambloplites rupestris*	Rock Bass	S5	-	-	-	Spring	Cool	MNRF 2024
Centrarchidae	*Lepomis gibbosus*	Pumpkinseed	S5	-	-	-	Spring-Summer	Warm	MNRF 2024
Cottidae	*Cottus bairdii*	Mottled Sculpin	S5	-	-	-	Spring	Cool	MNRF 2024
Cottidae	*Cottus cognatus*	Slimy Sculpin	S5	-	-	-	Fall	Cold	MNRF 2024
Cyprinidae	*Chrosomus eos*	Northern Redbelly Dace	S5	-	-	-	Spring-Summer	Cool	MNRF 2024
Cyprinidae	*Luxilus cornutus*	Common Shiner	S5	-	-	-	Spring	Cool	MNRF 2024
Cyprinidae	*Notropis heterolepis*	Blacknose Shiner	S5	-	-	-	Summer	Cool	MNRF 2024
Cyprinidae	*Pimephales notatus*	Bluntnose Minnow	S5	NAR	NAR	-	Summer	Warm	MNRF 2024
Cyprinidae	*Pimephales promelas*	Fathead Minnow	S5	-	-	-	Spring-Summer	Warm	MNRF 2024
Cyprinidae	*Rhinichthys cataractae*	Longnose Dace	S5	-	-	-	Spring-Summer	Cool	MNRF 2024
Cyprinidae	*Rhinichthys obtusus*	Western Blacknose Dace	S5	-	-	-	Spring	Cool	MNRF 2024
Cyprinidae	*Semotilus atromaculatus*	Creek Chub	S5	-	-	-	Spring	Cool	MNRF 2024
Gasterosteidae	*Culaea inconstans*	Brook Stickleback	S5	-	-	-	Spring-Summer	Cool	MNRF 2024
Percidae	*Etheostoma caeruleum*	Rainbow Darter	S4	-	-	-	Spring	Cool	MNRF 2024
Percidae	*Etheostoma nigrum*	Johnny Darter	S5	-	-	-	Spring	Cool	MNRF 2024

Family[1]	Scientific Name[2]	Common Name[3]	S-Rank[4]	SARO Status[5]	COSEWIC Status[6]	SARA Status[7]	Spawning Season[8]	Thermal Preference[9]	Source
Percidae	*Etheostoma nigrum x Etheostoma olmstedi*	Johnny Darter x Tessellated Darter	S5/S4	-	-	-	Spring	Cool	MNRF 2024
Percidae	*Perca flavescens*	Yellow Perch	S5	-	-	-	Spring	Cool	MNRF 2024
Percidae	*Percina caprodes*	Logperch	S5	-	-	-	Spring	Warm	MNRF 2024
Petromyzontidae	*Lethenteron appendix*	American Brook Lamprey	S3	-	-	-	Spring	Cold	MNRF 2024
Petromyzontidae	*Petromyzon marinus*	Sea Lamprey	SE	-	-	-	Spring	Cool	MNRF 2024
Salmonidae	*Oncorhynchus kisutch*	Coho Salmon	SE	-	-	-	Fall	Cold	MNRF 2024
Salmonidae	*Oncorhynchus mykiss*	Rainbow Trout	SE	-	-	-	Spring	Cold	MNRF 2024
Salmonidae	*Oncorhynchus tshawytscha*	Chinook Salmon	SE	-	-	-	Fall	Cold	MNRF 2024
Salmonidae	*Salmo salar*	Atlantic Salmon	SNA	-	-	-	Fall	Cold	MNRF 2024
Salmonidae	*Salmo trutta*	Brown Trout	SE	-	-	-	Fall	Cold	MNRF 2024
Salmonidae	*Salvelinus fontinalis fontinalis*	Brook Trout	S5	-	-	-	Fall	Cold	MNRF 2024

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[5] **SARO Status:** Species at Risk in Ontario (Provincial Status as defined by the Endangered Species Act, 2007 as amended).

[6] **COSEWIC Status:** Status as defined by the Committee on the Status of Endangered Wildlife in Canada.

[7] **SARA Status:** Federal status as defined by the Species at Risk Act.

[8] **Spawning Season:** Fish spawning season taken from Eakins, R.J. 2024. Ontario Freshwater Fishes Life History Database. Version 5.31. Online database. (https://www.ontariofishes.ca), accessed 28 September 2024

[9] **Thermal Preference:** Fish thermal preference taken from Eakins, R.J. 2024. Ontario Freshwater Fishes Life History Database. Version 5.31. Online database. (https://www.ontariofishes.ca), accessed 28 September 2024

References:

MNRF 2024: Ontario Ministry of Natural Resources and Forestry (MNRF). 2024. Land Information Ontario Digital mapping of natural heritage features, Ontario Ministry of Natural Resources. Available Online: http://www.gisapplication.lrc.gov.on.ca/mamnh/Index.html?site=MNR_NHLUPS_NaturalHeritage&viewer=NaturalHeritage&locale=en-US

Endangered Species Act and Species at Risk Act Acronyms

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Subnational Rankings (S-Rank)

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S#S#: Range Rank – A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species

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Appendix E SAR and SOCC Habitat Screening Assessment

Appendix E.1: Species at Risk Habitat Screening Assessment

Group	Common Name[1]	Scientific Name[2]	SARO[3]	COSEWIC[4]	SARA[5]	S-Rank[6]	Source(s)	Habitat Description	Probability of Occurrence in the Study Area
Birds	Bank Swallow	*Riparia riparia*	THR	THR	THR	S4B	OBBA	The Bank Swallow breeds on a variety of sites with vertical banks, including riverbanks, bluffs, aggregate pits and stockpiles of sand and soil. Sand-silt substrates are preferred. Nesting sites are often near open habitats used for aerial foraging. Large wetlands are used as communal roosts during post-breeding, migration, and wintering periods (COSEWIC 2013).	Absent - There were no eroding banks suitable for Bank Swallow observed in the Study Area. This species was not observed during the field program.
Birds	Bobolink	*Dolichonyx oryzivorus*	THR	SC	THR	S4B	OBBA, NHIC	Bobolink nest primarily in forage crops with a mixture of grasses and broad-leaved forbs, predominantly hayfields and pastures. Preferred ground cover species include grasses such as Timothy and Kentucky bluegrass and forbs such as clover and dandelion (COSEWIC 2010a). Bobolink is an area-sensitive species, with reported lower reproductive success in small habitat fragments (COSEWIC 2010a).	Low – Suitable habitat potentially present in Study Area. Targeted surveys completed for this species on the Subject Lands. This species was not observed during the field program.
Birds	Chimney Swift	*Chaetura pelagica*	THR	THR	THR	S4B, S4N	OBBA	Chimney Swift use chimneys for roosting and breeding, and less commonly, nest in large hollow trees (Cadman et al. 2007). Nesting sites typically have a constant ambient temperature (COSEWIC 2007). It is an aerial insectivore and often forages near water (COSEWIC 2007).	Low – Potential habitat was identified associated with the chimneys associated with the residential dwelling on the Subject Lands. Breeding bird surveys as all as targeted evening surveys were completed for this species. This species was not observed throughout the field program.
Birds	Eastern Meadowlark	*Sturnella magna*	THR	THR	THR	S4B	OBBA, NHIC, Stantec	Meadowlarks are ground nesting birds (Harrison, 1975), which are often associated with human-modified habitats where they sing from prominent perches such as roadside wires, trees, and fenceposts. As a grassland species the Eastern Meadowlark typically occurs in meadows, hayfields and pastures. However, it will utilize a wider range of habitat than most grassland species, including mown lawn (e.g. golf course, parks), wooded city ravines, young conifer plantations and orchards (Peck and James 1983). The Eastern Meadowlark is generally tolerant of habitat with early succession of trees or shrubs.	High - Cultural meadows and agricultural fields present in the Study Area have the potential to support Eastern Meadowlark. Eastern Meadowlark was confirmed in the Study Area during field investigations (in the fields on Adjacent Lands). Targeted surveys were completed for this species on the Subject Lands; this species was not observed utilizing the Subject Lands during the field program.
Birds	Least Bittern	*Ixobrychus exilis*	THR	THR	THR	S4B	OBBA, NHIC	The Least Bittern is a relatively small bird that nests in freshwater marshes where dense aquatic vegetation occurs with woody vegetation and open water. They are found most commonly in marshes greater than 5 ha in size (Gibbs *et al.*, 1992). The Canadian population of Least Bitterns is estimated at less than 1000 pairs. The majority of Least Bitterns that breed in Canada are found in Ontario. The species is designated threatened due to its very small and declining population that depends on high quality marsh habitats that are being lost and degraded across the species' range (NHIC, 2007). The Least Bittern is protected under the Canadian Species at Risk Act (SARA), the Canada/United States Migratory Birds Convention and the Migratory Bird Treaty between the United States and Mexico.	Low - Wetlands in the Study Area are generally small and do not have adequate open water present for Least Bittern. This species was not observed during the field program.
Birds	Northern Bobwhite	*Colinus virginianus*	END	END	END	S1	NHIC, OBBA	The Northern Bobwhite is a very rare and declining grassland species. The best habitat in southern Ontario includes the grasslands and savannahs of Walpole Island, however, there is potential habitat along riparian zones along the Thames River and Kettle Creek (Cadman *et al.,* 2007). Fragmentation and loss of suitable grassland habitat through intensified agricultural practices are the major factors limiting populations of this species (COSEWIC, 2003a).	Low - Northern Bobwhite is extremely rare in the province and unlikely to occur in the Study Area. This species was not observed during the field program.
Birds	Piping Plover	*Charadrius melodus*	END	END	END	S1B	OBBA, NHIC	Piping plover nesting in southern Ontario is restricted to the shores of the Great Lakes and Lake of the Woods in northwestern Ontario. Nesting sites include open sand, gravel, or shell-covered substrate above the tideline. (Cadman et al, 2007).	Absent - The Study Area does not include suitable shoreline habitat. This species was not observed during the field program.
Birds	Red-headed Woodpecker	*Melanerpes erythrocephalus*	END	END	END	S3	OBBA	The Red-headed Woodpecker Occupies a wide range of habitats, but most are characterized by open areas for feeding, snags for roosting, and a secure food supply. This species requires multiple snags for nesting, roosting, and foraging. Some of the habitats used are open deciduous and riparian woodlands, orchards, parks, agricultural lands, savanna-like grasslands, beaver ponds with snags, forest edges, burned forests, and flooded bottomland forests. Habitats are similar in both	Low - Potential habitat was observed in the Study Area. This species was not observed during the field program.

Group	Common Name[1]	Scientific Name[2]	SARO[3]	COSEWIC[4]	SARA[5]	S-Rank[6]	Source(s)	Habitat Description	Probability of Occurrence in the Study Area
								breeding and wintering range, but winter distribution most determined by presence of food.	
Mammals	Eastern Wolf	*Canis sp. cf. lycaon*	THR	THR	SC	S2	iNaturalist	Eastern Wolves typically occur in deciduous and mixed forest landscapes with low human density, south of the Boreal Forest Region. Sandy soils are often preferred for den sites. Both den and rendezvous sites tend to be located in conifer/hardwood-dominated landscapes near a permanent water source. Territory size is often near 200 km^2 (COSEWIC 2015)	Low – Habitat quality for this species was observed to be low and forest size is not considered large enough / not conducive to supporting this species in the Study Area.
Mammals	Little Brown Myotis	*Myotis lucifugus*	END	END	END	S4	iNaturalist, Stantec	This species up until recently was considered the most common bat species in Ontario, and most frequently found bat species in North America. The recent change in status is due to significant declines in recent years attributed to a condition referred to as White-nose Syndrome (WNS). A widespread species, the Little Brown Bat is commonly found in warm sites such as buildings, attics, roof crevices, under bridges or in cavities of canopy trees in the forest (COSEWIC, 2013).	High - Forest and swamp communities and buildings in the Study Area have the potential to provide suitable bat maternity habitat for SAR bats. Little Brown Myotis was recorded in the Study Area during bat acoustic surveys.
Mammals	Northern Myotis	*Myotis septentrionalis*	END	END	END	S3?	COSEWIC 2013, Dobbyn 1994, Stantec*	The Northern Myotis (formerly Northern Long-eared Bat; *Myotis septentrionalis*) is a resident bat of upland forests of eastern North America, typically foraging for aerial insects in the forest understory. Maternity roosts are typically located under the bark of large trees and are rarely found in human-made structures. Hibernating colonies typically reside in cave crevices (COSEWIC, 2013). The precipitous population decline of this species in recent years is attributed to a condition referred to as White-nose Syndrome (WNS).	Medium - Forest and swamp communities and buildings in the Study Area have the potential to provide suitable bat maternity habitat for SAR bats. *Northern Myotis was not recorded in the Study Area during bat acoustic surveys; however, there were several unidentified Myotis species calls recorded which have the potential to be Northern Myotis.
Mammals	Eastern Small-footed Myotis	*Myotis leibii*	END	END	-	S2S3	Stantec*	The least understood of Ontario's bats, the Small-footed Bat hibernates in the fall in caves and abandoned mines after mating occurs near these communal sites. During summer months, this bat typically roosts in crevices and cracks associated with rocky site (e.g. rip rap, rock piles, bluffs, bedrock outcrops) but also have also been found in old buildings (e.g., barns, and houses). A condition referred to as White-nose Syndrome (WNS) which spreads among hibernating bats is attributed to recent declines in this species, as with other Ontario Myotis bats.	Medium - Forest and swamp communities and buildings in the Study Area have the potential to provide suitable bat maternity habitat for SAR bats. *Eastern Small-footed Myotis was not recorded in the Study Area during bat acoustic surveys; however, there were several unidentified Myotis species calls recorded which have the potential to be Eastern Small-footed Myotis.
Mammals	Tri-colored Bat	*Perimyotis subflavus*	END	END	END	S3?	COSEWIC 2013	The Tri-colored Bat roosts in colonies in tree cavities (COSEWIC 2013b) in a wide variety of deciduous and coniferous forest stands. It is strongly associated with forest watercourses and streamside vegetation (COSEWIC 2013b).	Medium - Forest and swamp communities in the Study Area have the potential to provide suitable bat maternity habitat for SAR bats. Tri-colored Bat was not recorded in the Study Area during bat acoustic surveys; however, there were 3 unidentified species calls recorded as either Eastern Red bat or Tri-colored Bat that could not be confirmed.
Mammals	Silver-haired Bat	*Lasionycteris noctivagans*	END	END	-	S3	COSEWIC 2023, Dobbyn 1994, Stantec	Summer habitat for this species of migratory bats is characterized as foraging, drinking, and roost sites, with roosts being particularly important (Humphrey 1975; Fenton 1997). In Canada, these bats use mostly treed habitats for roosting or foraging, with a particularly strong dependence on trees as roosting sites. Foraging habitats are less well known but likely include the area above aquatic habitats (Barclay 1989), low-elevation meadows, grasslands, and fields, as well as open-canopied forest, the area above forest canopies, and forest edges. Drinking habitat is not well known and assumed to be the same as aquatic foraging habitats. As habitat generalists, this species occupies a wide diversity of habitats across their geographic range (Fenton 1997; Gehrt and Chelsvig 2004) and can efficiently move large distances to access required resources (Ethier and Fahrig 2011). Habitat use varies within and between seasons, and potentially between sexes, with different habitats used depending on whether individuals are occupying their summer range, migrating, or overwintering (Cryan and Veilleux 2007).	High - Forest and swamp communities and buildings in the Study Area have the potential to provide suitable bat maternity habitat for SAR bats. This species was recorded in the Study Area during bat acoustic surveys.

Appendix E.1: Species at Risk Habitat Screening Assessment

Group	Common Name[1]	Scientific Name[2]	SARO[3]	COSEWIC[4]	SARA[5]	S-Rank[6]	Source(s)	Habitat Description	Probability of Occurrence in the Study Area
Mammals	Eastern Red Bat	*Lasiurus borealis*	END	END	-	S3	COSEWIC 2023, Dobbyn 1994, Stantec	Summer habitat for this species of migratory bats is characterized as foraging, drinking, and roost sites, with roosts being particularly important (Humphrey 1975; Fenton 1997). In Canada, these bats use mostly treed habitats for roosting or foraging, with a particularly strong dependence on trees as roosting sites. Foraging habitats are less well known but likely include the area above aquatic habitats (Barclay 1989), low-elevation meadows, grasslands, and fields, as well as open-canopied forest, the area above forest canopies, and forest edges. Drinking habitat is not well known and assumed to be the same as aquatic foraging habitats. As habitat generalists, this species occupies a wide diversity of habitats across their geographic range (Fenton 1997; Gehrt and Chelsvig 2004) and can efficiently move large distances to access required resources (Ethier and Fahrig 2011). Habitat use varies within and between seasons, and potentially between sexes, with different habitats used depending on whether individuals are occupying their summer range, migrating, or overwintering (Cryan and Veilleux 2007).	High - Forest and swamp communities and buildings in the Study Area have the potential to provide suitable bat maternity habitat for SAR bats. This species was recorded in the Study Area during bat acoustic surveys.
Mammals	Northern Hoary Bat	*Lasiurus cinereus*	END	END	-	S3	COSEWIC 2023, iNaturalist, Stantec	Summer habitat for this species of migratory bats is characterized as foraging, drinking, and roost sites, with roosts being particularly important (Humphrey 1975; Fenton 1997). In Canada, these bats use mostly treed habitats for roosting or foraging, with a particularly strong dependence on trees as roosting sites. Foraging habitats are less well known but likely include the area above aquatic habitats (Barclay 1989), low-elevation meadows, grasslands, and fields, as well as open-canopied forest, the area above forest canopies, and forest edges. Drinking habitat is not well known and assumed to be the same as aquatic foraging habitats. As habitat generalists, this species occupies a wide diversity of habitats across their geographic range (Fenton 1997; Gehrt and Chelsvig 2004) and can efficiently move large distances to access required resources (Ethier and Fahrig 2011). Habitat use varies within and between seasons, and potentially between sexes, with different habitats used depending on whether individuals are occupying their summer range, migrating, or overwintering (Cryan and Veilleux 2007).	High - Forest and swamp communities and buildings in the Study Area have the potential to provide suitable bat maternity habitat for SAR bats. This species was recorded in the Study Area during bat acoustic surveys.
Plants	Butternut	*Juglans cinerea*	END	END	END	S3?	Stantec	Butternut is commonly found in a variety of habitats throughout Southern Ontario, including woodlands and hedgerows ideal habitat includes rich, moist, and well-drained soils often found along streams, but may also be found on well-drained gravel sites, particularly those made of limestone (COSEWIC, 2003b). Butternut is intolerant of shade and occurs singly or in small groups with a variety of associates (Farrar, 1995).	Confirmed - Butternut was visually confirmed in the Study Area during the field program at the west end of the Subject Lands.

Notes:

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2 **Common Name:** The common English name of a species as published by the Natural Heritage Information Centre hosted by the Ministry of Northern Development, Mines, Natural Resources and Forestry/Land Information Ontario.

3 **S Rank:** Subnational Rank is the conservation status of a species or plant community within a particular province, territory or state. In this scenario, it is the provincial level ranking system as published by the Natural Heritage Information Centre hosted by the Ministry of Northern Development, Mines, Natural Resources and Forestry/Land Information Ontario.

4 **SARO Status:** Species at Risk in Ontario (Provincial Status as defined by the Endangered Species Act, 2007 as amended).

5 **COSEWIC Status:** Status as defined by the Committee on the Status of Endangered Wildlife in Canada

6 **SARA Status:** Federal status as defined by the Species at Risk Act

References:

NHIC: Natural Heritage Information Centre database review (Ministry of Northern Development, Mines, Natural Resources and Forestry/Land Information Ontario).

MNDMNRF: MNDMNRF Species at Risk in Ontario List. Species range information retrieved November 2021 from https://www.ontario.ca/page/species-risk-ontario

OBBA: Cadman, M. D., D.A. Sutherland, G.G. Beck, D. Lepage, A.R. Couturier. 2007. Atlas of the Breeding Birds of Ontario, 2001-2005. (eds) Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of natural resources, and Ontario Nature, Toronto, xxii + 318pp

ORAA: Ontario Nature. 2019. Ontario Reptile and Amphibian Atlas [web application]. Toronto, Ontario. Available online: https://ontarionature.org/oraa/maps/

Stantec: Observed by Stantec during 2021 field investigations.

Endangered Species Act and Species at Risk Act Acronyms

END: Endangered

THR: Threatened

SC: Special Concern

EXT: Extirpated

NAR: Not at Risk

Subnational Rankings (S RANK)

SNR: Unranked

SU: Unrankable – Currently unrankable due to lack of information

SNA: Not applicable – A conservation status rank is not applicable because the species is not a suitable target for conservation activities

S#S#: Range Rank – A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species

?: Indicates uncertainty in the assigned rank

S1: Critically Imperiled – Critically imperiled in the province (often 5 or fewer occurrences)

S2: Imperiled – Imperiled in the province, very few populations (often 20 or fewer),

S3: Vulnerable – Vulnerable in the province, relatively few populations (often 80 or fewer)

S4: Apparently Secure – Uncommon but not rare

S5: Secure – Common, widespread, and abundant in the province

SX: Presumed extirpated

SH: Possibly Extirpated (Historical)

SE: if an element is known to occur as an exotic in Ontario, the status value assigned is SE. A? qualifier added to that value indicates uncertainty about whether it is exotic or native. Numeric ranks of 1 through 5 added to the exotic status indicates the element's abundance in Ontario, with 1 indicating the least abundant and 5 the most.

Appendix E.2: Species of Conservation Concern Habitat Screening Assessment

Group	Common Name[1]	Scientific Name[2]	SARO[3]	COSEWIC[4]	SARA[5]	S-Rank[6]	Source(s)	Habitat Description	Probability of Occurrence in the Study Area
Birds	Barn Swallow	*Hirundo rustica*	SC	SC	THR	S4B	OBBA	The Barn Swallow commonly nests on walls or ledges of barns, bridges, culverts or other man-made structures (Cadman et al. 2007). Where suitable nesting structures occur, Barn Swallow often form small colonies, sometimes mixed with other swallow species. The Barn Swallow feeds on aerial insects while foraging over a variety of open habitats such as pastures, lawns, meadows and fields (COSEWIC 2011). It will also frequently forage in woodland clearings, over wetland habitats or open water where insect prey is abundant (Cadman et al. 2007).	Low – Habitat not observed in the Study Area. No nests were observed associated with the existing building on the Subject Lands. This species was not observed during the field program.
Birds	Eastern Whip-poor-will	*Antrostomus vociferus*	SC	SC	SC	S4B	OBBA	The Eastern Whip-poor-will is ranked as S4B provincially (apparently secure breeding status rank) and is designated a provincially and federally threatened species. This species is afforded general habitat protection under the ESA (2007). Typically associated with pine and oak, this species avoids both wide-open spaces and closed canopy forests. Nesting habitat includes semi-open or patchy forests, rock or sand barrens with scattered trees, savannahs, or forests that are regenerating following major disturbances (e.g., fire; COSEWIC 2009). Two eggs are laid directly on the leaf litter typically around the time of the full moon (Cadman et al., 2007). In winter, Whip-poor-wills occupy primarily mixed woods, commonly in broadleaf evergreen forests near open areas (COSEWIC 2009).	Low – High quality habitat for this species was not observed in the Study Area. This species was not observed during the field program.
Birds	Eastern Wood-Pewee	*Contopus virens*	SC	SC	SC	S4B	OBBA, Stantec	The Eastern Wood-Pewee is a forest bird of deciduous and mixed woods. Nest-site selection favors open space near the nest, typically provided by clearings, roadways, water, and forest edges. Nests are cryptic as they are covered with lichens, typically appearing like a knot on top of a branch and little is known about nesting behavior (Cadman et al, 2007).	Confirmed – Potential habitat for Eastern Wood-Pewee occurs throughout the forests and woodlands in the Study Area. This species was observed during Stantec's field program in the woodlands immediately adjacent to the Enridge Gas easement.
Birds	Grasshopper Sparrow	*Ammodramus savannarum*	SC	SC	-	S4B	OBBA	In Ontario, the Eastern Grasshopper Sparrow uses a variety of agricultural fields, from planted cereals (e.g. rye) to cattle pastures for breeding and feeding. Dry, close-grazed pastures such as those on till moraines (e.g. Mulmer Hills west of Lake Simcoe, the Dummer Moraine east of Peterborough, and the Oak Ridges Moraine north of Lake Ontario between the Toronto area and Trenton), and limestone plains such as the Carden and Napanee plains and Dufferin County, support the highest densities of Grasshopper Sparrow in the province (D.A. Sutherland, pers. comm. 2012).	Low – High quality habitat for this species was not observed in the Study Area. This species was not observed during the field program.
Birds	Peregrine Falcon	*Falco peregrinus*	SC	NAR	SC	S4	OBBA	Traditionally, in Ontario, the peregrine falcon has been a rare breeder, preferring suitable rock cliffs, particularly those adjacent to water. More recently the species has been released in various urban centers in Ontario where it successfully nests on tall buildings. Relatively recent increases in abundance and distribution are owing to now established populations in natural areas and urban environments, both of which are separate and distinct populations. These increases reflect the large-scale recovery efforts across the species range (Cadman et al, 2007). Despite significant recovery from population declines due to exposure to organochlorine pesticides, particularly DDT, limiting factors still include pesticide use in the species' wintering range as well as human disturbance at nest sites and increased legal and illegal harvest for falconry (COSEWIC, 2007b).	Low – Rock cliffs and tall buildings were absent from the Study Area. This species was not observed during the field program.

Group	Common Name[1]	Scientific Name[2]	SARO[3]	COSEWIC[4]	SARA[5]	S-Rank[6]	Source(s)	Habitat Description	Probability of Occurrence in the Study Area
Birds	Wood Thrush	*Hylocichla mustelina*	SC	THR	THR	S4B	NHIC, OBBA, Stantec	Wood Thrush prefer deciduous and mixed forests in southern Ontario, ranging from small and isolated to large and contiguous woodlots. The presence of tall trees and a thick understory are preferred (Cadman *et al.,* 2007).	Confirmed – Potential habitat for Wood Thrush occurs throughout the forests and woodlands in the Study Area. This species was observed singing at two survey stations during Stantec's breeding bird surveys. Multiple detections of Wood Thrush were made in the woodlands immediately adjacent to the Enridge Gas easement, and this area is expected to support breeding habitat for this species. One male was heard singing on one date to the west of BBS3, near Liberty Street North; this is considered a possible breeder and woodlands in that location are considered candidate habitat (not confirmed).
Reptiles	Snapping Turtle	*Chelydra serpentina*	SC	SC	SC	S4	iNaturalist, ORAA	Snapping Turtles inhabit ponds, sloughs, streams, rivers, and shallow bays that are characterized by slow moving water, aquatic vegetation, and soft bottoms. Females show strong nest site fidelity and nest in sand or gravel banks at waterway edges in late May or early June (COSEWIC, 2008).	Medium – Potential habitat for this species is associated with the open aquatic wetlands observed on the west side of Liberty Street North in the Study Area. Given the distance of these features (and site access constraints), these wetlands were not surveyed as part of the assessment. Snapping Turtle habitat was not observed on the Subject Lands.
Amphibians	Western Chorus Frog - Great Lakes - St. Lawrence - Canadian Shield population	*Pseudacris maculata pop. 1*	NAR	THR	THR	S4	ORAA	Western chorus frogs inhabit a range of habitat types including woodlands, meadows, and agricultural land. They overwinter in terrestrial habitats under rocks, logs, leaf litter, loose soil, or animal burrows. The eggs are laid in small clumps attached to submerged vegetation usually in small or shallow aquatic habitats, mostly temporary ponds and wetlands that become dry in the summer. The western chorus frog will often move into grassy or weedy fields during the non-breeding summer season (COSEWIC, 2008).	Low – Potential habitat observed in the Study Area. No Western Chorus Frogs were observed during the amphibian surveys nor during any other site visits throughout the field program.
Insects	Monarch	*Danaus plexippus*	SC	END	SC	S4B, S2N	OBA, Stantec	In southern Ontario the Monarch is found primarily wherever milkweed and wildflowers (including goldenrods, asters and purple loosestrife) exist (COSEWIC, 2010). The Larvae occur only where milkweed exists; adults are more generalized, feeding on a variety of wildflower nectar (OMNR, 2014). This includes abandoned farmland, along roadsides, and other open spaces where these plants grow (COSEWIC, 2010).	High – Cultural meadows in the Study Area have the potential to support Monarch. Monarch was observed foraging in the Study Area during field investigations.

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OBBA: Cadman, M. D., D.A. Sutherland, G.G. Beck, D. Lepage, A.R. Couturier. 2007. Atlas of the Breeding Birds of Ontario, 2001-2005. (eds) Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of natural resources, and Ontario Nature, Toronto, xxii + 318pp

Ontario Butterfly Atlas: Retrieved October 2021 from https://www.ontarioinsects.org/atlas/

Stantec: Observed by Stantec during 2021 field investigations.

Appendix E.2: Species of Conservation Concern Habitat Screening Assessment

Endangered Species Act and Species at Risk Act Acronyms

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Subnational Rankings (S RANK)

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S3: Vulnerable – Vulnerable in the province, relatively few populations (often 80 or fewer)

S4: Apparently Secure – Uncommon but not rare

S5: Secure – Common, widespread, and abundant in the province

SX: Presumed extirpated

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Appendix F Significant Wildlife Habitat Screening Assessment

Candidate Wildlife Habitat	Criteria	Methods	Probability of Occurrence in the Study Area
Seasonal Concentration Areas			
Waterfowl Stopover and Staging Area (Terrestrial)	Fields with sheet water during spring (mid-March to May), or annual spring meltwater flooding found in any of the following Community Types: Meadow (CUM1), Thicket (CUT1). Agricultural fields with waste grains are commonly used by waterfowl, and these are not considered SWH unless they have sheet water available.	ELC, breeding bird surveys and wildlife habitat assessments were used to assess features within the Study Area that may support waterfowl stopover and staging areas (terrestrial).	**Low:** Potentially suitable SWH habitat was observed in the fields east of the Subject Lands in the south-east quadrant of the Study Area (flooding and OAO observed north of Concession Road 4). The results of the breeding bird survey and avifauna observations during the field program did not identify the presence of the listed waterfowl species.
Waterfowl Stopover and Staging Area (Aquatic)	The following Community Types: Meadow Marsh (MAM), Shallow Marsh (MAS), Shallow Aquatic (SA), Deciduous Swamp (SWD). Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration to support waterfowl. The combined area of the ELC ecosites and a 100 m radius area is the SWH. Sewage treatment ponds and stormwater ponds do not qualify as a SWH; however, a reservoir managed as a large wetland or pond/lake does qualify.	ELC, breeding bird surveys and wildlife habitat assessments were used to assess features within the Study Area that may support waterfowl stopover and staging areas (aquatic).	**Low**: Potentially suitable SWH habitat was observed in the Study Area. The results of the breeding bird survey and avifauna observations during the field program did not identify the presence of the listed waterfowl species.
Shorebird Migratory Stopover Area	Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats. Great Lakes coastal shorelines, including groynes and other forms of amour rock lakeshores, are extremely important for migratory shorebirds in May to mid-June and early July to October. Sewage treatment ponds and storm water ponds do not qualify as a significant wildlife habitat. The following community types: Meadow Marsh (MAM), shoreline (BB), or Sand Dune (SD).	ELC, breeding bird surveys and wildlife habitat assessments were used to assess features within the Study Area that may support migratory shorebirds.	**Low:** Potentially suitable SWH habitat may be present in the Study Area associated with the ponds located west of Liberty Street North. The results of the breeding bird survey and avifauna observations during the field program did not identify the presence of the listed shorebird species.
Raptor Wintering Area	At least one of the following Forest Community Types: Deciduous Forest (FOD), Mixed Forest (FOM) or Coniferous Forest (FOC), in combination with one of the following Upland Community Types: Meadow (CUM1), Thicket (CUT1), Savannah (CUS1), Woodland (CUW1) (<60% cover) that are >20 ha and provide roosting, foraging and resting habitats for wintering raptors. Upland habitat (CUM1, CUT1, CUS1, CUW1), must represent at least 15 ha of the 20 ha minimum size.	ELC, breeding bird surveys and GIS analysis were used to assess features within the Study Area that may support wintering raptors.	**Low**: Insufficient qualifying upland habit types are absent in the Study Area. There are known raptor records in the general area. The listed raptors were not observed during the breeding bird surveys on the Subject Lands.
Bat Hibernacula	Hibernacula may be found in caves, mine shafts, underground foundations and karsts. May be found in these Community Types: Crevice (CCR), Cave (CCA).	ELC surveys and field site visits were used to assess features within the Study Area that may support bat hibernacula.	**Low**: Habitat not observed on the Subject Lands. Given the geology and topography of the area, habitat is considered unlikely to be present in the Study Area.
Bat Maternity Colonies	Maternity colonies considered significant wildlife habitat are found in forested ecosites. Either of the following Community Types: Deciduous Forest (FOD), Mixed Forest (FOM), Deciduous Swamp (SWD), Mixed Swamp (SWM). Maternity colonies can be found in tree cavities, vegetation and often in buildings (buildings are not considered to be SWH). Female Bats prefer wildlife tree (snags) in early stages of decay, class 1-3 or class 1 or 2. Maternity colonies confirmed if >10 Big Brown Bats are observed roosting in suitable woodlands.	ELC and arborist surveys were used to assess features within the Study Area that may support bat maternity colonies.	**High:** Good quality SWH habitat has been identified associated with the woodlands on the Subject Lands and in the Study Area. It is considered highly likely that greater than 10 Big Brown Bats are roosting in the woodlands in the NHS during the maternity roosting period based on the results of bat acoustic surveys completed in 2024 and 2025.
Turtle Wintering Areas	Snapping and Midland Painted turtles utilize ELC community classes: Swamp (SW), Marsh (MA) and Open Water (OA). Shallow water (SA), Open Fen (FEO) and Open Bog (BOO). Northern Map turtle- open water areas such as deeper rivers or streams and lakes can also be used as over-wintering habitat. Water must be deep enough not to freeze and have soft mud substrate. Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate dissolved oxygen.	ELC surveys and wildlife habitat assessments were used to assess features within the Study Area that may support areas of permanent standing water but not deep enough to freeze.	**Medium:** The species' were not observed during the field program, however potentially suitable habitat has been identified associated with ponds located west of Liberty Street North and there are known species record in the general area (see Appendix D2). **Absent on the Subject Lands:** suitable habitat was not observed on the Subject Lands during the field program.
Snake Hibernacula	Hibernation occurs in sites located below frost lines in burrows, rock crevices, broken and fissured rock and other natural features. Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover. Any ecosite in southern Ontario other than very wet ones may provide habitat. The following Community Types may be directly related to snake hibernacula: Talus (TA), Rock Barren (RB), Crevice (CCR), Cave	ELC surveys and wildlife habitat assessments were used to assess features within the Study Area that may support snake hibernacula.	**Low:** Suitable SWH habitat was observed to be limited in the Study Area but there are known records (four snake species) in the general area (see Appendix D2).

Candidate Wildlife Habitat	Criteria	Methods	Probability of Occurrence in the Study Area
	(CCA), and Alvar (RBOA1, RBSA1, RBTA1).		
Colonial-Nesting Bird Breeding Habitat (Bank and Cliff)	Eroding banks, sandy hills, borrow pits, steep slopes, sand piles, cliff faces, bridge abutments, silos, or barns found in any of the following Community Types: Meadow (ME), Thicket (TH), Bluff (BL), Cliff (CL). Does not include man-made structures (bridges or buildings) or recently (2 years) disturbed soil areas, such as berms, embankments, soil or aggregate stockpiles. Does not include a licensed/permitted Mineral Aggregate Operation.	ELC, breeding bird surveys and wildlife habitat assessments were used to assess features within the Study Area that may support colonial bird breeding habitat.	**Absent on Subject Lands:** Habitat not observed on the Subject Lands or directly adjacent to the Subject Lands. Swallow species not observed during the breeding bird surveys or during other site visits throughout the field program.
Colonial-Nesting Bird Breeding Habitat (Tree/Shrubs)	Identification of stick nests in any of the following Community Types: Mixed Swamp (SWM), Deciduous Swamp (SWD), Treed Fen (FET). The edge of the colony and a minimum 300 m area of habitat or extent of the Forest Ecosite containing the colony or any island <15.0 ha with a colony is the SWH. Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used.	ELC, breeding bird surveys and wildlife habitat assessments were used to assess features within the Study Area that may support colonial bird breeding habitat (Trees/Shrubs).	**Medium:** Suitable habitat may be present on Adjacent Lands (west of Liberty Street) and there are heron records for the general area. **Absent on the Subject Lands:** Stick nests/suitable SWH habitat was not observed throughout the field program. Heron and egret species not observed during the breeding bird surveys or during other site visits throughout the field program.
Colonial-Nesting Bird Breeding Habitat (Ground)	Any rocky island or peninsula within a lake or large river. For Brewer's Blackbird close proximity to watercourses in open fields or pastures with scattered trees or shrubs found in any of the following Community Types: Meadow Marsh (MAM1-6), Shallow Marsh (MAS1-3), Meadow (CUM1), Thicket (CUT1), Savannah (CUS1).	ELC surveys, breeding bird surveys and wildlife habitat assessments were used to assess features within the Study Area that may support colonial bird breeding habitat (Ground).	**Absent on Subject Lands:** Habitat not observed on the Subject Lands or directly adjacent to the Subject Lands. There are no Brewer's Blackbird records for the area.
Migratory Butterfly Stopover Areas	Located within 5 km of Lake Ontario. A combination of ELC communities, one from each land class is required: Field (ME, TH) and Forest (FOC, FOM, FOD). Minimum of 10 ha in size with a combination of field and forest habitat present.	ELC surveys and GIS analysis were used to assess features within the Study Area that may support migratory butterfly stopover areas.	**Absent:** The Study Area is not located within 5km of Lake Ontario.
Landbird Migratory Stopover Areas	The following community types: Forest (FOD, FOM, FOC) or Swamp (SWC, SWM, SWD). Woodlots must be >10 ha in size and within 5 km of Lake Ontario – woodlands within 2 km of Lake Ontario are more significant.	ELC, breeding bird surveys, wildlife habitat assessments and GIS analysis were used to assess features within the Study Area that may support landbird migratory stopover areas.	**Absent:** The Study Area is not located within 5km of Lake Ontario (>7.5km north).
Deer Yarding Areas	Delineated by the MNR as areas where deer move to in response to the onset of winter snow and cold. The following forested ecosites within Community Series: FOC, FOM, SWC, SWM. Deer yard may also occur in mixed and coniferous plantations (CUP2 and CUP3), and deciduous forest (FOD) and thicket (CUT) communities.	No studies required as the MNR delineates this habitat.	**Absent:** Not identified in the Study Area by MNR.
Deer Winter Congregation Areas	Woodlots typically >100 ha in size unless determined by the MNR as significant. (If large woodlots are rare in a planning area >50 ha). All forested ecosites within Community Series: FOC, FOM, FOD, SWC, SWM, SWD. Conifer plantations much smaller than 50 ha may also be used.	No studies required as the MNR delineates this habitat.	**Absent:** Not identified in the Study Area by MNR.
Rare Vegetation Communities			
Cliffs and Talus Slopes	A Cliff is vertical to near vertical bedrock >3 m in height. A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris. Any ELC Ecosite within Community Series: TAO, TAS, TAT, CLO, CLS, CLT. Most cliff and talus slopes occur along the Niagara Escarpment.	ELC surveys were used to assess features within the Study Area that would be considered cliffs or talus slopes.	**Absent on Subject Lands:** Habitat not observed on the Subject Lands or directly adjacent to the Subject Lands.
Sand Barrens	Sand barrens typically are exposed sand, generally sparsely vegetated and cause by lack of moisture, periodic fires and erosion. Vegetation can vary from patchy and barren to tree covered but less than 60%. Any of the following Community Types: SBO1 (Open Sand Barren Ecosite), SBS1 (Shrub Sand Barren Ecosite), SBT1 (Treed Sand Barren Ecosite).	ELC surveys were used to assess features within the Study Area that would be considered to be sand barrens.	**Absent on Subject Lands:** Habitat not observed on the Subject Lands or directly adjacent to the Subject Lands.
Alvars	An alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil.	ELC surveys were used to assess features within the Study Area that would be considered to be	**Absent on Subject Lands:** Habitat not observed on the Subject Lands or directly adjacent to the Subject Lands.

Candidate Wildlife Habitat	Criteria	Methods	Probability of Occurrence in the Study Area
	Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plant. Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animal species. Vegetation cover varies from patchy to barren with a less than 60% tree cover. Any of the following Community Types: ALO1(Open Alvar Rock Barren Ecosite), ALS1 (Alvar Shrub Rock Barren Ecosite), ALT1 (Treed Alvar Rock Barren Ecosite), FOC1 (Dry-Fresh Pine Coniferous Forest), FOC2 (Dry-Fresh Cedar Coniferous Forest), CUM2 (Bedrock Cultural Meadow), CUS2 (Bedrock Cultural Savannah), CUT2-1 (Common Juniper Cultural Alvar Thicket), or CUW2 (Bedrock Cultural Woodland). An Alvar site >0.5 ha in size.	alvar communities.	
Old-growth Forest	Old-growth forests tend to be relatively undisturbed, structurally complex, and contain a wide variety of trees and shrubs in various age classes. These habitats usually support a high diversity of wildlife species. Woodland areas 30 ha or greater in size or with at least 10 ha interior habitat assuming 100 m buffer at edge of forest.	ELC surveys, historical air photo analysis and GIS analysis were used to assess features within the Study Area that would be considered to be old-growth forest communities.	**Absent:** The woodlands in the Study Area exhibit less than 10 ha of interior habitat.
Savannahs	A Savannah is a tallgrass prairie habitat that has tree cover between 25 – 60%. Any of the following Community Types: TPS1 (Dry-Fresh Tallgrass Mixed Savannah Ecosite), TPS2 (Fresh-Moist Tallgrass Deciduous Savannah Ecosite), TPW1 (Dry-Fresh Black Oak Tallgrass Deciduous Woodland Ecosite), TPW2 (Fresh-Moist Tallgrass Deciduous Woodland Ecosite), CUS2 (Bedrock Cultural Savannah Ecosite).	ELC surveys were used to assess features within the Study Area that would be considered to be savannah communities.	**Absent on Subject Lands:** Habitat not observed on the Subject Lands or directly adjacent to the Subject Lands.
Tallgrass Prairies	A Tallgrass Prairie has ground cover dominated by prairie grasses. An open Tallgrass Prairie habitat has <25% tree cover. Any of the following Community Types: TPO1 (Dry Tallgrass Prairie Ecosite), TPO2 (Fresh-Moist Tallgrass Prairie Ecosite).	ELC surveys were used to assess features within the Study Area that would be considered to be tall-grass communities.	**Absent on Subject Lands:** Habitat not observed on the Subject Lands or directly adjacent to the Subject Lands.
Other Rare Vegetation Communities	Provincially Rare S1, S2 and S3 vegetation communities are listed in Appendix M of the SWHTG.	ELC surveys were used to assess features within the Study Area that would be considered to be S1-S3 vegetation communities.	**Absent:** Habitat not observed on the Subject Lands or directly adjacent to the Subject Lands.
Specialized Habitat for Wildlife			
Waterfowl Nesting Area	All upland habitats located adjacent to these wetland ELC Ecosites are Candidate SWH: MAS1, MAS2, MAS3, SAS1, SAM1, SAF1, MAM1, MAM2, MAM3, MAM4, MAM5, MAM6, SWT1, SWT2, SWD1, SWD2, SWD3, SWD4. Note: includes adjacency to Provincially Significant Wetlands.	ELC, breeding bird surveys and wildlife habitat assessments were used to assess features within the Study Area that may support nesting waterfowl. Habitats adjacent to wetlands without standing water were not considered candidate SWH.	**Low:** Potentially suitable SWH habitat was observed in the Study Area but there are no field observations for listed waterfowl species.
Bald Eagle and Osprey nesting, Foraging, and Perching Habitat	Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water. Nests located on man-made objects are not to be included as SWH (e.g., telephone poles and constructed nesting platforms). ELC Forest Community Series: FOD, FOM, FOC, SWD, SWM and SWC directly adjacent to riparian areas – rivers, lakes, ponds and wetlands.	ELC surveys, breeding bird surveys, and wildlife habitat assessments were used to assess features within the Study Area that may support nesting, foraging and perching habitat for large raptors.	**Low:** Potentially suitable SWH habitat was observed in the Study Area but there are no field observations for listed species.
Woodland Raptor Nesting Habitat	All natural or conifer plantation woodland/forest stands combined >30 ha and with >4 ha of interior habitat. Interior habitat determined with a 200 m buffer. Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests within tops or crotches of trees. Species such as Coopers hawk nest along forest edges sometimes on peninsulas or small offshore islands. May be found in all forested ELC Ecosites. May also be found in SWC, SWM, SWD and CUP3.	ELC, breeding bird surveys wildlife habitat assessments and GIS analysis were used to assess features within the Study Area that may support nesting habitat for woodland raptors.	**Absent:** The woodlands in the Study Area are not large enough and do not exhibit sufficient interior habitat.
Turtle Nesting Areas	Exposed mineral soil (sand or gravel) areas adjacent (<100 m) or within the following ELC Ecosites: MAM1,	ELC surveys and wildlife habitat assessments were	**Medium:** Potentially suitable habitat has been identified associated with

Candidate Wildlife Habitat	Criteria	Methods	Probability of Occurrence in the Study Area
	MAM2, MAM3, MAM4, MAM5, MAM6, SAS1, SAM1, SAF1, BOO1, FEO1. Best nesting habitat for turtles is close to water, away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals. For an area to function as a turtle-nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH. Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used.	used to assess features within the Study Area that may support turtle nesting areas.	ponds located west of Liberty Street North and there are known species record in the general area. **Absent on Subject Lands:** Habitat not observed on the Subject Lands.
Seeps and Springs	Seeps/Springs are areas where ground water comes to the surface. Often, they are found within headwater areas within forested habitats. Any forested Ecosite within the headwater areas of a stream could have seeps/springs. Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream or river system.	ELC surveys, air photos and secondary source data (see Section 3.2) were used to assess features within the Study Area that may support seeps/springs.	**Medium:** Habitat not observed during the field program including during the ELC surveys or HDFA assessment, however based on secondary source information, it is possible seeps and springs may be present associated with the woodlands at the north end of the Subject Lands and Study Area, particularly north of the Enbridge Gas easement.
Amphibian Breeding Habitat (Woodland)	All Ecosites associated with these ELC Community Series; FOC, FOM, FOD, SWC, SWM, SWD. Presence of a wetland, lake, or pond within or adjacent (within 120 m) to a woodland (no minimum size). Some small wetlands may not be mapped and may be important breeding pools for amphibians. Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat. 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 Codes of 3	ELC surveys and amphibian call surveys were used to assess features within the Study Area that may support woodland breeding amphibians.	**Medium:** Suitable habitat may be present on Adjacent Lands (west side of Liberty Street North or north of Subject Lands). **Absent on the Subject Lands:** suitable habitat not observed on the Subject Lands. The results of the amphibian call survey do not support woodland amphibian breeding SWH on the Subject Lands.
Amphibian Breeding Habitat (Wetland)	ELC Community Classes SW, MA, FE, BO, OA and SA. Wetland areas >120 m from woodland habitats. Wetlands and pools (including vernal pools) >500 m^2 (about 25 m diameter) supporting high species diversity are significant; some small or ephemeral habitats may not be identified on MNR mapping and could be important amphibian breeding habitats. Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators. Bullfrogs require permanent water bodies with abundant emergent vegetation. 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 considered significant.	ELC surveys and amphibian call surveys were used to assess features within the Study Area that may support breeding amphibians.	**Medium:** Potential amphibian breeding habitat is present in the Study Area associated with the wetlands and ponds located west of Liberty Street North and the deciduous woodlands and swamps located west and north of Subject Lands. **Absent on the Subject Lands:** suitable breeding wetlands were observed to be limited on the Subject Lands. The results of the amphibian call survey do not support wetland amphibian breeding SWH on the Subject Lands.
Woodland Area-Sensitive Bird Breeding Habitat	Large mature forest stands or woodlots >30ha with interior forest habitat (i.e. at least 200m from edge). All Ecosites associated with these ELC Community Series; FOC, FOM, FOD, SWC, SWM, SWD.	ELC surveys and GIS analysis were used to determine habitat.	**Absent:** Woodlands with sufficient interior habitat not present in the Study Area.
Species of Conservation Concern			
Marsh Bird Breeding Habitat	All wetland habitats with shallow water and emergent aquatic vegetation. May include any of the following Community Types: Meadow Marsh (MAM), Shallow Aquatic (SA), Open Bog (BOO), Open Fen (FEO), or for Green Heron: Swamp (SW), Marsh (MA) and Meadow (CUM) Community Types. Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or or 1 pair of Sandhill Cranes; or breeding by any combination of 5 or more of the listed species. Any wetland with breeding of 1 or more Black Terns, Trumpeter Swan, Green Heron or Yellow Rail is considered SWH.	ELC surveys and breeding bird surveys were used to identify marshes with shallow water and emergent vegetation that may support marsh breeding birds.	**Low:** Potentially suitable SWH habitat was observed in the Study Area but there were no field observations for listed marsh bird species through the breeding bird surveys or incidentals during the 2023-2025 field program.
Open Country Bird Breeding Habitat	Grassland areas > 30 ha, not including Class 1 or Class 2 agricultural lands, or fields with row-cropping or hay or livestock pasturing in the last 5 years.	ELC surveys and GIS analysis were used to identify grassland communities within the Study Area that may support area-sensitive breeding birds.	**Absent:** Habitat not present in Study Area based on field observations and historical air photo analysis (agricultural fields of sufficient size appear to have been actively managed within the last 5 years).

Candidate Wildlife Habitat	Criteria	Methods	Probability of Occurrence in the Study Area
Shrub/Early Successional Bird Breeding Habitat	Old field areas succeeding to shrub and thicket habitats >10 ha, not Class 1 or Class 2 agricultural lands, with no row-cropping or intensive hay or livestock pasturing in the last 5 years, in the following Community Types: Thickets (CUT), Savannahs or Woodlands (CUW).	ELC surveys, secondary source data (see Section 3.2) and GIS analysis were used to identify large communities that may support shrub/early successional breeding birds.	**Absent on Subject Lands:** Habitat not observed on the Subject Lands or directly adjacent to the Subject Lands.
Terrestrial Crayfish	Meadow marshes and edges of shallow marshes (no minimum size). Vegetation communities include MAM1, MAM2, MAM3, MAM4, MAM5, MAM6, MAS1, MAS2, MAS3, SWD, SWT, SWM. Terrestrial Crayfish construct burrows in marshes, mudflats, meadows. Can be found far from water.	ELC surveys and wildlife habitat assessments were used to identify shallow marsh and meadow marsh communities that may support Terrestrial Crayfish within the Study Area.	**Medium:** Suitable habitat present in the Study Area. Terrestrial Crayfish burrows (chimneys) were not observed during the field program; however, extensive searches were not completed for lands where developments were not proposed.
Special Concern and Rare Wildlife Species	All special concern and provincially rare (S1-S3, SH) plant and animal species (SOCC) with potential to occur in the Study Area.	ELC surveys, flora and wildlife surveys were used to identify suitable habitat for each potential SOCC listed in Appendix E2.	**Confirmed**: The results of field surveys and SOCC Screening Assessment confirmed Eastern Wood-pewee and Wood Thrush habitat in the woodlands on the Subject Lands. Note, while several incidental observations of Monarch were recorded throughout the field program, however, sufficiently large populations of milkweed were not observed associated with the meadows present on the Subject Lands.
Animal Movement Corridors			
Amphibian Movement Corridor	Movement corridors are elongated, naturally vegetated parts of the landscape used by amphibians to move between breeding habitat and summer habitat. Determined based on identifying significant amphibian breeding habitat (wetland).	ELC and amphibian call surveys were completed to support the assessment.	**Absent on Subject Lands:** Wetland amphibian breeding SWH not observed on the Subject Lands.
Deer movement corridors	Associated with deer wintering habitat confirmed by MNR.	Identified after deer wintering habitat is confirmed by the MNR.	**Absent:** Deer wintering habitat hasn't been confirmed by the MNR in the Study Area.

Appendix G Supporting Documents

Stantec

Stantec Geomatics Ltd.
CANADA LANDS SURVEYORS
ONTARIO LAND SURVEYORS
300-675 COCHRANE DRIVE, WEST TOWER
MARKHAM, ONTARIO, L3R 0B8
TEL. 905.944.7777
stantec.com

CAUTION

THIS IS NOT A PLAN OF SURVEY AND SHALL NOT BE USED EXCEPT FOR THE PURPOSE INDICATED IN THE TITLE BLOCK.

UTILITIES SHOWN ARE FOR DISCUSSION PURPOSES ONLY AND PRIOR TO CONSTRUCTION SHOULD BE CONFIRMED BY A CONTRACTOR.

VERTICAL DATUM

ELEVATIONS ARE GEODETIC, REFERRED TO CGVD-1928:1978 AND DERIVED FROM GNSS OBSERVATIONS USING A REAL-TIME CORRECTION SERVICE.

DRAWING COORDINATES

UTM ZONE 17, NAD83 (CSRS)

NOTES

DRIPLINE STAKED OCTOBER 13, 2023 WITH C.L.O.C.A. STAFF PRESENT.

SURVEYOR'S CERTIFICATE

I CERTIFY THAT FIELDWORK WAS COMPLETED October 13, 2023.

NOTE, THIS IS NOT A PLAN OF SURVEY AND SHALL BE USED ONLY FOR THE PURPOSE INDICATED IN THE TITLE BLOCK.

October 24, 2023
DATE

MERRILL D. MCLEAN
ONTARIO LAND SURVEYOR

CLIENT/PROJECT:

MUNICIPALITY OF CLARINGTON

2656 CON 4 EIS/NHE

2656 CONCESSION RD 4, BOWMANVILLE

DRAWING TITLE:

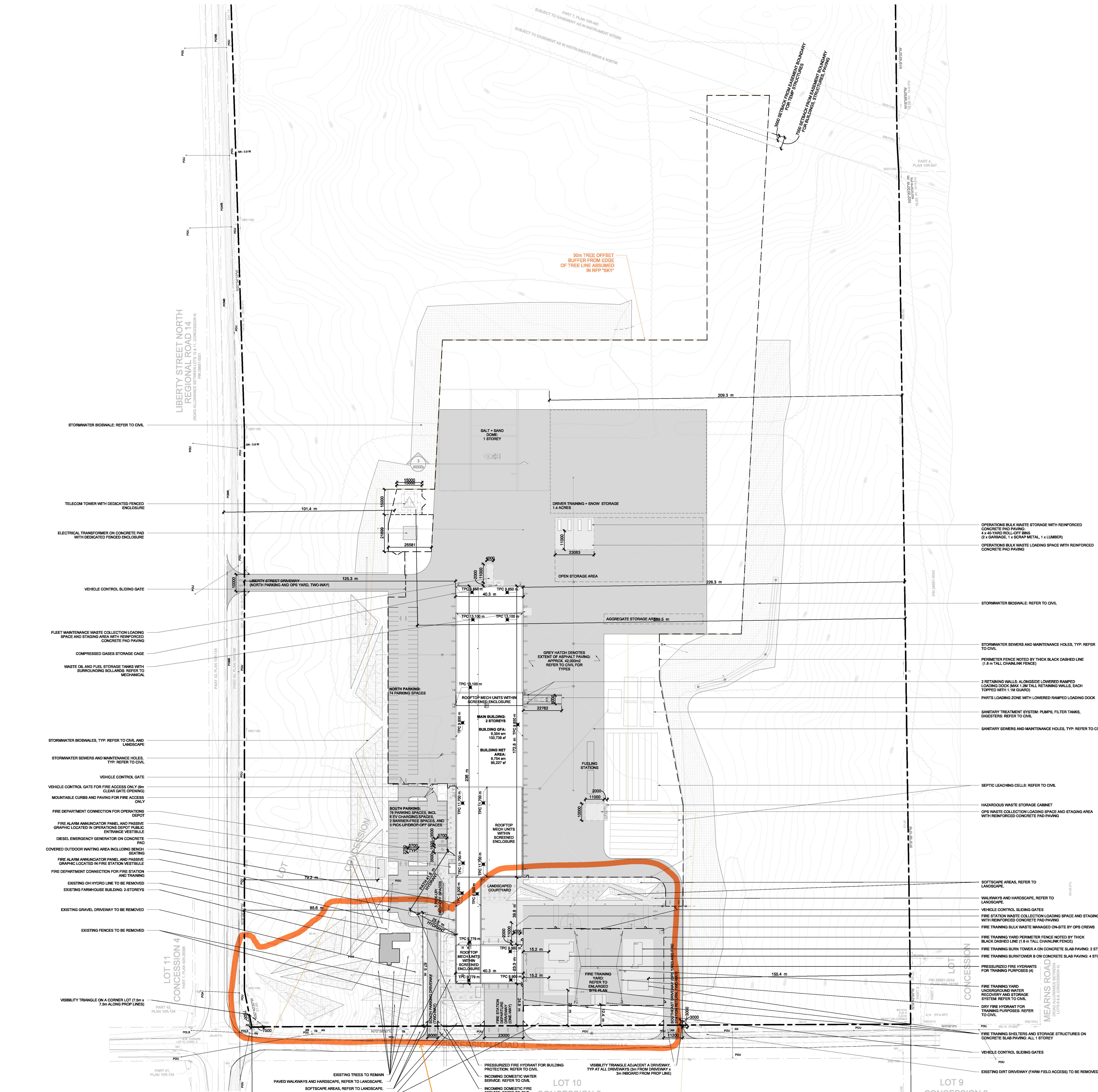
AS-STAKED DRIPLINE

Scale 1:750

20 0 20 40 METRES

Rev.	Description	Drawn	Chk'd	yyyy-mm-dd
0	ISSUED TO CLIENT	BC	MM	2023-10-24

PROJECT No.: 160951460 PAGE: 1 of 1



1 A012 ARCHITECTURAL SITE PLAN
SCALE : 1 : 750

Please provide geolocated surveyed locations for all existing trees in this zone in CAD format, and provide their individual Tree Protection Zone/boundaries/circles in CAD format.

Zoning Table

Provision	Requirement	Existing	Proposed
Lot Area:	40 ha	n/a	268,771 sqm 26.9 ha
Lot Frontage:	100 m	S: 391,116 m	S: 391,116 m
Site Area:	n/a	n/a	130,918 sqm 130.9 ha
Property Zoning:	n/a	Agricultural	Agricultural
Front Yard Setback:	15 m	n/a	12.4 m (Fire Training Yard Storage, South setback)
Exterior Side Yard Setback:	15 m	n/a	101.4 m (Telecom Tower, West setback)
Interior Side Yard Setbacks:	15 m	n/a	155.4 m (Fire Training Yard Shelter, East setback)
Rear Yard Setback:	15 m	n/a	305.9 m (Salt+Sand Dome, North setback)
Building Storeys:	n/a	2 (Existing farmhouse building)	2 (Main Building) 4 (tallest Fire Training Burn Tower)
Building Height:	10 m		13.85 m (Main Building) 11.65 m (Fire Training Burn Tower) 65 m (Telecom Tower) 27.2 m (Salt+Sand Dome)

Total Floor Area:	Measured as "the aggregate of the horizontal areas of each floor, whether any such floor is above or below grade, measured between the interior faces of the interior walls of the building or structure at the level of each floor".	392.2 sqm (Existing farmhouse building, approx.)	13,751.2 sqm (TOTAL, all building structures) = 8,801 sqm (Main Building) + 3950.2 sqm (Salt+Sand Dome) + 582.2 sqm (Fire Training Yard Shelters and Storage) + 392.2 sqm (Existing farmhouse building) + 25.6 sqm (Telecom tower)
Lot Coverage of all buildings and structures:	5% maximum	258.2 sqm (Existing farmhouse building) 0.1%	13,179.1 sqm (TOTAL, all building structures) 4.9% = 8,530.7 sqm (Main Building) + 3950.2 sqm (Salt+Sand Dome) + 414.1 sqm (Fire Training Yard Shelters and Storage) + 258.2 sqm (Existing farmhouse building) + 25.6 sqm (Telecom tower)
Landscaped Area:	Per below requirement	n/a	76,637.3 sqm
Landscaped Area lot coverage (%):	10% Landscaped Open Space minimum	n/a	28.5%
Total parking spaces provided:	Warehouse requirement: 1/100 sq m of up to 2000 sq m total floor area + 1/500 sq m of up to 2000 sq m = 37 spaces for 10,384 sq m	n/a	150 (refer to A012) Incl. 6 EV charging spaces, 2 Barrier-Free spaces, and 3 Pick-Up/Drop-Off spaces
Parking space dimensions:	minimum 5.7 m x 2.75 m per space.	n/a	5.7 m long x 2.75 m wide
Parking Aisle dimensions:	6 m minimum width for two-way traffic; 4.5 m for one-way (3.16.d)	n/a	6 m minimum

Parking Surface material:	Stable surface treated to prevent raising dust and allowing access in all climate conditions	n/a	Asphalt
Barrier Free Spaces:	(Table 3.16.b.ii)	n/a	2 Barrier Free Spaces
Barrier Free Space Dimensions:	minimum 4.5 m wide and 5.7 m long. When paired, the width can be reduced to 3.4 metres, provided a 1.5 metre access aisle is located between the paired spaces. (3.16.b.i)	n/a	2 Barrier Free Spaces (paired) each 5.7 m long x 3.4 m wide plus shared 1.5 m access aisle

Loading spaces provided:	3 required; 11 m long x 4 m wide; multiple spaces may not be provided in tandem;	n/a	Refer to A012: 4 Waste Total Loading Spaces: OPERATIONS BULK WASTE LOADING SPACE: 11 m long x 23 m wide FLEET MAINTENANCE WASTE COLLECTION LOADING SPACE 11 m long x 4 m wide OPS WASTE COLLECTION LOADING SPACE: 11 m long x 10 m wide FIRE STATION WASTE COLLECTION LOADING SPACE: 11 m long x 4 m wide 2 Non-Waste Loading Spaces: PARTS LOADING ZONE 22.7 m long x 5 m wide SALT AND SAND LOADING ZONE 43.6 m long x 4.5 m wide
Loading space driveway aisle width:	minimum 6 metres wide and shall lead to a driveway	n/a	10m minimum

LEGEND:
AREA A & B = FLEET MAINTENANCE & STORAGE (FMS)
AREA C = CREW OPERATIONS & ADMINISTRATION (OPS)
AREA D = FIRE STATION & TRAINING CENTRE (FST)

A B C D

KEY PLAN

PRELIMINARY DESIGN

THESE DOCUMENTS ARE NOT COMPLETE IN ALL DETAILS AND MAY BE SUBJECT TO CHANGE AS DESIGN DEVELOPMENT AND CODE REVIEW IS ADVANCED.

LEGEND:

CB	CATCH BASIN, REFER TO CIVIL
CBMH	CATCH BASIN MAN HOLE, REFER TO CIVIL
BLD	BOLLARD, REFER TO CIVIL AND STRUCTURAL
CCTV	POLE MOUNTED SECURITY CAMERA, REFER TO ELECTRICAL
SL	STREET LIGHT, REFER TO ELECTRICAL
TPED	TELEPHONE PEDESTAL
FDC	FIRE DEPARTMENT CONNECTION
SANMH	SANITARY MAN HOLE, REFER TO CIVIL
STMMH	STORMWATER MAN HOLE, REFER TO CIVIL

NOTE:
1. UTILITY METERS SHALL NOT BE LOCATED ON BUILDING FACADES THAT FACE STREETS, AND SHALL BE LOCATED DISCREETLY, AWAY FROM PEDESTRIAN TRAVEL ROUTES AND SCREENED FROM PUBLIC VIEW.
2. UTILITY PIPES SERVICING ROOFTOP MECHANICAL EQUIPMENT SHALL NOT BE VISIBLE TO ANY PUBLIC VIEW AND SHALL BE INSTALLED WITHIN THE WALL CONSTRUCTION.

No.	ISSUE / REVISION	DD/MM/YY
D	ISSUED FOR SITE PLAN PRE-CONSULTATION	17/07/25
C	ISSUED FOR 50% CLIENT REVIEW	11/07/25
B	ISSUED FOR CONTRACTOR PRE-QUALIFICATION REV.A	06/06/25
A	ISSUED FOR CLASS C ESTIMATE	08/05/25

VERIFY SHEET SIZE AND SCALES. THE BAR TO THE RIGHT IS 25mm IF THIS IS A FULL SIZE DRAWING. 0 25mm

SCALE: As indicated

CLIENT: Clarington

CONSULTANT: www.jlrichards.ca
J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS

CONSULTANT: MJMA ARCHITECTURE & DESIGN

CONSULTANT: WALTERFEDY

PROFESSIONAL STAMP

PROJECT NORTH 19.115° TRUE NORTH N

PROJECT:
MUNICIPALITY OF CLARINGTON
NEW OPERATIONS DEPOT, EMERGENCY SERVICES FIRE STATION, AND TRAINING CENTRE
2656 CONCESSION ROAD 4, BOWMANVILLE, ONTARIO

DRAWING:
ARCHITECTURAL CODEFS
ARCHITECTURAL SITE PLAN - ROOFS

DESIGN:	Designer		
DRAWN:	JLR, MJMA	DRAWING #:	A012
CHECKED:	Checker		
JLR #:	33163-000		

PLOT DATE: 2025-07-21 5:38:03 PM File Location: Autodesk Docs://33163-000-Clarington OPS Centre/33163-000-ARCH-2024.rvt

TEMPORARY CATCHMENT BOUNDARY.
AREA = 195216.091 m²

FFE=162.68m

FFE=163.00m

FOOTPRINT OF LEACHING BED

FOOTPRINT OF LEACHING BED

GENERATOR

TELECOM TOWER

TRANSFORMER

TRENCH DRAIN
T/G=161.80

PROPOSED TOEWALL PER OPSD 3120.100 OR APPROVED EQUIVALENT c/w PEDESTRIAN BARRICADE AND ENGINEERED STAMPED SHOP DRAWING AS REQUIRED.

CULTIVATED FIELD

CONCESSION ROAD 4

CONCESSION

LOT

LIBERTY STREET NORTH

TREED AREA

TREE EDGE

CULTIVATION EDGE

NO FENCE

POST & WIRE FENCE

ASPHALT EDGE

PAINT LINE

SHOULDER

DITCH

POAU

POHB

SBB(100)

SBR(100)

MH142(1200Ø)
T/G=161.15

MH143(1200Ø)
T/G=161.15

MH140(1200Ø)
T/G=161.15

MH141(1200Ø)
T/G=161.15

MH131(1200Ø)
T/G=162.20

DICB139
T/G=160.45

CBMH90
T/G=162.01

CBMH91(1200Ø)
T/G=162.49

CBMH92(1200Ø)
T/G=162.39

CBMH93(1200Ø)
T/G=162.30

CBMH94(1200Ø)
T/G=162.39

MH103(1200Ø)
T/G=162.64

MH104(1200Ø)
T/G=162.80

MH110(1200Ø)
T/G=162.80

MH111(1200Ø)
T/G=162.84

MH112(1200Ø)
T/G=162.83

MH113(1200Ø)
T/G=163.45

CB85
T/G=161.96

CB86
T/G=162.26

CB100
T/G=162.39

CB114
T/G=162.03

CB130
T/G=162.46

CB(2)(600x600)
T/G=162.59

LEGEND

- PROPOSED LAMP STANDARD
- UP — PROPOSED UTILITY POLE
- HP — PROPOSED HYDRO POLE
- SIGN — PROPOSED SIGN
- CB — PROPOSED CATCHBASIN
- DCB — PROPOSED DOUBLE CATCHBASIN
- DICB — PROPOSED DITCH INLET CATCHBASIN
- CBMH — PROPOSED CATCHBASIN MANHOLE
- DCBMH — PROPOSED DOUBLE CATCHBASIN MANHOLE
- MH — PROPOSED STORM MANHOLE
- MH — PROPOSED SANITARY MANHOLE
- HYD — PROPOSED FIRE HYDRANT
- WV — PROPOSED WATERMAIN VALVE
- CS — PROPOSED CURB STOP
- REDUCER — PROPOSED REDUCER
- PROPOSED FIRE/DEPARTMENT CONNECTION
- [123.45] — PROPOSED GRADE
- 2.0% 2.0% — PROPOSED DRAINAGE ARROW/SLOPE
- PROPOSED SWALE
- PROPOSED SWALE WITH SUBDRAIN
- PROPOSED OVERLAND FLOW ROUTE
- PROPOSED EMBANKMENT (3:1 MAX UNLESS OTHERWISE NOTED)
- PROPOSED SANITARY SEWER/SERVICE
- PROPOSED STORM SEWER/SERVICE
- PROPOSED WATERMAIN/SERVICE
- PROPOSED GASMAIN
- PROPOSED UNDERGROUND HYDRO LINE
- PROPOSED SUBDRAIN
- PROPOSED PIPE INSULATION
- PROPOSED GUARDRAIL
- PROPOSED CHAINLINK FENCE
- PROPOSED BOARD FENCE
- PROPOSED (LIGHT DUTY) SILT FENCE
- PROPOSED EDGE OF PAVEMENT
- PROPOSED BUILDING
- PROPOSED CONCRETE SURFACE
- PROPOSED RIPRAP
- PROPOSED LIGHT DUTY ASPHALT SURFACE

LEGEND
AREA A & B = FLEET MAINTENANCE & STORAGE (FMS)
AREA C = CREW OPERATIONS & ADMINISTRATION (OPS)
AREA D = FIRE STATION & TRAINING CENTRE (FST)

KEY PLAN

PRELIMINARY DESIGN

THESE DOCUMENTS ARE NOT COMPLETE IN ALL DETAILS AND MAY BE SUBJECT TO CHANGE AS DESIGN DEVELOPMENT AND CODE REVIEW IS ADVANCED.

No.	ISSUE / REVISION	DD/MM/YY
C	ISSUED FOR 50% CLASS A CONSTRUCTION ESTIMATE	26/08/25
B	ISSUED FOR 50% CLIENT REVIEW	11/07/25
A	ISSUED FOR CLASS C ESTIMATE	08/05/25

VERIFY SHEET SIZE AND SCALES. THE BAR TO THE RIGHT IS 20MM IF THIS IS A FULL SIZE DRAWING. 0 20mm

SCALE:

CLIENT: Clarington

CONSULTANT: J.L.Richards ENGINEERS • ARCHITECTS • PLANNERS www.jlrichards.ca

CONSULTANT: MJMA ARCHITECTURE & DESIGN

CONSULTANT: WALTERFEDY

PROFESSIONAL STAMP

PROJECT NORTH

PROJECT:
MUNICIPALITY OF CLARINGTON
NEW OPERATIONS DEPOT, EMERGENCY SERVICES FIRE STATION, AND TRAINING CENTRE
2656 CONCESSION ROAD 4, BOWMANVILLE, ONTARIO

DRAWING:
CODEFS
FUNCTIONAL GRADING PLAN

DESIGN:	
DRAWN:	CC
CHECKED:	JZ
JLR #:	33163-000

DRAWING #: C201

PLOT DATE: August 26, 2025 10:54:15 AM

File Location: C:\Users\kalter\OCA\Cloud\JLR\33163-000-Clarington OPS Centre\Project Files\05-Water\Fw\Plot Files\2024-0458-10_GRD_PLT.dwg

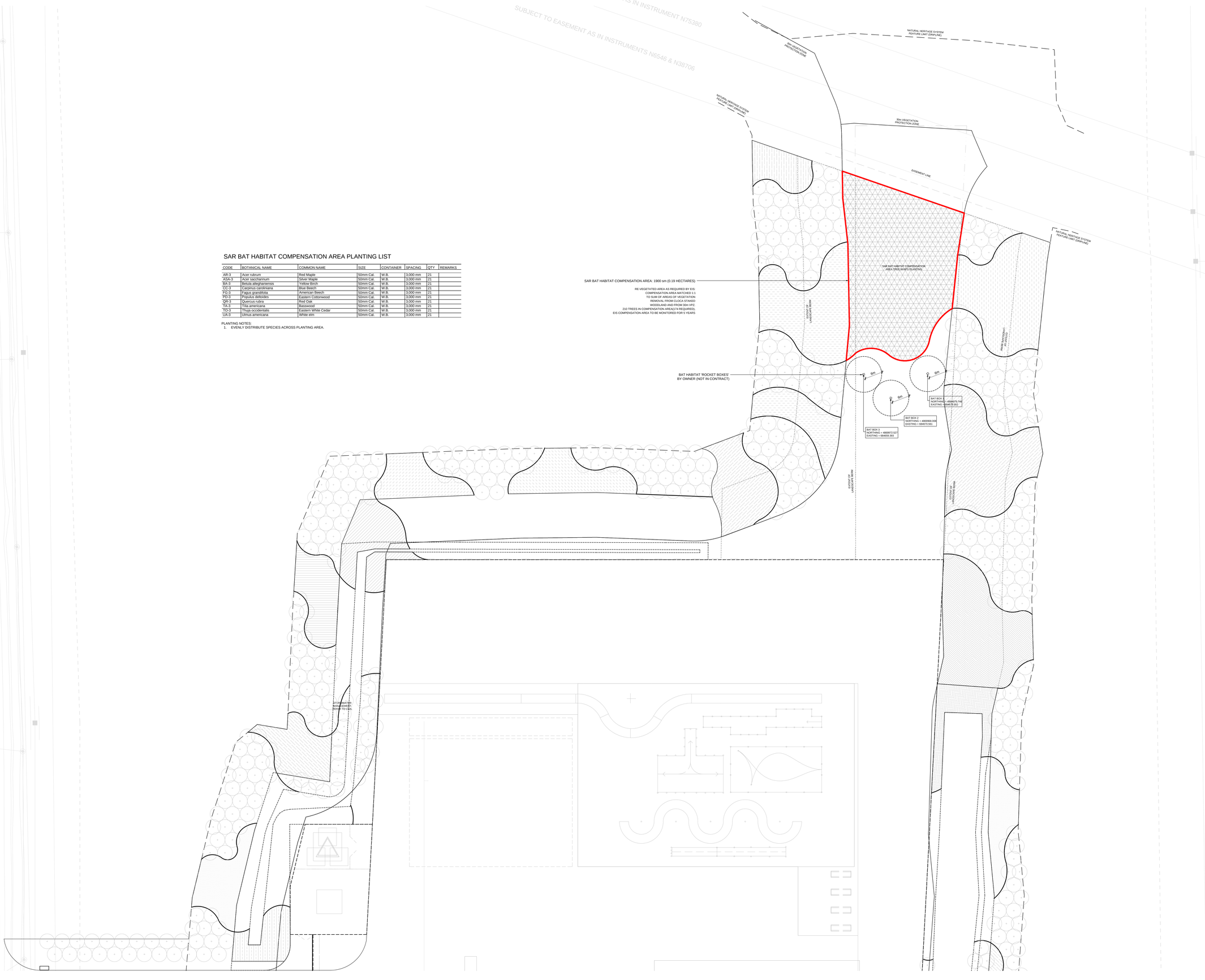
SUBJECT TO EASEMENT AS IN INSTRUMENT N75380

SUBJECT TO EASEMENT AS IN INSTRUMENTS N6546 & N38706

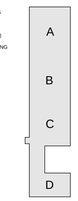
SAR BAT HABITAT COMPENSATION AREA PLANTING LIST

CODE	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	QTY	REMARKS
AR-3	Acer rubrum	Red Maple	50mm Cal.	W.B.	3,000 mm	21	
ASA-3	Acer saccharinum	Silver Maple	50mm Cal.	W.B.	3,000 mm	21	
BA-3	Betula alleghaniensis	Yellow Birch	50mm Cal.	W.B.	3,000 mm	21	
CC-3	Carpinus caroliniana	Blue Beech	50mm Cal.	W.B.	3,000 mm	21	
FG-3	Fagus grandifolia	American Beech	50mm Cal.	W.B.	3,000 mm	21	
PD-3	Populus deltoides	Eastern Cottonwood	50mm Cal.	W.B.	3,000 mm	21	
QR-3	Quercus rubra	Red Oak	50mm Cal.	W.B.	3,000 mm	21	
TA-3	Tilia americana	Basswood	50mm Cal.	W.B.	3,000 mm	21	
TO-3	Thuja occidentalis	Eastern White Cedar	50mm Cal.	W.B.	3,000 mm	21	
UA-3	Ulmus americana	White elm	50mm Cal.	W.B.	3,000 mm	21	

PLANTING NOTES:
1. EVENLY DISTRIBUTE SPECIES ACROSS PLANTING AREA.



LEGEND:
AREA A & B = FLEET MAINTENANCE & STORAGE (FMS)
AREA C = CREW OPERATIONS & ADMINISTRATION (OPS)
AREA D = FIRE STATION & TRAINING CENTRE (FST)



KEY PLAN

No.	ISSUE / REVISION	DD/MM/YY
3	SPECIES AT RISK HABITAT COMPENSATION PLAN	18/11/25
2	ISSUED FOR BUILDING PERMIT R1	13/11/25
1	ISSUED FOR SITE PLAN CONTROL	31/10/25
0	ISSUED FOR BUILDING PERMIT	29/10/25

VERIFY SHEET SIZE AND SCALES. THE BAR TO THE RIGHT IS 25MM IF THIS IS A FULL SIZE DRAWING. 0 25mm

SCALE:

CLIENT: Clarington

CONSULTANT: www.jlrichards.ca
J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS

CONSULTANT: MJMA ARCHITECTURE & DESIGN

CONSULTANT: WALTERFEDY

PROFESSIONAL STAMP

PROJECT NORTH

PROJECT:
MUNICIPALITY OF CLARINGTON
NEW OPERATIONS DEPOT, EMERGENCY SERVICES FIRE STATION, AND TRAINING CENTRE
2656 CONCESSION ROAD 4, BOWMANVILLE, ONTARIO

DRAWING:
LANDSCAPE
CODEFS
PLANTING PLAN - TREES
SCALE 1:400

DESIGN:	
DRAWN:	DRAWING #:
CHECKED:	L401.1
JLR #: 33163-000	

PLOT DATE: November 05, 2025 3:01:25 PM

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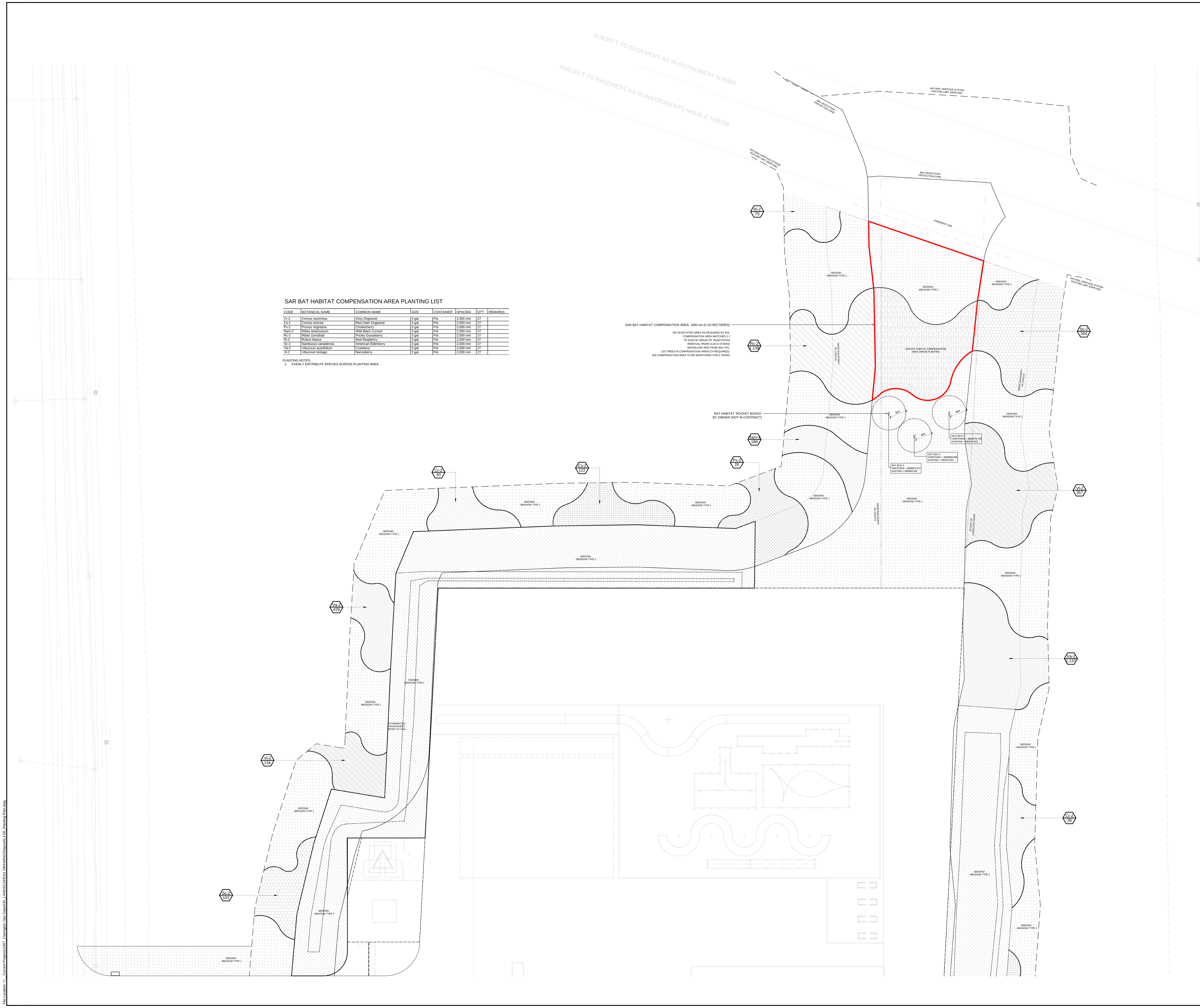

SAR BAT HABITAT COMPENSATION AREA: 1900 sm (0.19 HECTARES)

RE-VEGETATED AREA AS REQUIRED BY EIS:
COMPENSATION AREA MATCHED 1:1
TO SUM OF AREAS OF VEGETATION
REMOVAL FROM CLOCA STAKED
WOODLAND AND FROM 30m VPZ.
210 TREES IN COMPENSATION AREA(174 REQUIRED),
EIS COMPENSATION AREA TO BE MONITORED FOR 5 YEARS

SAR BAT HABITAT COMPENSATION AREA PLANTING LIST

CODE	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	QTY	REMARKS
Cr-2	Cornus racemosa	Grey Dogwood	3 gal.	Pot	2,000 mm	27	
Cs-2	Cornus sericea	Red Osier Dogwood	3 gal.	Pot	2,000 mm	27	
Pv-2	Prunus virginiana	Chokecherry	3 gal.	Pot	2,000 mm	27	
Ram-2	Ribes americanum	Wild Black Currant	3 gal.	Pot	2,000 mm	27	
Rc-2	Ribes cynosbati	Prickly Gooseberry	3 gal.	Pot	2,000 mm	27	
Ri-2	Rubus idaeus	Red Raspberry	3 gal.	Pot	2,000 mm	27	
Sc-2	Sambucus canadensis	American Elderberry	3 gal.	Pot	2,000 mm	27	
Va-2	Viburnum acerifolium	Cranberry	3 gal.	Pot	2,000 mm	27	
Vl-2	Viburnum lentago	Nannyberry	3 gal.	Pot	2,000 mm	27	

PLANTING NOTES:
1. EVENLY DISTRIBUTE SPECIES ACROSS PLANTING AREA.

LEGEND:
AREA A & B = FLEET MAINTENANCE & STORAGE (FMS)
AREA C = CREW OPERATIONS & ADMINISTRATION (OPS)
AREA D = FIRE STATION & TRAINING CENTRE (FST)

KEY PLAN

No.	ISSUE / REVISION	DD/MM/YY
3	SPECIES AT RISK HABITAT COMPENSATION PLAN	18/11/25
2	ISSUED FOR BUILDING PERMIT R1	13/11/25
1	ISSUED FOR SITE PLAN CONTROL	31/10/25
0	ISSUED FOR BUILDING PERMIT	29/10/25

VERIFY SHEET SIZE AND SCALES. THE BAR TO THE RIGHT IS 25MM IF THIS IS A FULL SIZE DRAWING. 0 25mm

SCALE:

CLIENT: Clarington

CONSULTANT: www.jlrichards.ca J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS

CONSULTANT: MJMA ARCHITECTURE & DESIGN

CONSULTANT: WALTERFEDY

PROFESSIONAL STAMP: ONTARIO ASSOCIATION OF LANDSCAPE ARCHITECTS — HYAEINN LEE — MEMBER

PROJECT NORTH

PROJECT:
MUNICIPALITY OF CLARINGTON
NEW OPERATIONS DEPOT, EMERGENCY SERVICES FIRE STATION, AND TRAINING CENTRE
2656 CONCESSION ROAD 4, BOWMANVILLE, ONTARIO

DRAWING:
LANDSCAPE
CODEFS
PLANTING PLAN - UNDERSTORY
SCALE 1:400

DESIGN:
DRAWN:
CHECKED:
JLR #: 33163-000
DRAWING #: L403.1

PLOT DATE: November 20, 2025 3:01:50 PM

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