Mattamy Zone 5 Watermain – Environmental Impact Study
Whitevale North Servicing – West

Mattamy Homes Canada
6696 Financial Drive
Mississauga ON L5N 7J6

Mattamy Zone 5 Watermain - Environmental Impact Study Whitevale North Servicing – West

Mattamy Homes Canada
6696 Financial Drive
Mississauga ON L5N 7J6

R.J. Burnside & Associates Limited
1465 Pickering Parkway Suite 200
Pickering ON L1V 7G7 CANADA

November 2024
PEB175000.3200

Distribution List

No. of Hard Copies	PDF	Email	Organization Name
0	Yes	Yes	Mattamy (Seaton)
0	Yes	Yes	City of Pickering
0	Yes	Yes	Toronto and Region Conservation Authority

Record of Revisions

Revision	Date	Description
0	November 14, 2024	Initial Submission of EIS to Client

R.J. Burnside & Associates Limited

Report Prepared By:

Christian Jordan, B.Sc., C.E.T.
Environmental Technologist (Solid Waste)
CJ:af

Matthew Moote, H.B.Sc., C.Tech, CAN-CISEC
Project Manager / Aquatic Ecologist

Report Reviewed By:

Jennifer Szczerbak, B.Sc., ECPD
Vice President – Land Development Ecology

Table of Contents

Tables

Figures

Appendices

Disclaimer

Other than by the addressee, copying or distribution of this document, in whole or in part, is not permitted without the express written consent of R.J. Burnside & Associates Limited.

In the preparation of the various instruments of service contained herein, R.J. Burnside & Associates Limited was required to use and rely upon various sources of information (including but not limited to reports, data, drawings, observations) produced by parties other than R.J. Burnside & Associates Limited. For its part R.J. Burnside & Associates Limited has proceeded based on the belief that the third party/parties in question produced this documentation using accepted industry standards and best practices and that all information was therefore accurate, correct and free of errors at the time of consultation. As such, the comments, recommendations and materials presented in this instrument of service reflect our best judgment in light of the information available at the time of preparation. R.J. Burnside & Associates Limited, its employees, affiliates and subcontractors accept no liability for inaccuracies or errors in the instruments of service provided to the client, arising from deficiencies in the aforementioned third party materials and documents.

R.J. Burnside & Associates Limited makes no warranties, either express or implied, of merchantability and fitness of the documents and other instruments of service for any purpose other than that specified by the contract.

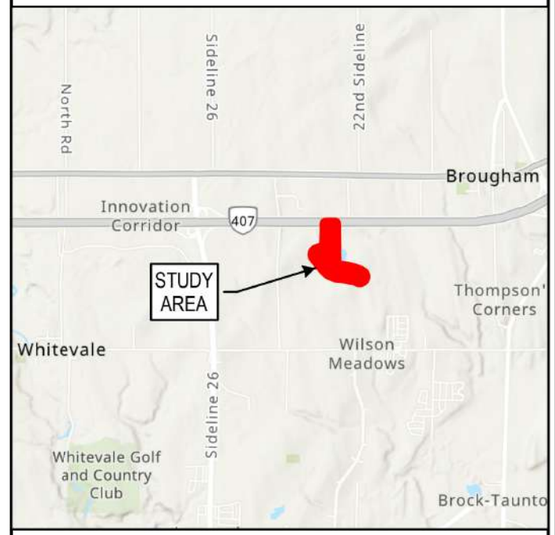
1.0 Introduction

R.J. Burnside & Associates Limited (Burnside) has been retained by Mattamy (Seaton) (the 'Client') to complete an Environmental Impact Study (EIS) for a proposed watermain and future sanitary sewer to service the Whitevale North development located in the community of Seaton, City of Pickering (herein referred to as the "subject lands"), shown on Figure 1. Additionally, tree clearing to support the construction of a future road (Enterprise Gateway) is included in this EIS.

The majority of the watermain is proposed to be installed using open-cut methods. The crossings of the watercourses within the subject lands will be completed using trenchless techniques to minimize impacts to the aquatic environment.

The subject lands are located within the jurisdiction of Toronto and Region Conservation Authority (TRCA), Ministry of Environment, Conservation and Parks (MECP) York-Durham District, and the Ministry of Natural Resources (MNR) Aurora District Office. The subject lands primarily consist of actively cultivated agricultural fields, while adjacent lands consist of the Seaton Natural Heritage System (NHS), which includes tributaries of Ganatsekiagon Creek, regulated and unevaluated wetlands, and various woodland communities. The subject lands are within the Duffins Creek Watershed.

Study Area



Sources:

1. Ministry of Natural Resources and Forestry,© King's Printer for Ontario.
2. Natural Resources Canada,© His Majesty the King in Right of Canada.

Disclaimer:

R.J. Burnside & Associates Limited and the above mentioned sources and agencies are not responsible for the accuracy of the spatial, temporal, or other aspects of the data represented on this map. It is recommended that users confirm the accuracy of the information represented.

This map is the product of a Geographic Information System (GIS). As such, the data represented on this map may be subject to updates and future reproductions may not be identical.

Datum: North American 1983	
Coord. System: NAD 1983 UTM Zone 17N	
Projection: Transverse Mercator	
Central Meridian: 81°0'0.00"W	
False Easting: 500,000m	False Northing: 0m
Page Orientation: -18.6°	Scale Factor: 0.99960

N
Grid North

0 50 100 150 200
Metres

BURNSIDE

Client

MATTAMY (SEATON) LIMITED

Figure Title

WHITEVALE SUBDIVISION ZONE 5 WATERMAIN ENVIRONMENTAL IMPACT STUDY
STUDY AREA

Drawn	Checked	Date	Figure No.
HN	LA	2024/11/04	1
Scale		Project No.	
H 1:3,250		PEB175000.004	

File Path: \\eimo\gis\Project\P Jobs\PE Jobs\PEB175000 Seaton Whitevale\12_GIS\Whitevale Servicing EIS\Whitevale Servicing EIS.aprx Print Date: 2024/11/04 Time: 10:04 PM

1.1 Scope of Work

This document was prepared in accordance with the approved TOR with the City and TRCA dated May 13, 2024 (Appendix A), Section 4.1 (Natural Heritage) of the Provincial Planning Statement (PPS; MMAH, 2024), the Natural Heritage Reference Manual (NHRM) for Natural Heritage Policies of the PPS, 2005 (MNR, 2010) and the Significant Wildlife Habitat Technical Guide (SWHTG; MNR; 2000). As such, the EIS includes:

- A review of applicable environmental policies and regulations affecting the subject lands.
- A review of existing secondary source data to identify any known natural features.
- A summary of detailed field assessments that were conducted.
- A description of the proposed development.
- An assessment of potential impacts results from the proposed development.
- Recommended mitigation measures that will allow development to proceed in a manner that is consistent with local, regional, provincial, and federal policies and regulations.

2.0 Planning and Environmental Policy Considerations

The following policies, Acts and regulations apply to features present on the subject lands.

2.1 Federal Species at Risk Act, 2002

The *Species at Risk Act, 2002* (SARA), provides protection for Species at Risk (SAR) and their habitat. Schedule 1 of SARA is considered the official list of wildlife SAR that receive legal protection under the Act and includes species that have been assessed by the Committee on the Status of Endangered Wildlife in Canada (COESWIC) as Extirpated, Endangered, Threatened or Special Concern (Government of Canada, 2017).

To ensure the protection of SAR, Section 32(1) and (2) of the SARA states:

> *(1) No person shall kill, harm, harass, capture or take an individual of a wildlife species that is listed as an extirpated species, an endangered species, or a threatened species*
>
> *(2) No person shall possess, collect, buy, sell or trade an individual of a wildlife species that is listed as an extirpated species, an endangered species or a threatened species, or any part or derivative of such an individual*

And Section 33 of the SARA states:

> *No person shall damage or destroy the residence of one or more individuals of a wildlife species that is listed as an endangered or threatened species, or that is listed as an extirpated species if a recovery strategy has recommended reintroduction of the species into the wild in Canada*

SARA prohibitions pertaining to private lands include:

- Aquatic species listed on Schedule 1 as Endangered, Threatened or Extirpated.
- Migratory birds listed under the Migratory Birds Convention Act (MBCA) and listed on Schedule 1 as Endangered, Threatened or Extirpated.
- May apply through an order, to other species listed on Schedule 1 (i.e., not an aquatic or migratory bird species) as Endangered, Threatened or Extirpated, if provincial/territorial legislation or voluntary measures do not adequately protect the species and its habitat.

Although Environment and Climate Change Canada (ECCC) is the overall administrator of SARA, responsibility for implementation of the Act is shared by ECCC and the Canadian Wildlife Service, Parks Canada and Department of Fisheries and Oceans (DFO). On private lands, ECCC oversees matters related to migratory birds, while DFO oversees matters related to aquatic species. In most cases pertaining to non-aquatic species on private lands, provincial laws (e.g., the *Endangered Species Act, 2007*) provide protection for critical habitat (i.e., habitat that is necessary for the survival or recovery of a listed endangered, threatened, or extirpated species). Alternatively, SARA prohibitions can be applied by an order, as described above, or through federal legislation (including SARA).

2.2 Federal Fisheries Act, 1985

Construction activities that have the potential to impact fish or fish habitat must be constructed and operated in compliance with the federal *Fisheries Act*. If the "*death of a fish by means other than fishing*", or the "*harmful alteration, disruption or destruction of fish habitat*" will likely result from a project, the proponent responsible for the activities is required to obtain an *Authorization* from DFO as per Paragraph 34.4(2) and 35(2)(b) of the *Fisheries Act.*

The federal *Fisheries Act* prohibits causing the "*death of fish by means other than fishing*", and the "*harmful alteration, disruption or destruction (HADD) of fish habitat*". If construction activities have the potential to cause the death of fish, or HADD of fish habitat, then the project must be submitted to the Department of Fisheries and Oceans (DFO) as a Request for Review. The proponent responsible for the activities is required to obtain an *Authorization* from DFO as per Paragraph 34.4(2) and 35(2)(b) of the *Fisheries Act.*

2.3 Federal Migratory Birds Convention Act, 1994 and Migratory Birds Regulations, 2022

The MBCA and Migratory Birds Regulations (MBR) are federal legislative requirements that are binding on members of the public and all levels of government, including federal and provincial governments. The legislation protects certain species[1] controls the harvest of others and prohibits the commercial sale of all species.

The MBCA has recently updated and modernized the MBR. The previous regulations protected the nests of all migratory birds at all times, for as long as they existed, which meant that many nests were protected when they no longer benefited migratory birds. The new MBR provides protection to migratory bird nests when they are considered to have a high conservation value for migratory birds.

The nests of all migratory bird species are protected when they contain a live bird or a viable egg. The nests of 18 species (listed in Schedule 1 of the regulations), whose nests are reused by migratory birds, continue to have year-round nest protection, unless they have been shown to be abandoned. To be considered abandoned:

- Minister must be notified, via an online registration system (Notice: Abandoned Nest Registry - Canada.ca), that the nest does not contain a live bird or viable egg.
- Nest is to remain unused by migratory birds during the designated wait time for that species.
- Of the 18 species, three are known to commonly breed in Southern Ontario: Great Blue Heron, Green Heron and Pileated Woodpecker.

Permits are available under limited circumstances and mostly relate to egg or nest destruction or relocation "*for the purpose of reducing the danger that they are causing or are likely to cause to human health or public safety or the damage they are causing or are likely to cause to agricultural, environmental or other interests.*" Environment Canada and the Canadian Wildlife Service have compiled nesting calendars that show the variation in nesting intensity, by habitat type and nesting zone, within broad geographical areas distributed across Canada. While this does not mean nesting birds will not nest outside of these periods, the calendars can be used to greatly reduce the risk of encountering a nest. Environment Canada advises avoidance as the best approach.

[1] *Bird species not regulated under the Act include Rock Dove, American Crow, Brown-headed Cowbird, Common Grackle, House Sparrow, Red-winged Blackbird, and European Starling. In addition, raptors are not regulated under the MBCA. However, they are protected under provincial legislation which restricts and regulates the taking or possession of eggs and nests. Furthermore, if the species identified is protected under Ontario's ESA or the federal SARA, additional restrictions may apply.*

2.4 Provincial Planning Act, 1990

Section 2 of the *Planning Act* contains matters of provincial interest that approval authorities must have regard to in carrying out the responsibilities under the Act. The matters of provincial interest involve the protection of ecological systems, including natural areas, features and functions.

2.4.1 Provincial Planning Statement, 2024

The new Provincial Planning Statement (PPS) (MMAH, 2024) came into effect on October 24, 2024. It provides general policies on land use patterns, resources, and public health and safety that guide development across Ontario. All planning decisions are required to be consistent with the applicable provisions of the PPS. Eight types of natural heritage features are identified in Section 4.1, policies 4.1.4 and 4.1.5 of the PPS, where development and site alteration are not permitted unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions. The NHRM (MNR, 2010) provides criteria for identifying provincially significant features; these are listed below and described in more detail in Section 5.0 of this report:

1. Significant Wetlands in Ecoregions 5E, 6E, and 7E.
2. Significant Coastal Wetlands.
3. Significant Wetlands in the Canadian Shield, north of Ecoregions 5E, 6E, and 7E.
4. Significant Woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River).
5. Significant Valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and St. Marys River).
6. Significant Wildlife Habitat (SWH).
7. Significant Areas of Natural and Scientific Interest (ANSIs).
8. Coastal wetlands in Ecoregions 5E, 6E, and 7E that are not subject to policy 2.1.4(b).

Section 4.1, policies 4.1.6, 4.1.7 and 4.1.8 identifies three additional development and site alteration prohibitions and exemptions, as follows:

1. Fish habitat, except in accordance with provincial and federal requirements.

2. Habitat of Endangered and Threatened species, except in accordance with provincial and federal requirements.

3. On adjacent lands to the natural heritage features and areas identified in policies 4.1.4, 4.1.5, and 4.1.6, unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.

The presence, or potential presence, of these features as well as the policy and planning implications of these features for development, are discussed in detail in this report.

2.5 Provincial Endangered Species Act, 2007

The *Endangered Species Act, 2007* (ESA) provides protection for SAR and their habitat. The ESA is administered by MECP and provides policies for the protection of Extirpated, Endangered and Threatened species, as well as species of Special Concern. These four categories of species form the Species at Risk in Ontario (SARO) List, which are classified by the Committee on the Status of Species at Risk in Ontario (COSSARO). COSSARO is also responsible for maintaining criteria for assessing and classifying SAR.

The ESA helps protect species (Section 9) and their habitat (Section 10). Section 9(1)(a) of the ESA states:

> *no person shall kill, harm, harass, capture or take a living member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species*

Section 10(1)(a) of the ESA states:

> *no person shall damage or destroy the habitat of a species that is listed on the Species at Risk in Ontario List as an endangered or threatened species*

The ESA includes general habitat regulations, as well as species-specific habitat regulations. Species uplisted to Endangered, or Threatened, automatically receive general habitat protection under the ESA. The province is then required to prepare a species recovery strategy and establish a habitat regulation according to requirements of the ESA.

The use of a SAR Conservation Fund has been enabled for five designated conservation fund species when they seek permits and agreements related to these species (Eastern Whip-poor-will, Blanding's Turtle), or register for conditional exemptions (Eastern Meadowlark, Bobolink, Butternut).

The SARO List is updated from time to time; therefore, it is the proponent's responsibility to practice due diligence to ensure that the ESA and its regulations are not violated. It is also the proponent's responsibility to be apprised of any amendments to the Act that may come into force for the duration of this project.

2.6 Conservation Authorities Act, 1990

On April 1, 2024, amendments to the *Conservation Authorities Act* (CA Act) governing the permitting process were proclaimed including a new section, "Part VI – Regulation of Areas Under Which Authorities Have Jurisdiction". A new Minister's regulation for all Conservation Authorities (CAs) was approved on February 16, 2024, Ontario Regulation 41/24: Prohibited Activities, Exemptions and Permits, and also came into effect on April 1, 2024. This new, single regulation replaces all existing individual CA permit regulations, including TRCA's Ontario Regulation 42/06.

Part VI of the CA Act sets out the Regulatory Powers of CAs. Specifically, the CA Act prohibits, in the absence of a permit "*activities to straighten, change, divert or interfere in any way with the existing channel of a river, creek, stream or watercourse or to change or interfere in any way with a wetland.*" Development activities are also prohibited in hazardous lands, wetlands, river or stream valleys and shorelines in the absence of a permit.

2.6.1 Ontario Regulation 41/24

As of January 1, 2023, the CAs role is limited to their core mandate (that is, regulated areas / natural hazards and wetlands). To implement, in part, the provisions of Part VI of the CA Act, Ontario Regulation 41/24 applies to all CAs in the province. Effective April 1, 2024, Ontario Regulation 41/24 replaces the existing individual "Development, Interference with Wetlands and Alterations to Shorelines and Watercourses" regulations.

The CA Act and Ontario Regulation 41/24 contain the following provisions, which establish regulatory boundaries and prohibit development and interference in any way in and around wetlands as well as the straightening, changing, diverting or interference with watercourses unless permission is granted by the CA after it has been determined that specific legislated tests have been met:

Prohibited Activities (subsection 28(1) of the *Conservation Authorities Act*)

> **28(1)** *… no person shall carry on the following activities, or permit another person to carry on the following activities…*
>
> *4. Activities to straighten, change, divert or interfere in any way with the existing channel of a…watercourse or to change or interfere in any way with a wetland.*

5. Development activities in areas that are…

ii. …wetlands…

v. [areas within 30 metres of a wetland]

Permits (subsection 28.1(1) of the *Conservation Authorities Act*)

28.1(1) [The CA] *may issue a permit to a person to engage in [a development] activity specified in the permit that would otherwise be prohibited by section 28, if, in the opinion of [the CA]*

(a) the [development] activity is not likely to affect the control of flooding, erosion,

(b) the [development] activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property

The CA's will continue to require applications for a permit to undertake an otherwise prohibited development, interference and alteration activities in regulated areas, as defined under the CA Act and Ontario Regulation 41/24.

Lands regulated by TRCA on the subject lands include:

- Unevaluated Wetlands
- Tributaries of Ganatsekaigon Creek (+30 m Setback)

Section 8.0 of this report provides recommendations to ensure that regulated features, located within or adjacent to the subject lands, are not negatively impacted and, where applicable, recommends mitigation measures.

2.6.2 TRCA Living Cities Policies

One of TRCA's functions, in partnership with municipal, provincial, and federal governments, is to promote and help implement sustainable community development by advising stakeholders and regulating activities in the planning and development process. The Living City Policies for Planning and Development in the Watersheds of TRCA (LCP) (2014) contains the policies for the administration of TRCA's legislated and delegated roles and responsibilities in the planning and development approvals process.

The LCP is issued under the authority of Section 20 of the CA Act and was endorsed by TRCA's Board on November 28, 2014. The LCP serves the following functions:

- Update the previous Valley and Stream Corridor Management Program with new and updated requirements in federal, provincial, and municipal legislation, policies and agreements affecting TRCA.
- Indicate to all stakeholders TRCA's principles and policies for planning and development.
- Reflect the latest science known to TRCA.
- Complement TRCA's mandated regulatory and plan review roles in the planning and development process.
- Clarify and implement TRCA responsibilities for Lake Ontario shoreline / waterfront management.

Add policy emphasis to the restoration, remediation, and enhancement of existing water and natural heritage systems in response to provincial planning directions geared to urban redevelopment and intensification.

2.7 Official Plans

2.7.1 Envision Durham Official Plan, 2024

On September 3, 2024, the Region of Durham received notice from the Ministry of Municipal Affairs and Housing (MMAH) that Envision Durham - the new Regional Official Plan (OP) - has been approved in part, with modifications, and is now in effect. Work on a consolidated version of the new OP is underway.

The new OP was consulted to determine regional land use designations and locations of natural heritage features. According to Map 1 (Regional Structure – Urban & Rural Systems), the subject lands are designated as Specific Policy Area 'A'. Policy Area 'A' contains land comprising Central Pickering (the Seaton Urban Area and the Duffins Rouge Agricultural Preserve) that shall be developed in accordance with the Official Regional Plan and City of Pickering Official Plan. Map 2a (Regional Natural Heritage System) and Map 2c (Water Resources System – Key Hydrologic Features) show the subject lands fall within an Urban Area containing Key Natural Heritage and Hydrologic Features.

Applicable land use planning and natural heritage policies include:

- Specific Policy Areas
- Regional Natural Heritage System

2.7.2 City of Pickering Official Plan, 2022

Envision Durham OP (2024) provides an overall framework for the City of Pickering OP (Edition 9, March 2022). According to Schedule I, the subject lands are designated as a Low-Density Urban Area. To the south, a mixed Low and Medium-Density Urban Area

borders the subject lands, while the north, east and west adjacent lands are designated as the Seaton NHS. Schedule III C maps the adjacent watercourses as permanent and intermittent streams, as well as one wetland in the northeastern corner and one outside the western boundary. Additionally, Schedule III D identifies a Highly Vulnerable Aquifer (HVA) on the entirety of the subject lands.

2.8 Seaton Master Environmental Servicing Plan Amendment

As required by the former Central Pickering Development Plan (CPDP) (2006), a Master Environmental Servicing Plan (MESP) was prepared in consultation with the Regional Municipalities of Durham and York, the City, TRCA and MNR. The Phase 1 MESP (Existing Conditions Report) and MESP Amendment (MESPA) were finalized in 2008 and 2013, respectively. The MESPA addressed water resources requirements, transportation, servicing, ESA requirements at that time, fisheries and aquatic habitat, community facilities, agency consultation, phasing, and future study and monitoring requirements.

The MESPA guided the preparation of Functional Servicing and Stormwater Management Reports (FSSRs), which were to provide more detailed information regarding environmental constraints, servicing routes and the stormwater management plan outlined in the MESPA.

This EIS documents site-specific ecological surveys completed in support of the proposed development described in the Whitevale TFPM Development FSSR (Burnside, March 2023).

3.0 Background Information

A comprehensive desktop assessment was completed to review existing natural heritage information available for the subject lands. All areas within 50 m of the subject lands were reviewed as part of the high-level assessment to identify significant natural heritage features located within, or directly adjacent to the subject lands, that may be impacted by future development (herein referred to as “adjacent lands”).

Information reviewed included, but was not limited to, the following sources:

- MNR Land Information Ontario (LIO) database
- MNR Natural Heritage Areas Mapping (2024)
- MNR Aquatic Resource Area (ARA) mapping (2024)
- MNR Natural Heritage Information Centre (NHIC) database for significant species and designated natural features
- Fisheries and Oceans Canada (DFO) Aquatic Species at Risk mapping (2024)
- Aerial photographic imaging and 1:10,000 Ontario Base Mapping (OBM)
- The Living City Policies, TRCA (2014)

- TRCA Flora Points, 2019
- TRCA regulated features (updated April 1, 2024) and Ecological Land Classification (ELC) (2023) mapping
- Central Pickering Development Plan (CPDP) (May 2006)
- City of Pickering Official Plan Edition 9 (2022)
- Envision Durham Official Plan (2024)
- Seaton Natural Heritage System Management Plan and Master Trails Plan (NHSMP+MTP) (Schollen & Co., January 2009)
- Phase 1 Master Environmental Servicing Plan (The Sernas Group et al., 2008)
- Phase 2 MESP (The Sernas Group et al., 2010)
- Master Environmental Servicing Plan Amendment (The Sernas Group et al., July 2013)
- Species at Risk Screening – Seaton Lands, Infrastructure Ontario Lands, (Niblett Environmental Associates Inc., August 21, 2013)
- Butternut Health Assessment, Seaton Lands, City of Pickering, Neighbourhood Areas 18, 19, and 21 (Niblett Environmental Associates Inc., August 22, 2013)
- Comprehensive Aquatic Framework (CAF) (Seaton Environmental Consulting Team, April 2017)
- Process for *Endangered Species Act* (2007) Authorizations, Seaton Community, City (Draft v. 4; Seaton Consulting Team, September 2018)
- Whitevale TFPM Development Functional Servicing and Stormwater Management Report (R.J. Burnside & Associates Limited, March 2023)
- Ontario Hydrology Network (OHN) mapping
- Ontario Breeding Bird Atlas (OBBA) database for avian species records within the general area
- Ontario Reptile and Amphibian Atlas (ORAA) database for herpetofauna species records within the general area

Based on this review and consultation TRCA (see Appendix A), the following background information was identified:

- Tributaries of Ganatsekiagon Creek and Wetland G11 on the subject lands, as well as Urfe Creek to the east, are contributing Redside Dace (*Clinostomus elongatus*) habitat.
- TRCA regulated areas are present in the NHS adjacent to the subject lands.
- Species at Risk have been recorded in the general study area (see Section 3.1 below).

3.1 Species at Risk and Significant Wildlife Habitat

Through initial screening of OBBA, ORAA and NHIC database records, MNR and MECP correspondence, and previous studies, the following provincially listed SAR (ESA, 2007) have been identified as potentially present on or adjacent to the subject lands:

- Bank Swallow (*Riparia riparia*) (THR)
- Barn Swallow (*Hirundo rustica*) (SC)
- Blanding's Turtle (*Emydoidea blandingii*) (THR)
- Bobolink (*Dolichonyx oryzivorus*) (THR)
- Butternut (*Juglans cinerea*) (END)
- Eastern Meadowlark (*Sturnella magna*) (THR)
- Eastern Wood-pewee (*Contopus virens*) (SC)
- Little Brown Myotis (*Myotis lucifugus*) (END)
- Monarch (*Danaus plexippus*) (SC)
- Northern Myotis (*Myotis septentrionalis*) (END)
- Red-headed Woodpecker (*Melanerpes erythrocephalus*) (SC)
- Redside Dace (*Clinostomus elongatus*) (END)
- Snapping Turtle (*Chelydra serpentina*) (SC)
- Tri-colored Bat (*Perimyotis subflavus*) (END)
- Wood Thrush (*Hylocichla mustelina*) (SC)

The following federally listed SAR (SARA, 2002) have been identified as potentially present on, or adjacent to the subject lands:

- Eastern Milksnake (*Lampropeltis triangulum*) (SC)

The following species has been assessed by COSEWIC (2018) as at risk, but has no status under SARA (2002) or the ESA (2007):

- Midland Painted Turtle (*Chrysemys picta subsp. marginata*) (SC)

Candidate and confirmed SAR (Endangered or Threatened species) and Significant Wildlife Habitat (SWH) have been identified through separate screening exercises found in Appendix B and C, respectfully, and are discussed in more detail in Section 6.0.

3.2 Terrestrial Habitat

3.2.1 Vegetation Communities and Species

The following is a summary of potential vegetation communities identified on the subject lands based on a review of background aerial imagery, databases, reports, and data collected during the Phase 1 MESP and MESPA:

- Open pasture, row crops
- Cultural habitats (hedgerow, meadow, thicket)
- Deciduous forest
- Coniferous forest
- Wetlands (marsh and swamp)

3.2.1.1 Flora

Flora records were provided by TRCA for the general vicinity of the subject lands. Of those species identified by TRCA in the study area and the adjacent NHS lands, the following species considered rare to the TRCA jurisdiction (L1-L3):

- Narrow-leaved Willow-herb (*Epliobium leptophyllum*) L3
- Foxtail Wood Sedge (*Carex alopecoidea*) L3
- Ontario Aster (*Symphyotrichum ontarionis var ontarionis*) L3
- Green-fruited Bur-reed (*Sparganium emersum*) L3
- Large-flowered Bellwort (*Uvularia grandiflora*) L3

Butternut were previously documented in the immediate vicinity of the Whitevale West and Whitevale North TFPM Bundle 3 development lands and assessed by Burnside in Butternut Health Assessments (BHA) in 2017, 2018, and 2019 by certified Butternut Health Assessors (Kevin Butt #062 and Lorraine Adderley #428 and Sylvia Radovic #712 respectively). No previous Butternut Health Assessments were known for the study area. BHA methodology is described in Section 4.1.2, with findings detailed in Section 5.2.2.

3.2.2 Wildlife

The following is a summary of potential wildlife habitat identified on the subject lands based on a review of background aerial imagery, databases, reports, and the Phase 1 MESP and MESPA:

- Amphibian breeding habitat
- Bat maternity roosting habitat
- Breeding bird habitat
- SWH
- SAR and Species of Conservation Concern (SCC)

SAR and SWH confirmed during Burnside's field investigations are summarized further in Section 5.0. SAR and SWH screening tables are provided in Appendix B and Appendix C.

3.3 Aquatic Habitat

3.3.1 Fish Community

Ganatsekaigon Creek flows through the subject lands. The watermain and sanitary sewer will cross three tributaries of Ganatsekaigon Creek. Wetlands observed in the study area include Wetland G11, made up of Swamp (SWTM2-1, SWDM2-2) and Marsh (MASM1-1, MAMM1-3, MAS2-b, MAM2-10, MAMM2-4). MNR ARA (2024) mapping states that all tributaries within the subject lands have a cold-water thermal regime, and

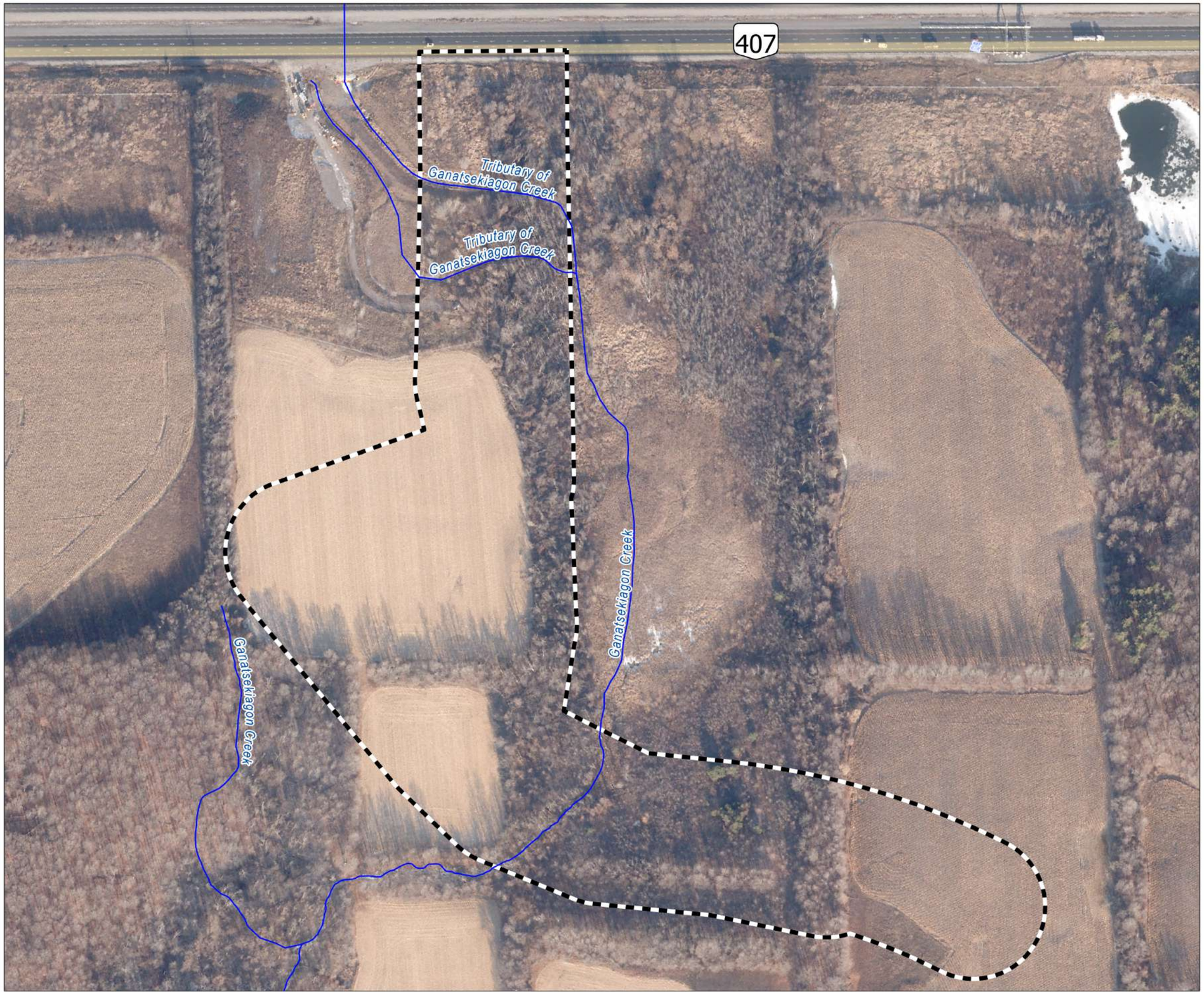
therefore can support a diverse array of fish including sensitive species. Table 1 below provides a list of fish historically observed in these watercourses. It is noted that MNR ARA (2024) mapping is not specific with respect to the dates or locations of fish observances, and the aquatic habitat within the subject lands would not necessarily provide habitat to all species listed.

Table 1: Fish Species Historically Observed in Ganatsekiagon and Urfe Creek

Common Name	Scientific Name	Thermal Regime
American Brook Lamprey	*Lethenteron appendix*	Cold
Atlantic Salmon	*Salmo salar*	Cold
Blacknose Dace	*Rhinichthys atratulus*	Cool
Blacknose Shiner	*Notropis heterolepis*	Cool
Bluntnose Minnow	*Pimephales notatus*	Warm
Brassy Minnow	*Hybognathus hankinsoni*	Cool
Brook Stickleback	*Culaea inconstans*	Cool
Brook Trout	*Salbelinus fontinalis*	Cold
Brown Bullhead	*Ameiurus nebulosus*	Warm
Brown Trout	*Salmon trutta*	Cold
Common Shiner	*Luxilus cornutus*	Cool
Creek Chub	*Semotilus atromaculatus*	Cool
Fathead Minnow	*Pimephales promelas*	Warm
Golden Shiner	*Notemigonus crysoleucas*	Cool
Johnny Darter	*Etheostoma nigrum*	Cool
Largemouth Bass	*Micropterus nigricans*	Warm
Longnose Dace	*Rhinichthys cataractae*	Cool
Mottled Sculpin	*Cottus bairdii*	Cool
Northern Brook Lamprey	*Ichthyomyzon fossor*	Cool
Northern Pearl Dace	*Margariscus nachtriebi*	Cool
Northern Redbelly Dace	*Chrosomus eos*	Cool
Pumpkinseed	*Lepomis gibbosus*	Warm
Rainbow Darter	*Etheostoma caeruleum*	Cool
Rainbow Trout	*Oncorhynchus mykiss*	Cold
Redside Dace	*Clinostomus elongatus*	Cool
Sea Lamprey	*Petromyzon marinus*	Cool
Slimy Sculpin	*Cottus cognatus*	Cold
Spottail Shiner	*Hudsonius hudsonius*	Cool
White Sucker	*Catostomus commersonii*	Cool

3.3.2 Redside Dace

The watermain and sanitary sewer will cross three tributaries of Ganatsekaigon Creek. The Ganatsekiagon Creek subwatershed contains regulated Redside Dace habitat, as defined by MECP and Fisheries and Oceans Canada (DFO). The CAF for the Seaton Community (2017-2020) describes Ganatsekiagon Creek on the subject lands as Contributing Redside Dace habitat, and thus the 30 m setback for cold water habitat is to be respected, but the meanderbelt + 30 m setback for Occupied or Recovery habitat does not apply. Figure 2 shows a map of the aquatic background conditions.



Watercourse - Thermal Regime: Cold, Redside Dace Habitat (Contributing)

Study Area

Sources:

1. Ministry of Natural Resources and Forestry,© King's Printer for Ontario.
2. Natural Resources Canada,© His Majesty the King in Right of Canada.

Disclaimer:

R.J. Burnside & Associates Limited and the above mentioned sources and agencies are not responsible for the accuracy of the spatial, temporal, or other aspects of the data represented on this map. It is recommended that users confirm the accuracy of the information represented.

This map is the product of a Geographic Information System (GIS). As such, the data represented on this map may be subject to updates and future reproductions may not be identical.

Datum: North American 1983	
Coord. System: NAD 1983 UTM Zone 17N	
Projection: Transverse Mercator	
Central Meridian: 81°0'0.00"W	
False Easting: 500,000m	False Northing: 0m
Page Orientation: -18.6°	Scale Factor: 0.99960

N

Grid North

0 50 100 150 200

Metres

BURNSIDE

Client

MATTAMY (SEATON) LIMITED

Figure Title

WHITEVALE SUBDIVISION ZONE 5 WATERMAIN ENVIRONMENTAL IMPACT STUDY

AQUATIC BACKGROUND CONDITIONS

Drawn	Checked	Date	Figure No.
HN	LA	2024/11/04	2
Scale		Project No.	
H 1:2,750		PEB175000.004	

File Path: \\elmo\gis\Project\P Jobs\PE Jobs\PEB175000 Seaton Whitevale\12_GIS\Whitevale Servicing EIS\Whitevale Servicing EIS.aprx Print Date: 2024/11/04 Time: 10:05 PM

4.0 Field Methodology

4.1 Vegetation Community and Species

ELC community mapping was obtained from TRCA open data (2023) for the general vicinity of the subject lands. Combined with ELC mapping prepared for the MESPA by Bird and Hale (2009), this was used as the basis for ELC verification within the subject lands by field studies in 2024. ELC communities were described according to the Ecological Land Classification for Southern Ontario: First Approximation and Its Application (Lee et al. 1998), including reference to the 2008 updated classification (Lee 2008, 2013).

Detailed investigations of vegetation communities and species were conducted for the entirety of the subject lands. All species herein are described according to nomenclature and S-ranks provided by the NHIC, current to September 20, 2023. Where nomenclature differs between databases or rarity lists, the Database of Vascular Plants of Canada (VASCAN) (2021) was used as a reference for synonyms of plant names to current taxonomic standards.

4.1.1 Ecological Land Classification and Botanical Inventory

Surveys for ELC and botanical inventory were undertaken on May 2, July 3, July 18 and August 15, 2024. All plant species observed on the subject lands have been analyzed for species rarity based on:

- Species' status as listed on the SARO list (updated January 29, 2024), under the ESA
- Species' status, as determined by COSEWIC and listed under the SARA, 2002
- Species' S-rank, as provided by the NHIC species lists (September 20, 2023)
- Rarity for TRCA, as listed in the "TRCA Flora Scores and Ranks, 2023"
- Rarity for the GTA, Site District 6E-7, and Durham, as listed in the "The Distribution and Status of the Vascular Plants of the Greater Toronto Area" Varga et al. (MNR, 2000)

4.1.2 Butternut Health Assessment and Survey

Searches of all trees on the subject lands were completed during the leaf-on season, as defined by MECP (2023) on July 3, July 18, and August 15, 2024. Additionally, incidental Butternut were also observed during other surveys on April 9, June 25 and August 29, 2024, and were flagged for assessment in the leaf-on window. Surveys were conducted on clear days, free from rain in the previous 24 hours, so cankers could be easily identified.

Butternut is protected under the ESA. Sections 9 and 10 of the ESA prohibit activities such as killing, harming, or taking and against damage or destruction of the habitat of a Butternut tree. However, exemptions for activities that would otherwise be prohibited by the Act are allowed under O. Reg. 830/21 (and previously under O. Reg. 242/08). Under this regulation, a Butternut Health Assessment (BHA) is required to assess the health of the tree(s), as it relates to infection with Butternut canker. The BHA determines to which Category (1 'non-retainable', 2 'retainable', 3 'archivable') the tree belongs and if the tree is a hybrid. Category 1 (non-retainable) and hybrid trees are not protected under the ESA. Category 2 (retainable) and 3 (archivable) trees are protected under the ESA. Under O. Reg. 830/21, a maximum of 15 Category 2 and five Category 3 trees may be registered as being affected (i.e., killed, harmed, or taken) by any one development application. Beyond this threshold, the remaining trees must be retained, or an Overall Benefit Permit is required.

BHAs were completed, adhering to the requirements of O. Reg. 830/21, the Butternut Assessment Guidelines (MNRF, 2021) and in consultation with MECP. BHAs were undertaken by Butternut Health Experts (BHE) (as defined by O.Reg. 830/21, Section 21) Lorraine Adderley (BHA #428) and Andrew Borrelli on July 3, July 18 and August 29, 2024. Butternuts were assessed and then assigned as either Category 1, Category 2 or Category 3. The Butternut Health Assessment Report is currently in progress and will be submitted to MECP in mid-December.

Additionally, genetic material for hybridity testing was collected from one Butternut tree (BN11) and submitted to Nature Metrics, a Ministry approved service provider.

4.1.3 Black Ash

Searches of all trees on the subject lands were completed during the leaf-on season on July 3, July 18, August 15 and August 22, 2024. Additionally, Black Ash was targeted during Tree Inventory surveys on April 9 and June 25, 2024.

Black Ash is protected under the ESA. Sections 9 and 10 of the ESA prohibit activities such as killing, harming, or taking and against damage or destruction of the habitat of a Black Ash tree. However, exemptions for activities that would otherwise be prohibited by the Act are allowed under O. Reg. 6/24 and 7/24. Under these regulations, only trees in specific areas of the province (including most of Southern Ontario) are subject to protection. Additionally, only trees 8 cm in Diameter at Breast Height (DBH) are protected if they are determined to be healthy. A Black Ash Assessment is required to examine the health of the tree(s), as it relates to infection with Emerald Ash Borer beetle canker. Healthy trees in the designated areas that are over 8 cm are protected under the ESA. There are currently no pathways to registration for Black Ash. Protected trees must be retained with a no-touch habitat of 30 m, or an Overall Benefit Permit from MECP is required.

4.2 Breeding Bird Surveys

Standard breeding bird surveys were completed by an Avian Biologist and conducted according to the OBBA *Instructions for General Atlassing and Appendices* (April 2021), tailored to the needs of this project.

- Two surveys were undertaken at least one week apart between May 24 and July 10.
- Surveys were conducted under the following weather condition requirements: counts were not completed if it was raining, there was thick fog, or if winds were greater than 19 km per hour (i.e., >3 on the Beaufort scale).
- Standard breeding bird surveys were undertaken at the designated point count locations within all vegetation communities present on the subject lands.
- All birds recorded, including level of breeding evidence, are summarized in Appendix E.
- Field data was collected using a mobile data collection application (Fulcrum) on an iOS device.

Table 2: Summary of Breeding Bird Survey Weather Conditions

Survey Date	Observer(s)	Time of Day (Start/End) (24 hours)	Weather Conditions (Air Temp °C/Beaufort Sky Code[1] /Wind Scale[2])
June 5, 2024	Elly Hind-Smith and Christian Jordan	06:03 – 07:55	Start: 18°C; End: 20°C Sky: 1 Wind: 2
June 27, 2024	Elly Hind-Smith and Christian Jordan	06:04 – 07:33	Start: 14°C; End: 20°C Sky: 0 Wind: 2

[1]NAAMP/ Beaufort Sky Codes
0 = clear (no cloud cover)
1 = partly cloudy (scattered or broken) or variable
2 = cloudy or overcast
3 = sandstorm, dust storm or blowing snow
4 = fog, smoke, thick dust, or haze
5 = drizzle or light rain
6 = rain
7 = snow or snow/rain mix
8 = showers
9 = thunderstorms

[2]Beaufort Wind Scale
0 = calm, smoke rises vertically (0-2 km/hr)
1 = Light air movement, smoke drifts (3-5)
2 = Slight breeze, wind felt on face; leaves rustle (6-11)
3 = Gentle breeze, leaves & twigs in constant motion (12-19)
4 = Moderate breeze, small branches moving, raises dust & loose paper (20-30)
5 = Fresh breeze, small trees begin to sway (31-39)
6 = Strong breeze, large branches in motion (40-50)

4.3 Bats

As per MECP's *Species at Risk Bats Survey Note 2022*, potential woodland SAR bat habitat should be assessed according to the protocol *Treed Habitats – Maternity Roost Surveys* (2022). The protocol calls for Leaf-off Surveys followed by Acoustic Monitoring Surveys.

4.3.1 Leaf-off Surveys

Leaf-off surveys are best performed during the fall to early spring, before leaves have started growing again, when visibility of cracks or crevices in tree snags is greatest. Leaf-off surveys for the hedgerows, forests and swamps were conducted on May 6, 2024, to determine potential bat maternity roosting habitat for Little Brown Myotis and Northern Myotis (both listed as Endangered under the ESA).

In total, 18 leaf-off candidate trees were identified. Their locations are mapped on Figure 3. The following criteria were considered when identifying a candidate maternity roosting tree during this survey:

- Snag Height
- Presence of habitat characteristics
- Diameter at Breast Height (DBH)
- Within 10 m of another tree and / or snag
- Amount of peeling bark
- Cavity height
- Species
- Percent canopy cover
- Decay class

For each candidate tree, the above information was collected using Fulcrum and marked with a GPS waypoint.

4.3.2 Passive Acoustic Surveys

Burnside staff completed passive acoustic monitoring surveys between June 14 and June 27, 2024, to determine roosting status of trees identified through leaf-off surveys that are proposed to be removed for the development.

Three survey stations were installed, each located adjacent to multiple candidate maternity roosting trees identified as having a relatively high potential to function as bat maternity roosting habitat. The monitors were deployed for a total of 13 nights (i.e., sunset to sunrise) to ensure the required ten days of suitable weather conditions (i.e., ambient temperatures above 10° C and no rain), per MECP protocols (2022).

Table 3 lists weather conditions in Pickering during the survey period.

Table 3: Bat Acoustic Survey Weather Conditions

	Date	Nighttime Temp		Weather
1	14-Jun-24	Hi: 22	Lo: 15	Clear night
2	15-Jun-22	Hi: 20	Lo: 15	Clear night
3	16-Jun-22	Hi: 19	Lo: 12	Clear night
4	17-Jun-22	Hi: 25	Lo: 13	Scattered clouds
5	18-Jun-22	Hi: 28	Lo: 19	Clear night
6	19-Jun-22	Hi: 30	Lo: 21	Scattered clouds
7	20-Jun-22	Hi: 27	Lo: 19	Overcast/low clouds
—	21-Jun-22	Hi: 23	Lo: 19	Light rain
—	22-Jun-22	Hi: 21	Lo: 20	Cloudy with some rain
8	23-Jun-22	Hi: 26	Lo: 20	Scattered clouds
9	24-Jun-22	Hi: 27	Lo: 18	Clear night
10	25-Jun-22	Hi: 21	Lo: 19	Scattered clouds
11	26-Jun-22	Hi: 20	Lo: 16	Clear night

Each station was equipped with a Wildlife Acoustics Song Meter SM4BAT FS bioacoustics recorder, with an omnidirectional SMM-U2 external microphone. The monitors were deployed and programmed to record automatically from 30 minutes before sunset to 30 minutes after sunrise, with the following adjustable settings:

- Gain: 12 dB
- Sample Rate: 256 kHz
- Minimum Trigger Frequency: 15 kHz

Recordings from the Song Meters were analyzed using the automatic identification feature of Wildlife Acoustics Kaleidoscope Pro v. 5.6.8 software. The analysis applied classifiers for eight bat species known from Ontario, including the four SAR bat species (Little Brown Myotis, Northern Myotis, Eastern Small-footed Myotis Tri-colored Bat).

4.4 Amphibian Breeding Call Surveys

Burnside staff conducted amphibian breeding call surveys, following the Marsh Monitoring Program Participant's Handbook for Surveying Amphibians (BSC, 2009), during the 2024 season. Three surveys were conducted between April and June by qualified ecologists, to detect potential early, mid and late-season amphibian breeding activity in Central Ontario.

Surveys were completed at a single survey station, located at Wetland G11 on the subject lands, to provide information on potential amphibian breeding sites within representative wetland communities. See Figure 3 for a map of the survey station. Per

the Marsh Monitoring Program guidelines, three call surveys should be completed a minimum of 15 days apart when nighttime air temperatures are greater than 5°C, 10°C and 17°C, respectively, and when wind strength is less than 19 km/h (<3 on the Beaufort Scale). Weather conditions during the surveys are outlined in Table 4.

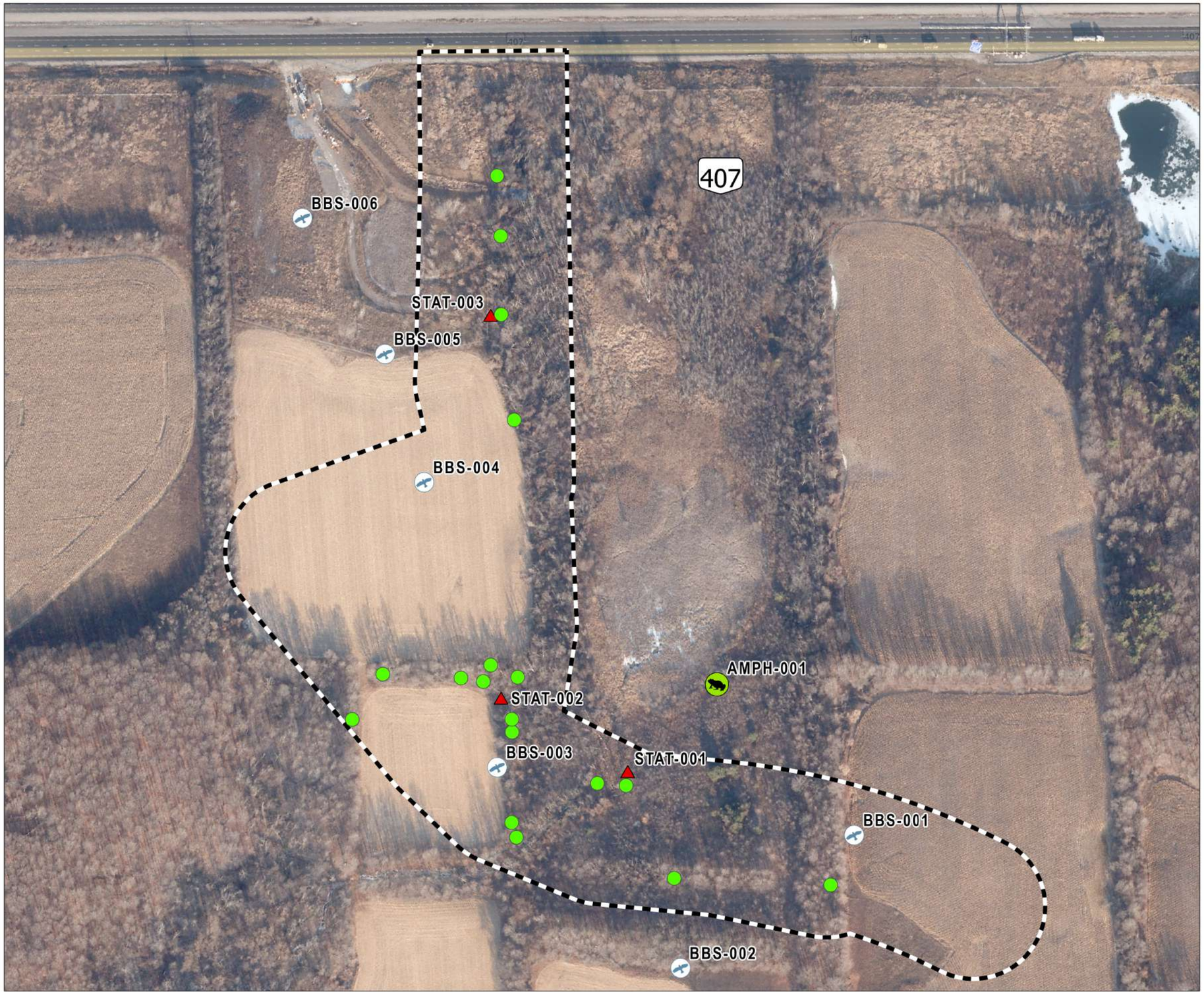
Amphibian calls are used to identify species presence and are quantified by assigning a Call Level Code and an Abundance Count. The purpose of the breeding amphibian surveys was to identify wildlife habitat, as well as any potential SWH on the subject lands.

Table 4: Amphibian Breeding Call Survey Weather Conditions

Survey Date	Observers	Start Time (24 hr)	Weather Conditions		
			Sky Code[1]	Air Temp. (°C)	Wind (Beaufort Scale)[2]
April 18, 2024	Matthew Moote and Christian Jordan	22:15 - 22:18	2	10	0
May 23, 2024	Hannah Maciver and Christian Jordan	21:18 – 21:21	0	23	0
June 18, 2024	Matthew Moote and Christian Jordan	21:38 – 21:41	1	25	2

[1]NAAMP/ Beaufort Sky Codes
0 = clear (no cloud cover)
1 = partly cloudy (scattered or broken) or variable
2 = cloudy or overcast
3 = sandstorm, dust storm or blowing snow
4 = fog, smoke, thick dust, or haze
5 = drizzle or light rain
6 = rain
7 = snow or snow/rain mix
8 = showers
9 = thunderstorms

[2]Beaufort Wind Scale
0 = calm, smoke rises vertically (0-2km/hr)
1 = Light air movement, smoke drifts (3-5)
2 = Slight breeze, wind felt on face; leaves rustle (6-11)
3= Gentle breeze, leaves & twigs in constant motion (12-19)
4= Moderate breeze, small branches moving, raises dust & loose paper (20-30);
5= Fresh breeze, small trees begin to sway (31-39)
6= Strong breeze, large branches in mturteotion (40-50)



- Amphibian Survey Station
- Breeding Bird Survey Station
- Acoustic Survey Station
- Candidate Bat Maternity Habitat Tree (Leaf-Off)
- Study Area

Sources:

1. Ministry of Natural Resources and Forestry,© King's Printer for Ontario.
2. Natural Resources Canada,© His Majesty the King in Right of Canada.

Disclaimer:

R.J. Burnside & Associates Limited and the above mentioned sources and agencies are not responsible for the accuracy of the spatial, temporal, or other aspects of the data represented on this map. It is recommended that users confirm the accuracy of the information represented.

This map is the product of a Geographic Information System (GIS). As such, the data represented on this map may be subject to updates and future reproductions may not be identical.

Datum: North American 1983 CSRS	
Coord. System: NAD 1983 CSRS UTM Zone 17N	
Projection: Transverse Mercator	
Central Meridian: 81°0'0.00"W	
False Easting: 500,000m	False Northing: 0m
Page Orientation: -18.6°	Scale Factor: 0.99960

N
Grid North

0 50 100 150 200
Metres

BURNSIDE

Client

MATTAMY (SEATON) LIMITED

Figure Title

WHITEVALE SUBDIVISION ZONE 5 WATERMAIN ENVIRONMENTAL IMPACT STUDY
FAUNA SURVEYS

Drawn	Checked	Date	Figure No.
HN	LA	2024/11/04	3
Scale		Project No.	
H 1:2,750		PEB175000.004	

File Path: \\elmo\gis\Project\P Jobs\PE Jobs\PEB175000 Seaton Whitevale\12_GIS\Whitevale Servicing EIS\Whitevale Servicing EIS.aprx Print Date: 2024/11/04 Time: 10:07 PM

4.5 Aquatic Habitat Assessment

The watermain and sanitary sewer will cross three tributaries of Ganatsekaiagon Creek, identified as Contributing Redside Dace habitat, per the CAF (2017). An aquatic habitat assessment was completed in the vicinity of each location where the watercourse will be crossed by the servicing alignment. Observations regarding channel form, function and fish habitat were recorded. The assessment occurred on July 9, 2024, with general habitat conditions noted at each proposed crossing. The weather was sunny, and the water was clear during the aquatic habitat assessment.

5.0 Existing Conditions

5.1 Vegetation Community and Species

5.2 Ecological Land Classification

The study area is dominated by the presence of Wetland G11, consisting of marshes and swamp, with its surrounding swamp-forest transition areas and adjacent agricultural lands dominated by hedgerows and agricultural fields.

The upland forested hedgerows (**FODM11, TAGM5, FODM6-5 and FODM5-9**) are comprised of upland species such as Sugar Maple (*Acer saccharnum*), Basswood (*Tillia americana*), Black Cherry (*Prunus serotina*), Green Ash (*Fraxinus pennsylvanica*),

Bitternut Hickory (*Carya cordiformis*) and Manitoba Maple (*Acer negundo*). The understory contains Eastern Hop-hornbeam (*Ostrya virginiana*), European Buckthorn (*Rhamnus cathartica*), Alternate-leaved Dogwood (*Cornus alternifolia*), Choke Cherry (*Prunus virginiana*), and Roses (*Rosa sp.*). The ground layer is sparse, containing European Swallowwort (*Vincetoxicum rossicum*), Poison Ivy (*Toxicodendron radicans subsp. rydbergii*), and Common Dandelion (*Taraxacum officinale*), as well as common native species such as Virginia Waterleaf (*Hydrophyllum virginianum*), Broad-leaved Enchanter's Nightshade (*Circaea canadensis*), Wild Leek (*Allium tricoccum*), White Trillium (*Trillium grandiflorum*), False Solomon Seal (*Maianthemum racemosum*), Wild Lily-of-the-valley (*Maianthemum canadense*), Asters (*Symphyotrichum spp. et al.*) and Goldenrods (*Solidago canadensis, S. giganteum, S. flexicaulus*). All of these ecosites demonstrate a history of hedgerow planting through the presence of large shade trees found in straight lines bordering farm fields. Hedgerows wider than 30 m or contiguous with adjacent larger NHS forest areas are designated as Deciduous Forest (FOD).

The agricultural fields (**OAGM1**) have been in rotation each year and have been used to grow a variety of crops (e.g., corn, soy, etc.).

The lowland-wetland transitional forest (**FODM7-2**) is found along the entire western edge of Wetland G11. This moist forest is dominated in the canopy layer by snags of large dead Green Ash, with a living canopy of occasional White Elm (*Ulmus americana*) and Manitoba Maple. The subcanopy is abundant with European Buckthorn, Honeysuckle species (*Lonicera spp.*) and Riverbank Grape (*Vitis riparia*). The shrub layer is abundant with adventive regrowth of vines and shrubs of European Buckthorn, Red and Black Raspberry (*Rubus idaeus and R. occidentalis*), Roses and Oriental Bittersweet (*Celastrus orbiculatus*). The ground layer is very mixed in composition from

that approaching an Old-field cultural meadow at the western edge, to more facultative wetland species at the eastern edge. Seedlings of European Buckthorn and Green Ash are consistently present throughout.

Wetland G11 contains a mosaic of wetland types. The most prominent ecosite is the Cattail Mineral Shallow Marsh (**MASM1-1**), which is dominated by Narrow-leaved Cattail and European Common Reed (*Phragmites australis subsp. australis*). Pockets of Green Ash Swamp (**SWDM2-2**), dominated by a canopy of dead and dying Green Ash, and Reed Canary Grass Meadow Marsh (**MAMM1-3**), dominated by a thick ground layer of nearly total Reed Canary Grass (*Phalaris arundinacea*) are located at the peripheries of the G11 swamp. A Red-osier Dogwood Mineral Deciduous Thicket Swamp (**SWTM2-1**) is located near the south end of the G11 swamp. This ecosite is abundant with shrubs of Red-osier Dogwood (*Cornus stolonifera*) and Willows (*Salix spp.*) with sparse White Elm and Green Ash (live and dead) and a ground layer abundant with Goldenrod and Sensitive Fern (*Onoclea sensibilis*).

Between the Wetland G11 and adjacent hedgerows, on the east side of the study area, are meadow and thicket of areas which may once have been orchards. These areas are abundant with European Buckthorn, Tartarian Honeysuckle (*Lonicera tataria*), with occasional Sugar Maple, Scots Pine (*Pinus sylvestris*), Domestic Pear (*Pyrus communis*) and Cultivated Apple (*Malus domestica*). The ground layers are dominated by Canada Goldenrod, cool season grasses and Asters.

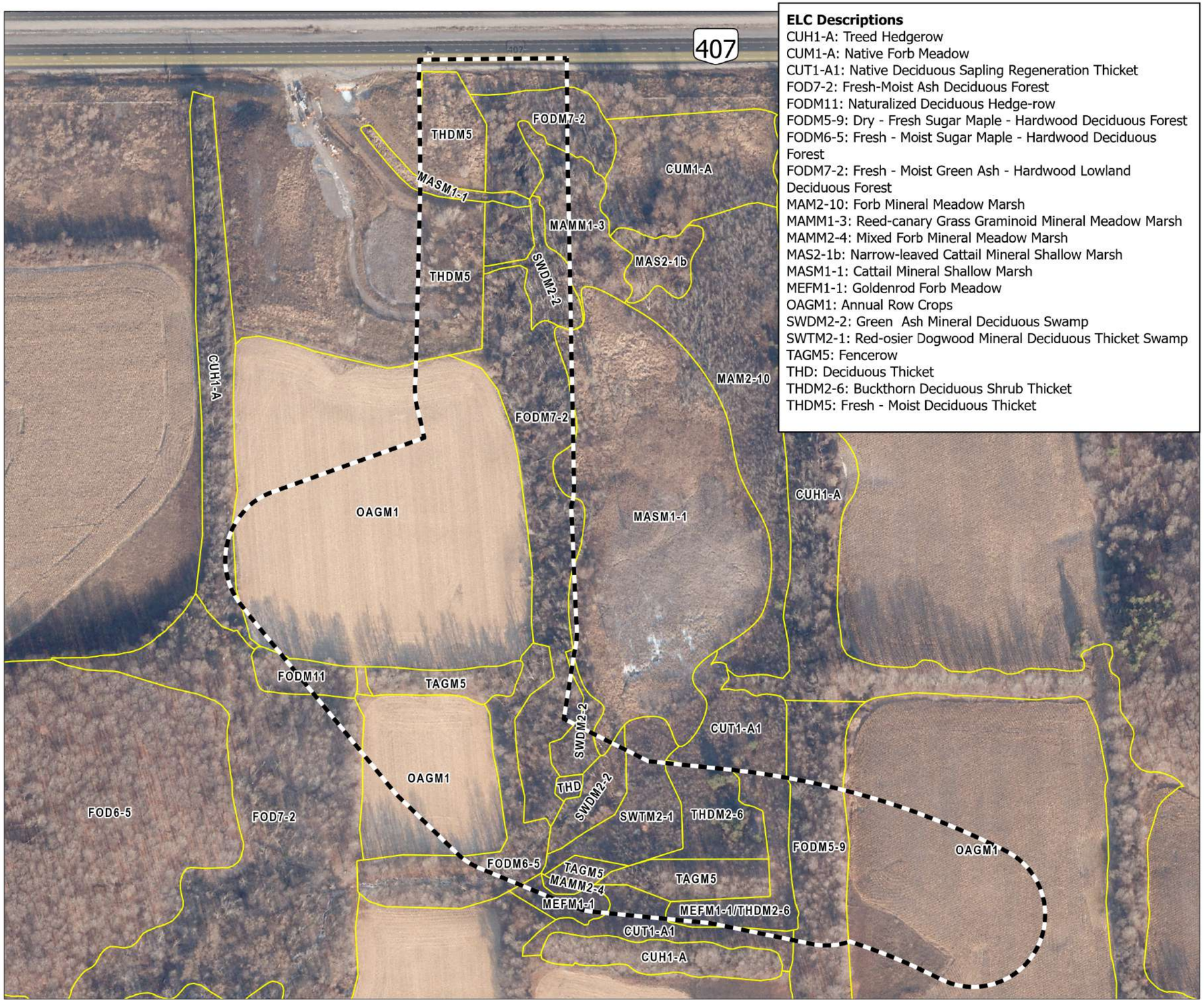
A map of the vegetation communities is depicted on Figure 4. A complete plant list can be found in Appendix D.

5.2.1 Botanical Inventory

A detailed list of plants identified on the subject lands can be found in Appendix E. The following summarizes the flora observed in the study area over two seasons:

- 145 plant taxa were observed. Of those, 132 were identified to species, or subspecies level.
- Of those species, 95 (72%) were native and 37 (28%) were non-native to Ontario.
- One native species; Butternut (S2) is imperiled in Ontario due to its steep declines and other factors making it vulnerable to extirpation from the province. All other native species are considered 'apparently secure' (uncommon but not rare) (S4) or 'secure' (common, widespread and abundant) (S5) in Ontario.
- TRCA documented two species considered rare to the jurisdiction in previous studies on adjacent lands (see Section 3.2.1.1):
  - Narrow-leaved Willow-herb (*Epliobium leptophyllum*) L3
  - Green-fruited Bur-reed (*Sparganium emersum*) L3
- Six additional species were observed by Burnside that are considered rare to the TRCA jurisdiction:
  - Balsam Firm (*Abies balsamea*) L3
  - Long-headed Anemone (*Anemone cylindrica*) L3
  - Butternut L3
  - Mosquito Bulrush (*Scirpus hattorianus*) L3
  - Hanging Bulrush (*Scirpus pendulus*) L3
  - Large-flowered Bellwort L3
- Four species were observed that are considered rare (R) or uncommon (U) to the GTA, Durham Region (D) and Site District 6E-7 (Varga et al., 2000).
  - Giant Blue Cohosh (*Caulophyllum giganteum*) R1
  - Rough Avens (*Geum lacinatum*) R
  - Black Walnut (*Juglans nigra*) R
  - Poison Ivy (R) (*Toxicodendron radicans*) R

11 Butternut were observed in the study area. These specimens were assessed by a certified Butternut Health Assessor. Details regarding Butternut can be found in Section 5.2.2.



ELC Descriptions

CUH1-A: Treed Hedgerow
CUM1-A: Native Forb Meadow
CUT1-A1: Native Deciduous Sapling Regeneration Thicket
FOD7-2: Fresh-Moist Ash Deciduous Forest
FODM11: Naturalized Deciduous Hedge-row
FODM5-9: Dry - Fresh Sugar Maple - Hardwood Deciduous Forest
FODM6-5: Fresh - Moist Sugar Maple - Hardwood Deciduous Forest
FODM7-2: Fresh - Moist Green Ash - Hardwood Lowland Deciduous Forest
MAM2-10: Forb Mineral Meadow Marsh
MAMM1-3: Reed-canary Grass Graminoid Mineral Meadow Marsh
MAMM2-4: Mixed Forb Mineral Meadow Marsh
MAS2-1b: Narrow-leaved Cattail Mineral Shallow Marsh
MASM1-1: Cattail Mineral Shallow Marsh
MEFM1-1: Goldenrod Forb Meadow
OAGM1: Annual Row Crops
SWDM2-2: Green Ash Mineral Deciduous Swamp
SWTM2-1: Red-osier Dogwood Mineral Deciduous Thicket Swamp
TAGM5: Fencerow
THD: Deciduous Thicket
THDM2-6: Buckthorn Deciduous Shrub Thicket
THDM5: Fresh - Moist Deciduous Thicket

Ecological Land Classification

Study Area

Sources:

1. Ministry of Natural Resources and Forestry,© King's Printer for Ontario.
2. Natural Resources Canada,© His Majesty the King in Right of Canada.

Disclaimer:

R.J. Burnside & Associates Limited and the above mentioned sources and agencies are not responsible for the accuracy of the spatial, temporal, or other aspects of the data represented on this map. It is recommended that users confirm the accuracy of the information represented.

This map is the product of a Geographic Information System (GIS). As such, the data represented on this map may be subject to updates and future reproductions may not be identical.

Datum: North American 1983 CSRS	
Coord. System: NAD 1983 CSRS UTM Zone 17N	
Projection: Transverse Mercator	
Central Meridian: 81°0'0.00"W	
False Easting: 500,000m	False Northing: 0m
Page Orientation: -18.6°	Scale Factor: 0.99960

N
Grid North

0 50 100 150 200
Metres

BURNSIDE

Client

MATTAMY (SEATON) LIMITED

Figure Title

WHITEVALE SUBDIVISION ZONE 5 WATERMAIN ENVIRONMENTAL IMPACT STUDY
ECOLOGICAL LAND CLASSIFICATION

Drawn	Checked	Date	Figure No.
HN	LA	2024/11/04	4
Scale		Project No.	
H 1:2,750		PEB175000.004	

File Path: \\elmo\gis\Project\P Jobs\PEB175000 Seaton Whitevale\12_GIS\Whitevale Servicing EIS\Whitevale Servicing EIS.aprx Print Date: 2024/11/04 Time: 10:16 PM

5.2.2 Butternut Health Assessment

As stated above, 11 Butternut were assessed in the study area. Ten Butternut were classified as Category 1 – Non-retainable. One Butternut (BN11) was classified as Category 2 – retainable. The location of BN11 is shown in Figure 6. Additionally, genetic material for hybridity testing was collected from BN11 and submitted to Nature Metrics, a Ministry approved service provider. BN11 was determined to be pure Butternut, and therefore is protected by the ESA as a Category 2 Butternut.

Additional Butternut exist on adjacent sites, for which their 50 m protected habitat is within the study area, as shown on Figure 6. Their habitat is not anticipated to be impacted by the proposed development.

5.3 Black Ash

No Black Ash (*Fraxinus nigra*) were identified that were greater than 1.37 m in height and greater than 8 cm in DBH, as defined by O.Reg. 6/24.

5.4 Breeding Birds

31 summer resident bird species, exhibiting some level of breeding evidence (possible, probable, or confirmed), were observed on the subject lands during targeted breeding bird surveys in 2024. A complete breeding bird summary table can be viewed in Appendix E.

Two additional species, Great Blue Heron (*Ardea herodias*) and Turkey Vulture (*Cathartes aura*), were observed on the subject lands during the breeding bird window but no breeding evidence (i.e., suitable habitat or breeding behaviour) was recorded (flyover only).

According to MNR's Significant Wildlife Habitat Technical Guide (2000), "area-sensitive" species are defined as species that require large areas of suitable habitat for long term population survival. Fragmentation of essential habitats can result in overall declines in populations. One "area-sensitive" bird species (as defined by MNR), American Redstart (*Setophaga ruticilla*), was observed exhibiting breeding evidence on the subject lands during the breeding bird surveys.

American Redstart is most abundant in deciduous or mixed woods with closed canopy consisting of either tall shrubs, dense young trees or mature trees; woodland edges; in upland or lowland habitat (MNR, 2000). While this species thrives in forest habitat of greater than 100 ha (2000), it is often found in smaller habitat patches where the availability of more suitable, alternative nesting opportunities is in short supply, particularly in Southern Ontario. The limits of the subject lands are mainly comprised of cultivated meadow that were formerly agricultural fields, with some hedgerow habitat

found in between fields. This species was recorded in deciduous hedgerows bordering the fields.

Three bird species, listed as provincially and federally significant, were observed on the subject lands during breeding bird surveys: Barn Swallow (Special Concern), Eastern Wood-pewee (Special Concern) and Wood Thrush (Special Concern). Barn Swallow was vocalizing but foraging over the adjacent agricultural fields. No breeding habitat is present for this species on the subject lands (i.e., barn structures). Eastern Wood-pewee and Wood Thrush were recorded at breeding bird stations adjacent to the deciduous swamp and deciduous woodland (BBS 3 and BBS 4). SAR and SWH Screening Tables for the subject lands are included in Appendix B and C. The significance of the species is discussed in more detail in Section 6.0.

5.5 Amphibians

Spring Peeper (*Pseudacris crucifer*), Wood Frog (*Lithobates sylvaticus*), Gray Treefrog (*Hyla versicolor*) and Green Frog (*Lithobates clamitans*) were identified on the subject lands during targeted amphibian breeding call surveys. All species are ranked as S5 (secure) in Ontario and are considered common and widespread in the province.

Table 5: Amphibian Breeding Call Survey Results

Survey Date	Station ID	Species Observed	No. of Individuals
April 18, 2024	AMP-001	Spring Peeper	1
		Wood Frog	1
May 23, 2024	AMP-001	Gray Treefrog	10
June 18, 2024	AMP-001	Green Frog	Calls continuous, overlapping, cannot be counted

A data summary sheet for the amphibian survey program is included as Appendix F.

Station AMP-001 at Wetland G11 is considered amphibian breeding habitat. However, the results of the surveys confirm that Wetland G11 does not meet the criteria for “significant” Amphibian Breeding Habitat, as 20 or more individuals of the listed frog species were not observed; the wetland is also not isolated (>120 m away) from woodland habitat. SWH is discussed in Section 6.0 and Appendix C.

5.6 Bats

5.6.1 Leaf-off Surveys

In total, 18 leaf-off candidate trees were inventoried on the subject lands. The majority of the trees identified were healthy Basswood, White Ash and unidentifiable snags, while

the less common species included Black Cherry and Sugar Maple. Of these, six will be removed as part of this project.

5.6.2 Exit Surveys and Passive Acoustic Surveys

Passive acoustic surveys were conducted to assess the presence of SAR bats that may be utilizing the hedgerows. The passive acoustic stations were deployed for 13 nights and detected a total of 1,987 calls during this period.

Bat calls were recorded using three Wildlife Acoustics Song Meter SM4BAT FS. Calls were verified after collection using the more accurate Wildlife Acoustics Kaleidoscope Pro v. 5.6.8 software and by manually verifying calls. Table 6 shows which bat species were detected by the Song Meters, how many events were recorded, and the level of confidence in the accuracy of species identification, as verified by Kaleidoscope Pro software.

Table 6: Number of Recorded Bat Calls

Station	Big Brown Bat	Eastern Red Bat	Hoary Bat	Silver-haired Bat	Eastern Small-footed Myotis	Little Brown Myotis	Northern Myotis	Tri-colored Bat
Station 1	57	3	35	16				
Station 2	1287	22	125	156		15	1	1
Station 3	130	12	77	46		3		1
Total	1474	37	237	218	0	18	1	2
Total Verified	**1474**	**37**	**236**	**0**	**0**	**15**	**0**	**0**
% of Verified	**84%**	**2%**	**13%**	**0%**	**0%**	**1%**	**0%**	**0%**

[1]Cells shaded green indicated a high probability that the species is present ($p < 0.05$).
Cells shaded yellow indicated a moderated probability that the species is present ($p < 0.1$).
Cells shaded red indicated a high probability of a false positive ($p > 0.1$).

All recordings, including the NoID and NOISE files, were manually reviewed and a total of 58 Little Brown Bat calls were identified. Most nights averaged three calls, with one night recording 28 calls.

While feeding mothers will return to feed juveniles throughout the night, there should be an increase in activity at dusk and dawn. No increase during this time indicates that calls detected are from foraging bats, not from mothers leaving their maternity roost. Lactating females return to roosts once or twice over the course of the first three hours post emergence (Henry et al., 2002). Having multiple call clusters over the course of the

first three hours could suggest with greater confidence that sites are being used as maternal roost habitat. Conversely, minimal numbers of calls in the first three hours indicate that calls are from foraging or transient bats.

In addition to the time of night, the quantity of calls and number of nights with high call quantities are important. Because not all calls detected can be guaranteed from maternal bats, a minimum of five calls in the first three hours for at least 60% of nights would give a clearer indication of a maternity roost being located nearby.

In the ten nights that the monitors were recording for, only three nights detected any calls between sunset and 11:00 pm. On those nights, a total of three, two and one calls were recorded, respectively. One night had 28 calls recorded, however, not a single call that night was between sunset and 11:00 pm, disqualifying the calls as potentially being from maternal bats. These results are too low to indicate with any confidence that a maternity roost may be present.

While Little Brown Bat (END) calls were recorded at Station 2, they were not in sufficient numbers to indicate they are roosting in the adjacent snags. Hoary Bat, which is anticipated to be uplisted as Endangered on early in the new year of 2025, was detected in sufficient numbers at Station 2. Currently, however, no SAR bat habitat is present within the area of impact.

5.7 Aquatic Habitat

5.7.1 Crossing 1

Crossing 1 of Ganatsekiaon Creek is the southernmost crossing of reach GB-9. Reach GB-9 flows through forested lands in a slightly meandering channel, in a general northeast to southwest direction. The entirety of the surface area of the watercourse is shaded during the summer when the riparian vegetation provides a canopy. The substrate is comprised of silt, gravel and trace boulders.

During the July 2024 aquatic habitat assessment, the wetted width and depth were measured to be 1.4 m and 0.017 m, respectively. The watercourse was flowing, and the morphology was comprised completely of flats, with sections of interstitial flow observed. Overall reach GB-9 provides marginal fish habitat, due to the limited wetted depth. Fish were not observed within the watercourse.

Downstream of the proposed crossing a former farm crossing is present that is a barrier to fish movement. It is a collapsed corrugated steel pipe (CSP) culvert.

5.7.2 Crossing 2 and 3

Crossings 2 is proposed to be under reach GB11-1 and Crossing 3 is proposed to be under reach GB-12, respectively. Both watercourses convey flow from west to east,

discharging to reach GB-11. Both channels flow through lands densely vegetated with grasses, trees and shrubs that overhang and shade the entirety of the watercourse. Both channels have a defined bed and bank, and eventually flow into an area of ponded, deeper water within Wetland G11. Both features were flowing minimally and were near stagnant in July; water was recorded be up to 0.3 m deep. In-stream vegetation in the form of cattails were observed in the channels.

Fish were not observed, although the channels may provide habitat for fish species in the area. Fish migration from reaches downstream of GB-9 may not be possible with the collapsing farm crossing in place.

5.8 Incidental Wildlife Observations

Incidental observations of wildlife by Burnside were recorded during each field investigation. MNR's provincial ranks (i.e., S1 to S5) are used to set protection priorities for rare species and natural communities. Green Frog (*Lithobates clamitans*) was the only species observed incidentally during field investigations in the MASM1-1 and FOD7-2 ecosites. Green Frog is not listed as provincially and / or federally significant and is listed as secure (S5) in Southern Ontario, which is defined by MNR as species that are common, widespread and abundant in the province.

6.0 Identification of Provincially Significant Features

Table 7 identifies the natural heritage features that are outlined in the PPS (MMAH, 2024) and speaks to their presence on the subject and adjacent lands.

Table 7: Screening of Provincially Significant Features on the Subject Lands and Adjacent Lands

Significant Feature	Definition	Applicable to Subject Lands	Applicable to Adjacent Lands
Provincially Significant Wetlands	Section 8.0 of the PPS (MMAH, 2024) defines significant wetlands as "*an area identified as provincially significant using criteria and procedures established by the Province, as amended from time to time.*"	No PSW on the subject lands.	No PSW on adjacent lands.
Significant Valleylands	The NHRM (MNR, 2010) provides criteria for identifying Significant Valleylands, including a variety of landform related functions and attributes as well as ecological features and functions. According to the NHRM a Significant Valleyland is defined as: "*a natural area that occurs in a valley or other landform depression that has water flowing through or standing for some period of the year. Large, well-defined valleylands are often significant landscape features essential to the character of an area."* Additionally, the PPS (2020) defines Significant Valleylands as: "*ecologically important in terms of features, functions, representation, or amount, and contributing to the quality and diversity of*	No Significant Valleylands on the subject lands.	A Significant Valleyland is present as part of the NHS associated with Urfe Creek, east of the subject lands.

Significant Feature	Definition	Applicable to Subject Lands	Applicable to Adjacent Lands
	an identifiable geographic area or natural heritage system".		
Significant Woodlands	The City of Pickering Official Plan (2022) defines a significant woodland as: "*Significant Woodlands (off the Oak Ridges Moraine) means an area which is ecologically important in terms of features such as species composition, age of trees and stand history; functionally important due to its contribution to the broader landscape because of its location, size, or due to site quality, species composition, or past management history*". In the Oak Ridges Moraine, significant woodlands are further defined by the Province in the Oak Ridges Moraine Conservation Plan and the associated technical guidelines.	No Significant Woodlands on the subject lands	Significant Woodlands are present in the NHS north and east of the subject lands.
Significant Area of Natural and Scientific Interest	According to the PPS (MMAH, 2024), ANSIs are defined as: "*areas of land and water containing natural landscapes or features that have been identified as having life science or earth science values related to protection, scientific study or education.*"	No ANSIs on the subject lands.	No ANSIs on adjacent lands.

Significant Feature	Definition	Applicable to Subject Lands	Applicable to Adjacent Lands
	According to the NHRM (MNR, 2010), provincially significant ANSIs include some of the most significant and best examples of these features in the province, and only include ANSIs identified as provincially significant.		
Significant Wildlife Habitat	Determination of SWH is broadly categorized and described in the NHRM (MNR, 2010). Additionally, MNR's SWHTG (2000) and SWH Criteria Schedule for Ecoregion 6E (2015) are further supplemental documents intended to assist in identifying SWH. The four main categories of SWH are: 1. Habitats of seasonal concentrations of animals. 2. Rare vegetation communities, or specialized habitat for wildlife. 3. Habitat of species of conservation concern. 4. Animal movement corridors. (See Appendix C)	**Confirmed:** Special Concern and Rare Wildlife Species • Wood Thrush (SC) • Eastern Wood-pewee (SC) • Barn Swallow (SC) (foraging habitat only) • Monarch (SC) **Candidate:** Colonially Nesting Bird Breeding Habitat (Trees/Shrubs) – Green Heron Amphibian Movement Corridor	**Confirmed:** Special Concern and Rare Wildlife Species • Monarch (SC) **Candidate:** Special Concern and Rare Wildlife Species: • Snapping Turtle (SC) • Barn Swallow (SC) (foraging habitat only) • Eastern Wood-pewee (SC) • Wood Thrush (SC) Waterfowl Stopover & Staging Areas (Terrestrial and Aquatic) Waterfowl Nesting Area

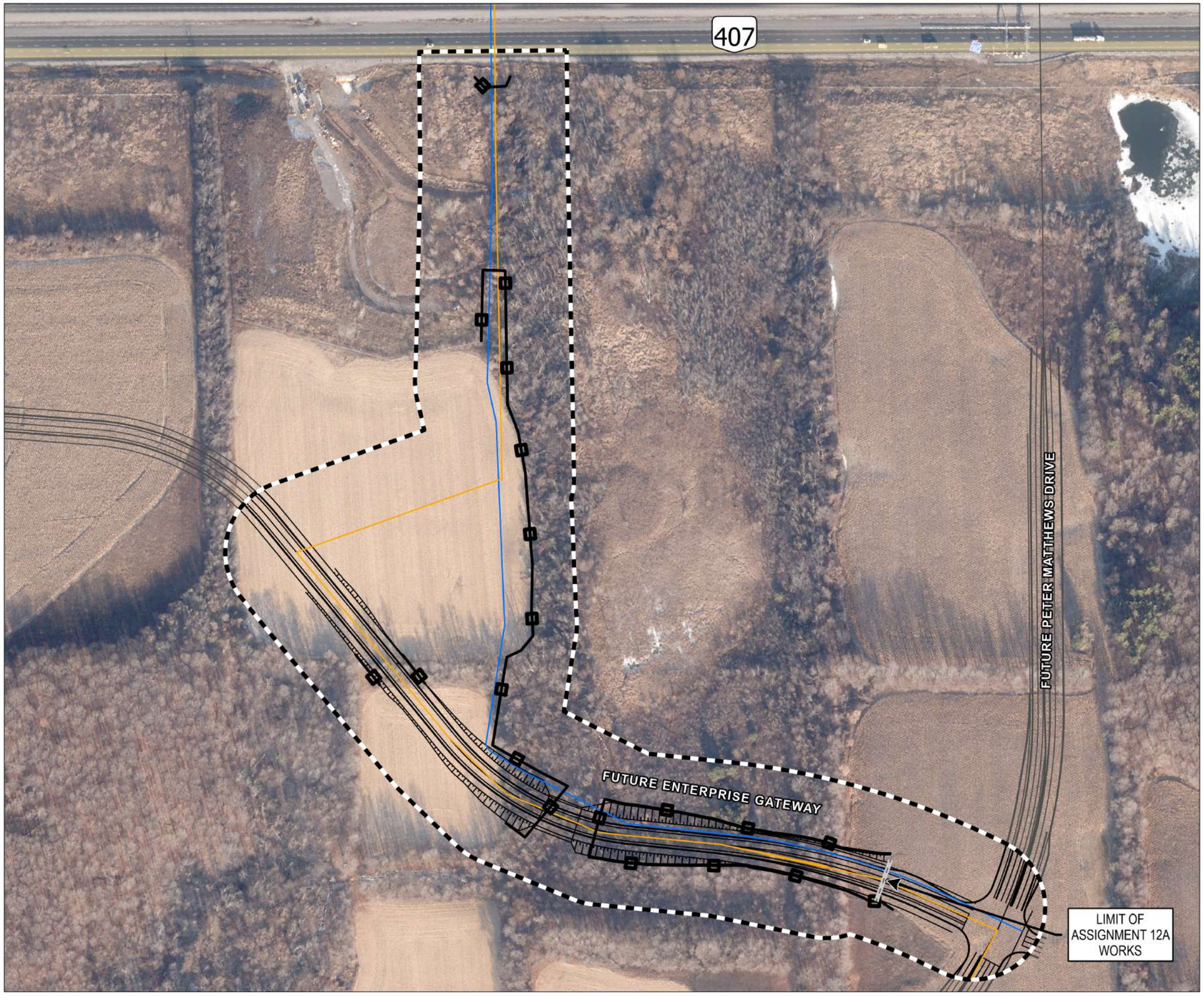
Significant Feature	Definition	Applicable to Subject Lands	Applicable to Adjacent Lands
			Colonially Nesting Bird Breeding Habitat (Trees/Shrubs) – Green Heron Marsh Breeding Bird Habitat Turtle Nesting Areas Turtle Wintering Areas Terrestrial Crayfish Amphibian Movement Corridor
Habitat of Endangered or Threatened Species	Burnside's background database review, consultation with agencies, and field investigations revealed the potential for species listed as Endangered or Threatened under the ESA on the subject lands and adjacent lands (Appendix B).	**Confirmed:** • Butternut (END) • Redside Dace (END)	**Confirmed:** • Butternut (END) • Redside Dace (END) **Candidate:** • Blanding's Turtle (THR) • Little Brown Myotis (END) • Northern Myotis (END) • Tri-colored Bat (END)

7.0 Proposed Development

As part of the Whitevale North Neighborhood in the Seaton Community, a watermain is proposed to service the development. A sanitary main will be installed by others in the future, although its alignment is displayed on the enclosed drawings. See Figure 5 and Appendix G for a summary the watermain plan. The majority of this path is proposed to be installed using open-cut methods. Any crossings of the watercourse will be completed using trenchless techniques to minimize impacts on the aquatic environment. Where possible, trenchless methods will also be used to avoid impacts to wetland and woodlands. See Figure 6 for a map of these constraints.

The complete plan, profile and specs of the watermain can be found in Appendix G. To summarize, the entire watermain is approximately 980 m long. It is 400 mm in diameter in most sections and 900 mm in others to include steel casing, per TRCA requirements. The line will be 2.5 m below sensitive features, such as watercourses and wetlands. There are five sending / receiving pits proposed along the path, each of which will be isolated from the surrounding area with erosion and sediment control (ESC) measures.

Additionally, tree clearing to permit future construction of Enterprise Gateway is being undertaken as part of this project. This tree clearing is to occur up to 5 m of either side of Ganatsekiagon Creek. The clearing is projected to comprise the width of the future right-of-way (ROW). The clearing will be to be completed up to 5 m from either side of reach GB-9. Trees are recommended to be left in place in this location to provide shading and stabilization for the watercourse banks, until a detailed design for Enterprise Gateway and the crossing are approved.



- Tree Protection Fence
- Future Sanitary
- Proposed Watermain Alignment
- Grading and Proposed Road Design
- Study Area

Sources:

1. Ministry of Natural Resources and Forestry,© King's Printer for Ontario.
2. Natural Resources Canada,© His Majesty the King in Right of Canada.

Disclaimer:

R.J. Burnside & Associates Limited and the above mentioned sources and agencies are not responsible for the accuracy of the spatial, temporal, or other aspects of the data represented on this map. It is recommended that users confirm the accuracy of the information represented.

This map is the product of a Geographic Information System (GIS). As such, the data represented on this map may be subject to updates and future reproductions may not be identical.

Datum: North American 1983 CSRS	
Coord. System: NAD 1983 CSRS UTM Zone 17N	
Projection: Transverse Mercator	
Central Meridian: 81°0'0.00"W	
False Easting: 500,000m	False Northing: 0m
Page Orientation: -18.6°	Scale Factor: 0.99960

N
Grid North

0 50 100 150 200
Metres

BURNSIDE

Client

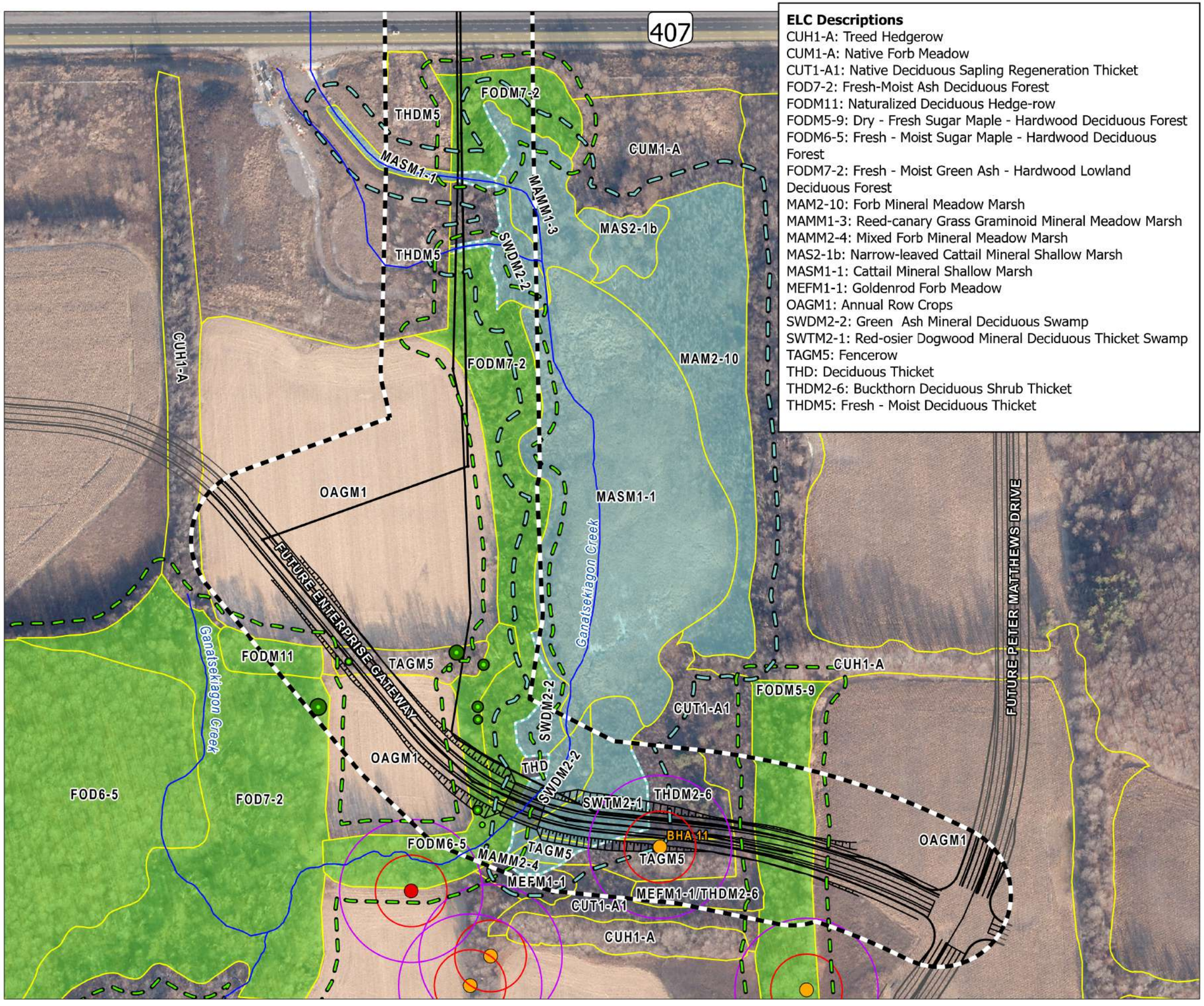
MATTAMY (SEATON) LIMITED

Figure Title

WHITEVALE SUBDIVISION ZONE 5 WATERMAIN ENVIRONMENTAL IMPACT STUDY
PROPOSED DEVELOPMENT

Drawn	Checked	Date	Figure No.
HN	LA	2024/11/04	5
Scale		Project No.	
H 1:2,750		PEB175000.004	

File Path: \\elmo\gis\Project\P Jobs\PE Jobs\PEB175000 Seaton Whitevale\12_GIS\Whitevale Servicing EIS\Whitevale Servicing EIS.aprx Print Date: 2024/11/04 Time: 10:36 PM



ELC Descriptions

CUH1-A: Treed Hedgerow
CUM1-A: Native Forb Meadow
CUT1-A1: Native Deciduous Sapling Regeneration Thicket
FOD7-2: Fresh-Moist Ash Deciduous Forest
FODM11: Naturalized Deciduous Hedge-row
FODM5-9: Dry - Fresh Sugar Maple - Hardwood Deciduous Forest
FODM6-5: Fresh - Moist Sugar Maple - Hardwood Deciduous Forest
FODM7-2: Fresh - Moist Green Ash - Hardwood Lowland Deciduous Forest
MAM2-10: Forb Mineral Meadow Marsh
MAMM1-3: Reed-canary Grass Graminoid Mineral Meadow Marsh
MAMM2-4: Mixed Forb Mineral Meadow Marsh
MAS2-1b: Narrow-leaved Cattail Mineral Shallow Marsh
MASM1-1: Cattail Mineral Shallow Marsh
MEFM1-1: Goldenrod Forb Meadow
OAGM1: Annual Row Crops
SWDM2-2: Green Ash Mineral Deciduous Swamp
SWTM2-1: Red-osier Dogwood Mineral Deciduous Thicket Swamp
TAGM5: Fencerow
THD: Deciduous Thicket
THDM2-6: Buckthorn Deciduous Shrub Thicket
THDM5: Fresh - Moist Deciduous Thicket

- Butternut (Category 2)
- Butternut (Category 3)
- Butternut 25m Setback
- Butternut 50m Setback
- Watercourse - Thermal Regime: Cold, Redside Dace Habitat (Contributing)
- Staked Wetland (RPE - Aug, 2024)
- Wetland Constraint
- Wetland Constraint 15m Setback
- Woodland Constraint
- Woodland Constraint 10m Setback
- Ecological Land Classification
- Bat Maternity Habitat Tree (Leaf-Off)
- Bat Maternity Habitat Tree Minimum Tree Protection Zone
- Proposed Infrastructure
- Study Area

Sources:

1. Ministry of Natural Resources and Forestry,© King's Printer for Ontario.
2. Natural Resources Canada,© His Majesty the King in Right of Canada.

Disclaimer:

R.J. Burnside & Associates Limited and the above mentioned sources and agencies are not responsible for the accuracy of the spatial, temporal, or other aspects of the data represented on this map. It is recommended that users confirm the accuracy of the information represented.

This map is the product of a Geographic Information System (GIS). As such, the data represented on this map may be subject to updates and future reproductions may not be identical.

Datum: North American 1983	
Coord. System: NAD 1983 UTM Zone 17N	
Projection: Transverse Mercator	
Central Meridian: 81°0'0.00"W	
False Easting: 500,000m	False Northing: 0m
Page Orientation: -18.6°	Scale Factor: 0.99960

N
Grid North

0 50 100 150 200
Metres

BURNSIDE

Client

MATTAMY (SEATON) LIMITED

Figure Title

WHITEVALE SUBDIVISION ZONE 5 WATERMAIN ENVIRONMENTAL IMPACT STUDY
CONSTRAINTS

Drawn	Checked	Date	Figure No.
HN	LA	2024/11/04	6
Scale		Project No.	
H 1:2,750		PEB175000.004	

File Path: C:\GIS\Projects\Working\PEB175000 Whitevale Servicing\PEB175000 Whitevale Servicing.aprx Print Date: 2024/11/04 Time: 10:52 PM

8.0 Evaluation of Potential Impacts and Recommended Mitigation Measures

The following evaluation of environmental impacts and recommended mitigation measures are provided based on field investigations and the proposed development plan, as depicted on Figure 5.

Five sending/receiving pits are proposed along the alignment of the watermain. Three of these are accounted for in the quantification of impacts to natural areas, while the two most northernmost pits will not impact any natural areas. The most northern pit is proposed to be in an area that is already graded, north of Highway 407 and beside a SWM pond, while the pit to the south of it is proposed to be in the right-of-way to Highway 407.

The southern section of the watermain is proposed to be within the alignment of the future Enterprise Gateway right-of-way. The impacts of the natural areas that will be affected by this roadway are quantified in this report, however, compensation will take place by the responsible party at the time of the roads final detailed design. Between tree clearing and future road construction, the area will be monitored for native and non-native vegetation establishment.

8.1 Vegetation Communities and Species

8.1.1 Potential Impacts

Vegetation loss has been minimized, to the extent possible. Encroachment into the NHS has been reduced to only what is required to facilitate the proposed infrastructure. In areas of tree removal, a native meadow seed mix will be sowed. As these areas will not be restored to their original ecosystem type, these are considered as permanent impacts and loss of woodland, however, they will contribute to a net gain of meadow habitat. Potential direct impacts in each ELC unit within the approved development limit are summarized in Table 8, below and depicted in Figure 7.

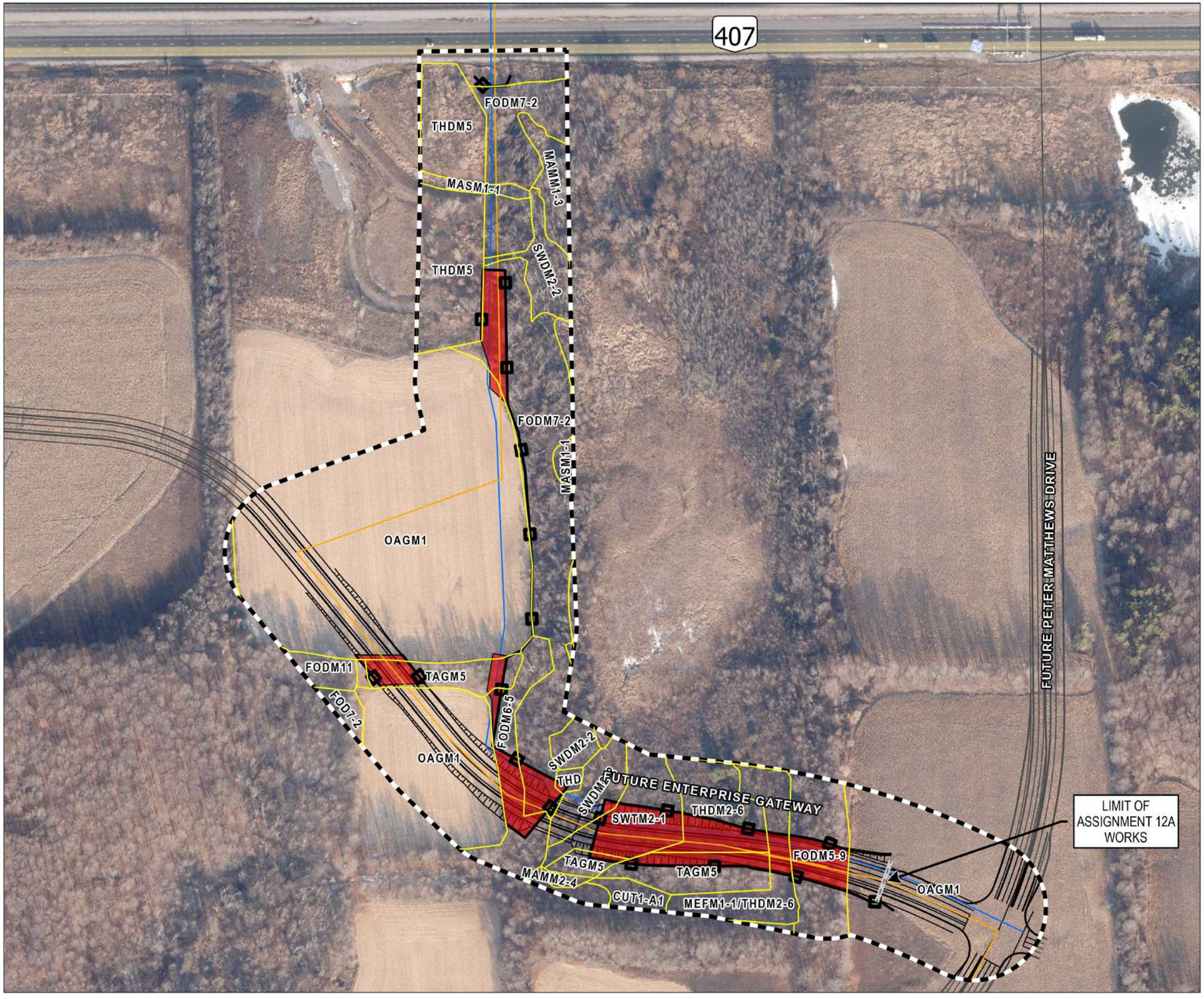
Table 8: Areas of Permanent Disturbance by ELC Unit

ELC Code	Description	Area (m^2)
THDM5	Fresh – Moist Deciduous Thicket	24.90
TAGM5	Naturalized Deciduous Hedgerow	754.08
FODM6-5	Fresh – Moist Sugar Maple Hardwood Deciduous Forest	1,076.84
THD	Deciduous Thicket	40.58

ELC Code	Description	Area (m^2)
FODM7-2	Fresh – Moist Green Ash Hardwood Lowland Deciduous Forest	1,885.55
TAGM5	Fencerow	1,023.73
SWTM2-1	Red-osier Dogwood Mineral Deciduous Thicket Swamp	1,850.67
THDM2-6	Buckthorn Deciduous Shrub Thicket	1,317.99
MEFM1-1 / THDM2-6	Dry – Fresh Sugar Maple – Hardwood Deciduous Forest	416.31
FODM5-9	Treed Hedgerow	1,173.06
SWDM2-2	Red-osier Dogwood Mineral Deciduous Thicket Swamp	62.22

The direct impacts to vegetation communities include:

- One Category 2 Butternut (BN11) will be registered with MECP and removed. See Section 5.2.2 and 8.3.1.
- Removal of locally rare species – Large-flowered Bellwort will occur in FOD5-9.
- Total loss of woodland that is not associated with future 'Enterprise Gateway' and will be compensated for at this stage is: 1,391.46 m^2
- The total loss of woodland that is associated with future 'Enterprise Gateway' and will be compensated for as part of detailed design for the road is: 5,708.73 m^2
- There is no loss of wetland due to this proposed watermain that is not associated with future 'Enterprise Gateway', therefore no compensation is required at this time.
- The total loss of wetland that is associated with future 'Enterprise Gateway' and will be compensated for at a later stage is: 1,919.89 m^2



- Tree Protection Fence
- Future Sanitary
- Proposed Watermain Alignment
- Grading and Proposed Road Design
- Permanent Impact (9881m^2)
- Ecological Land Classification
- Study Area

Sources:

1. Ministry of Natural Resources and Forestry,© King's Printer for Ontario.
2. Natural Resources Canada,© His Majesty the King in Right of Canada.

Disclaimer:

R.J. Burnside & Associates Limited and the above mentioned sources and agencies are not responsible for the accuracy of the spatial, temporal, or other aspects of the data represented on this map. It is recommended that users confirm the accuracy of the information represented.

This map is the product of a Geographic Information System (GIS). As such, the data represented on this map may be subject to updates and future reproductions may not be identical.

Datum: NorthAmerican 1983 CSRS	
Coord. System: NAD 1983 CSRS UTM Zone 17N	
Projection: Transverse Mercator	
Central Meridian: 81°0'0.00"W	
False Easting: 500,000m	False Northing: 0m
Page Orientation: -18.6°	Scale Factor: 0.99960

N
Grid North

0 50 100 150 200
Metres

BURNSIDE

Client

MATTAMY (SEATON) LIMITED

Figure Title

WHITEVALE SUBDIVISION ZONE 5 WATERMAIN ENVIRONMENTAL IMPACT STUDY
IMPACTS

Drawn	Checked	Date	Figure No.
HN	LA	2024/11/06	7
Scale		Project No.	
H 1:2,750		PEB175000.004	

File Path: \\eimolgis\Projects\P Jobs\PE Jobs\PEB17500 Seaton Whitevale\12_GIS\Whitevale Servicing EIS\Whitevale Servicing EIS\Whitevale Servicing EIS.aprx Print Date: 2024/11/06 Time: 06:26 PM

The indirect impacts to vegetation communities include:

- Potential siltation to adjacent wetlands, which may kill or suppress wetland vegetation, including locally rare wetland species.
- Disturbance in the buffer areas to the natural features has the potential to allow for non-native and invasive species to establish further and colonize the natural communities of the valleyland.
- The following locally rare species have been identified in the study area:
  - Large-flowered Bellwort
  - Green-fruited Burreed

8.1.2 Recommended Mitigation Measures

Impacts to the natural communities are anticipated to be limited, provided the following mitigation measures are implemented:

- A heavy-duty, double-layer silt fence shall be used to delineate the limit of construction adjacent to the NHS to be retained. A comprehensive ESC plan will be developed during detailed design, prior to the commencement of construction. Implementation of ESC measures shall conform to recognized standard specifications, such as Ontario Provincial Standards Specification (OPSS), and TRCA requirements. ESC measures should be installed before construction commencement and maintained until the site has been stabilized, following the work phase.
- Silt fencing will be inspected regularly by a CAN-CISEC certified inspector. Deficiencies will be repaired promptly.
- Signage identifying the NHS to be retained should be affixed to the silt fencing to prevent unauthorized activities from occurring in this area.
- In areas of clearing adjacent to forest or woodland communities to be retained, tree protection fencing should be installed and signed as such.
- The site supervisor must ensure that workers, vehicles and materials remain outside of the NHS to be retained. Any uncertainty with limits, by the site supervisor, should be resolved through discussion and site inspection with the project ecologist and engineers, as needed.
- Stockpiled material should be stored and stabilized away from the NHS area. If designated areas are created during construction for the stockpiling of materials, these shall be placed a minimum of 30 m from the Significant Valleyland edge, or any wetlands.
- All materials and equipment used for site preparation and project completion should be operated, maintained and stored in a manner that prevents any deleterious substance (e.g., petroleum products, silt, etc.) from entering the NHS to be retained.
- Branches and roots of trees to be retained, that extend past any prescribed tree protection zones that require pruning, should be pruned by an ISA Certified Arborist,

or other tree professional, under the supervision of an ISA Certified Arborist. All pruning of tree roots and branches should be following good arboricultural practices.

- Site visits, pre-, during and post-construction by an ISA Certified Arborist are recommended to ensure proper tree protection and for inspection of damage incurred during construction, where existing trees are located adjacent to the proposed work zone.
- Restoration plans for areas of vegetation removal are recommended. Due to the underground watermain, trees are not a feasible re-planting option as their roots may damage the pipe. Restoration plans will be prepared in consultation with TRCA and submitted under separate cover.
- A wetland monitoring plan should be implemented to document pre-, during and post-construction wetland vegetation.

8.2 Wildlife and Wildlife Habitat (General)

8.2.1 Potential Impacts

- Provincially common species considered 'habitat generalists' that are known to utilize a mosaic of agricultural, meadow, wetland and woodland habitats have been noted in the adjacent areas during field investigations for adjoining parcels. These include White-tailed Deer, Raccoon, Eastern Cottontail.
- Temporary displacement of, and disturbance to, wildlife and wildlife habitat during the construction phase (i.e., vegetation removals, noise, light trespass). Development in these habitats may limit wildlife movement and reduce useable habitat. The development will permanently remove woodlands that some of these species are known to use as foraging and movement corridors.
- The majority of higher quality wildlife habitat on the subject lands is located within the NHS and will be protected.
- Potential for disturbance or destruction of migratory breeding birds, and their habitat, during the construction phase (prohibitions under the MBCA,1994). Amphibian breeding habitat is confirmed in Wetland G11. Disturbance to this wetland is associated with the watermain, a proposed sanitary line, as well as future 'Enterprise Gateway'. These pieces of infrastructure will follow the same path.

8.2.2 Recommended Mitigation Measures

- Avoid vegetation clearing, or disturbance, during sensitive times of the year for wildlife (when many animals bear their young or migrate between wintering and summer habitats). The specific timing of works should be determined in consultation with the appropriate agency. Generally, the following avoidance windows apply if working within any of these habitats:
  - Breeding birds and/or birds protected under the MBCA, 1994 (trees / shrubs / vegetation): April 1 to August 31

  - SAR Bats (trees / structures): April 1 to September 30
  - Overwintering reptiles (wetlands / subsurface features such as foundations, bedrock): October to April
  - Breeding Amphibians (wetlands / open water features): April to June
- Active nests (nests with eggs or young birds) of protected migratory birds, including SAR protected under the ESA, cannot be destroyed at any time of the year. The destruction of inactive nests for some species may also be prohibited.
- If an animal is encountered during construction, and does not move from the construction zone, the Contract Administrator shall be notified. If the construction activities are such that continuing construction in the area would result in harm to wildlife, construction activities in that location shall temporarily stop and MNR or MECP shall be contacted for direction (regulatory requirements for SAR are administered by MECP).
- Construction fencing should be installed prior to commencement of construction activities to prevent wildlife from entering active construction areas. The excluded area shall be searched immediately following fencing installation for any wildlife that may have become trapped. Any wildlife shall be safely relocated, or permitted to escape, to a suitable habitat.
- Once the work area has been cleared, it can be securely fenced (and keyed into the ground) to prevent wildlife from returning.
- Fencing shall be inspected regularly to ensure damage is repaired promptly and that additional risk to wildlife is minimized.
- If designated areas are created during construction for the stockpiling of materials, especially fill, soil and gravel, the Contractor shall install temporary construction hoarding around the perimeter of these areas to prevent any reptile species from entering the area and attempting to nest (reptiles are attracted to these materials for nesting).

8.3 Significant Wildlife Habitat and Species at Risk

8.3.1 Potential Impacts

Confirmed SWH and SAR on the subject lands will be directly impacted:

Removal of Confirmed SWH:

- Special Concern and Rare Wildlife Species
  - Monarch (SC)

Removal of Confirmed habitat of Threatened and Endangered species:

- Butternut (END)

One Category 2 Butternut (BN11) less than 3 cm in diameter and 1.37 m in height will be removed for the proposed servicing works. Butternut Health Assessments were undertaken by Butternut Health Experts (BHE) (as defined by O.Reg. 830/21, Section 21) Lorraine Adderley (BHA #428) and Andrew Borrelli on July 3, July 18 and August 29, 2024. The Butternut Health Assessment Report is currently in progress and will be submitted to MECP in mid-December. BN11 was genetically tested and found to be a pure Butternut, and therefore is protected by the ESA as a Category 2 Butternut. It will be registered with MECP for removal. As part of the registration, compensation will be provided under either O. Reg. 830/21 with a planting of two Butternut and companion species or under O. Reg. 829/21 with a payment into the Conservation Fund.

The majority of higher quality wildlife habitat on the subject lands is located within the NHS and will be protected. Indirect impacts may include:

- See Wildlife and Wildlife Habitat (General), above.
- Limited grading encroachments into the 10 m woodland setback is proposed. The woodlands in the NHS are confirmed breeding habitat for Eastern Wood-pewee (SC) and Wood Thrush (SC). Grading will not encroach beyond the dripline and has been minimized, to the extent possible. The setback is comprised of agricultural fields.

8.3.2 Recommended Mitigation Measures

- While removal of Confirmed SWH on the subject lands cannot be avoided, the Significant Wildlife Habitat Mitigation Support Tool (SWHMST, 2014) recommends considering opportunities for restoring the “naturalness” of vegetation by establishing areas of herbaceous plants, shrubs and trees, where possible (i.e., within the NHS). Planting patches of wildflowers will be attractive to Monarch (e.g., milkweed as a larval host and wildflowers in general, for nectar). Once plantings mature, flower meadows may provide some habitat for butterflies, especially when planted with species preferred by butterflies as larval hosts, or for food (e.g., Milkweeds, native Lupines, Joe-Pye Weed, coneflowers, Goldenrods, Asters, etc.). Future NHS restoration plans will include planting plans for a variety of native trees, shrubs and wildflowers suited to site conditions and to provide wildlife habitat and food sources. Future NHS restoration plans should incorporate a variety nectar-producing flowering plants, including Milkweed species (*Asclepias* spp.), to provide food sources for pollinators such as Monarch butterflies.
- General wildlife mitigation measures such as timing, animal welfare, and isolation zones are outlined in Section 8.2, above.
- Butternut compensation will be addressed through the avenues available in either O. Reg 830/21 or 829/21 and completed to the satisfaction of MECP.
- If confirmed or candidate SWH and SAR on adjacent lands will be impacted (i.e., grading, outfalls, LIDs), this will be verified either before site alteration, or during detailed design. Appropriate mitigation measures should be assessed during this stage of the project, depending on the type of SWH potentially affected, the extent of

impact or intrusions into confirmed or candidate SWH. Mitigation measures will be determined in consultation with MECP and / or TRCA.
- Depending on the timing of construction for each phase, and the impacts proposed, detailed site surveys may be required prior to site alteration to confirm the presence of SWH and / or SAR adjacent to the subject lands (in consultation with agencies).
- Any significant findings will be reported to MECP and TRCA, and additional mitigation measures and / or a compensation plan will be discussed, where loss cannot be avoided.

8.4 Aquatic Habitat

8.4.1 Potential Impacts

All crossings of the watercourses for the installation of the watermain will use trenchless techniques, and thus direct alteration of fish habitat is not anticipated.

Indirect impacts to fish and fish habitat, including Redside Dace, could occur as a result of the proposed development. They include:

- Potential for indirect impacts to fish habitat resulting from alteration to water quality parameters (i.e., total suspended solids, temperature, contaminants and dissolved oxygen concentrations).
- Potential for localized surface water quality impacts as a result of excavation, spills, discharge or dumping of materials, fluids and other wastes during construction.
- Potential for changes to the natural flow regime, seasonal water conveyance and riparian habitat.

8.4.2 Recommended Mitigation Measures

Additional mitigation measures to be implemented include:

- Crossings of the watercourses are restricted to occurring between July 1 and September 15, per recent communication with MECP staff.
- A comprehensive ESC plan should be adopted, using a multi-barrier approach to prevent sediment release. Implementation of the erosion and sediment control measures shall conform to recognized standard specifications, such as the Ontario Provincial Standards Specification (OPSS) and TRCA requirements.
- ESC measures will be maintained and inspected weekly during active construction, bi-weekly during periods of inactivity, and immediately following rainfall / snowmelt events to ensure they are functioning as intended. Deficiencies will be immediately reported to the contract administration team and remedied. ESC measures should remain in place until the site is stabilized.
- Temporary mitigation measures should be installed before the commencement of any clearing, grubbing, excavation, filling, or grading works and must be maintained regularly, before and after runoff events.

- Grubbing and stump removal will not occur in the area of clearing for the future Enterprise Gateway until earthworks for the road commence.
- All materials and equipment used for site preparation and project completion should be operated and stored in a manner that prevents any deleterious substance (e.g., petroleum products, silt, etc.) from entering the water.
- No equipment refueling should occur within 30 m of a watercourse or NHS feature (e.g., woodland, wetland, valleyland), and all stationary equipment should be outfitted with drip pans (i.e., secondary containment) to prevent / contain oil spills.
- Spills should be immediately contained and cleaned up, following provincial regulatory requirements and the contingency plan. A hydrocarbon spill response kit should be on-site at all times during the work. Spills should be reported to the Ontario Spills Action Center, at 1-800-268-6060.
- Weather forecasts should be monitored before construction activities, particularly during sensitive activities, such as in-water work. Scheduling of work should be strategized to occur during periods of dry weather.
- Work should be coordinated to avoid wet and rainy periods, to the extent feasible, to minimize erosion and indirect impacts to fish habitat.

The following best management practices are recommended for in-water or near-water construction activities, including regulated Redside Dace habitat.

- In-water work is not required for this project. Work will be avoided near watercourses and headwater drainage features during periods of excessive precipitation and / or excessive snowmelt.
- Disturbance to regulated Redside Dace habitat should be avoided or minimized, to the extent feasible, during project design.
- The footprint and duration of exposed areas should be minimized, to the extent feasible.
- A 5 m buffer will be implemented on either side of any watercourse. Within this buffer, tree clearing will not occur until the detailed design of the future Enterprise Gateway is available and approved.
- A plan to contain fraq-out will be developed prior to any trenchless crossings occurring. This plan will remain on site during all trenchless crossing construction.
- All efforts should be made to comply with fish and fish habitat protection provisions of the Fisheries Act, outlined on the Measures to Protect Fish and Fish Habitat website: http://www.dfo-mpo.gc.ca/pnw-ppe/measures-mesures-eng.html.
- All disturbed areas of the worksite should be stabilized and revegetated as soon as conditions allow.
- Stockpiled material should be stored and stabilized away from the watercourse and regulated Redside Dace habitat.

9.0 Summary

The Zone 5 Watermain EIS examines the existing conditions and potential environmental impacts on the subject lands and adjacent lands in the NHS. This EIS documents site-specific ecological surveys completed in support of the proposed watermain and tree clearing for the future Enterprise Gateway.

The existing land use within the subject lands is dominated by agricultural fields and hedgerows, with limited natural features. Vegetation loss has been minimized to the extent possible. Encroachment into the NHS has been reduced to only what is required to facilitate the construction of the watermain and tree clearing for the future Enterprise Gateway.

The majority of the watermain is proposed to be installed using open-cut methods. The crossings of the watercourse will be completed using trenchless methods to minimize impacts on the aquatic environment. Where possible, trenchless methods will also be used to avoid impacts to wetland and woodlands.

Habitat for Butternut (END) and SWH for Monarch will be removed on the subject lands. Regulatory requirements under the ESA have been followed for Butternut, as described in Section 5.2.2. The loss of Monarch habitat will be adequately compensated for with the addition of Milkweed and wildflowers in seed mixes used on-site in naturalized areas (i.e., setbacks) and landscape plantings.

The preliminary evaluation of potential environmental impacts and recommended mitigation measures has been completed in consideration of the proposed development activities. Overall, the proposed Draft Plan is in agreement with applicable natural heritage legislation and policies, with additional refinement of the design and supporting mitigation measures anticipated during the development of the detailed design and through consultation with regulatory agencies.

10.0 References

BSC. 2009. Marsh Monitoring Program Participants Handbook for Surveying Amphibians. Published by Bird Studies Canada in cooperation with Environment Canada and the U.S. Environmental Protection Agency. 13 pp.

Cadman, M.D., D.A. Sutherland, G.G. Beck, D. Lepage, and A.R. Couturier (eds). 2007. Atlas of the Breeding Birds of Ontario, 2001-2005. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto, xxii + 706 pp.

Canadensys. 2024. Database of Vascular Plants of Canada (VASCAN). Accessed online at: https://data.canadensys.net/vascan/search (November 12, 2024).

Conservation Authorities Act. 1990. Royal Statutes of Ontario. Chapter C. 27.

Department of Fisheries and Oceans Canada (DFO). 2019. Aquatic Species at Risk Maps. Accessed online at: https://www.dfo-mpo.gc.ca/species-especes/sara-lep/map-carte/index-eng.html.

DFO. 2020. Projects Near Water. Measures to Avoid Causing Harm to Fish and Fish Habitat. Website: http://www.dfo-mpo.gc.ca/pnw-ppe/measures-mesures/index-eng.html.

Envision Durham. September 2024. Regional Official Plan.

Endangered Species Act (ESA). 2007. Statues of Ontario, Chapter 6.

Environment Canada. 2015. Recovery Strategy for Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*), and Tri-colored Bat (*Perimyotis subflavus*) in Canada [Proposed]. Species at Risk Recovery Strategy Series. Environment Canada, Ottawa. ix + 110 pp.

Fisheries Act. 1985. Royal Statutes of Canada, Chapter F-14.

Government of Canada. 2017. Species at Risk Public Registry.

Government of Ontario. Edited by Les Stanfield. Updated April 2017. Ontario Stream Assessment Protocol (OSAP) Manual. Version 10.0.

Lee, H.T, W.D. Bakowsky, J.L. Riley, J. Bowles, M. Puddister, P. Uhlig, and S. McMurray. 1998. Ecological Land Classification for Southern Ontario: First Approximation and its Application. Ontario Ministry of Natural Resources, Southcentral Region, Science Development and Transfer Branch. Technical Manual ELC-005.

Lee, H.T. 2008. Southern Ontario Ecological Land Classification. Ontario Ministry of Natural Resources, Southcentral Region, Science Development and Transfer Branch.

Migratory Birds Convention Act. 1994. Statutes of Canada, Chapter 22.

Ministry of Municipal Affairs and Housing (MMAH). May 2006. Central Pickering Development Plan (CPDP).

MMAH. 2024. Provincial Policy Statement (PPS) under the *Planning Act*.

Ministry of Natural Resources (MNR). 2000. Significant Wildlife Habitat Technical Guide (SWHTG) & Appendices. 151 pp.

MNR. 2010. Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005. Second Edition. Toronto: Queen's Printer for Ontario. 248 pp.

MNR. 2011 (Amended December 2014, Version 2). Butternut Assessment Guidelines, Assessment of Butternut Tree Health for the Purposes of the Endangered Species Act, 2007.

MNR. August 2013. Survey Protocol for Eastern Meadowlark (Sturnella magna) in Ontario. Species at Risk Branch, Peterborough. ii + 20 pp.

Ministry of Natural Resources and Forestry (MNRF). 2014. Thermal Mitigation Checklist for Stormwater Management Ponds Discharging into Redside Dace Habitat.

MNRF. 2015. Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E.

MNRF. 2016. Guidance for Development Activities in Redside Dace Protected Habitat. Version 1.2 Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario. iv+32pp.

MNRF (Guelph District). April 2017. Survey Protocol for Species at Risk Bats within Treed Habitats, Little Brown Myotis, Northern Myotis, and Tri-colored Bat.

MNRF. Natural Heritage Information Centre (NHIC). 2018. Data pertaining to natural areas and provincially significant species obtained online at: http://www.giscoeapp.lrc.gov.on.ca/web/MNR/NHLUPS/NaturalHeritage/Viewer/Viewer.html. Date retrieved: March 12, 2018.

Niblett Environmental Associates Inc. July 2015. Species at Risk Screening – Seaton Lands, Infrastructure Ontario Lands, Neighbourhood 20. Species at Risk Assessment. 11 pp.

Ontario Breeding Bird Atlas (OBBA). April 2021. Instructions for General Atlassing.

Ontario Breeding Bird Atlas Records and Square Summaries (OBBA) (2001-2005). Obtained online at: http://www.birdsontario.org/atlas/squareinfo.jsp. Date retrieved: March 12, 2018.

Ontario Reptile and Amphibian Atlas (ORAA). Data obtained online at: http://www.ontarionature.org/protect/species/reptiles_and_amphibians/index.php

Planning Act. 1990. Royal Statutes of Ontario, Chapter P. 13.

R.J. Burnside & Associates Limited. March 2023. Whitevale TFPM Development Functional Servicing and Stormwater Management Report. Seaton TFPM Inc.

Seaton Environmental Consulting Team. April 2017. Comprehensive Aquatic Framework Draft. Prepared for North Pickering Community Management Inc.

Seaton Environmental Consulting Team. February 2017. Process for Endangered Species Act (2007) Authorizations, Seaton Community, City of Pickering.

The Sernas Group Inc., Stonybrook Consulting Inc., Beatty and Associates, Bird and Hale Limited, Phillips Engineering Ltd. August 2008. Master Environmental Servicing Plan, Seaton Community, Existing Conditions. Prepared for the North Pickering Community Management.

The Sernas Group Inc., Stonybrook Consulting Inc., SPL Beatty Limited, Bird and Hale Limited, Earthfx Inc., AMEC Earth and Environmental Limited, R.J. Burnside and Associates Limited, and Amos Environment and Planning. July 2013. Master Environmental Servicing Plan, Seaton Community. Prepared for the North Pickering Community Development Group.

The Sernas Group. Master Environmental Servicing Plan Amendment. Seaton Community. Final July 2013. 4276 pp.

Species at Risk Act. 2002. Statutes of Canada, Chapter 29.

Toronto and Region Conservation Authority (TRCA). 2014. The Living City Policies for Planning and Development in the Watersheds of the TRCA. 204 pp.

Varga, S., D. Leadbeater, J. Webber, J. Kaiser, B. Crins, J. Kamstra, D. Banville, E. Ashley, G. Miller, C. Kingsley, C. Jacobsen, K. Mewa, L. Tebby, E. Mosley and E. Zajc. 2000. The Distribution and Status of the Vascular Plants of the Greater Toronto Area. MNR, Aurora, ON. 103 pp.

BURNSIDE
[THE DIFFERENCE IS OUR PEOPLE]

Appendix A

Terms of Reference and Correspondence

R.J. Burnside & Associates Limited 128 Wellington Street West Suite 301 Barrie ON L4N 8J6 CANADA
telephone (705) 797-2047 **fax** (519) 941-8120 **web** www.rjburnside.com

BURNSIDE
[THE DIFFERENCE IS OUR PEOPLE]

May 13, 2024

Via: Jamie.Milnes@trca.ca; CCelebre@pickering.ca

Mr. Jamie Milnes
Senior Planning Ecologist
Planning Ecology | Policy Planning
Toronto and Region Conservation Authority
101 Exchange Avenue
Vaughan ON L4K 5R6

Ms. Cristina Celebre
Principal Planner, Strategic Initiatives
City of Pickering
One The Esplanade South
Pickering ON L1V 6K7

Dear Mr. Milnes and Ms. Celebre:

Re: Mattamy Zone 5 Watermain, EIS
Whitevale North Servicing – West
Project No.: PEB175000.3200

R.J. Burnside & Associates Limited (Burnside) has been retained by Mattamy Homes (Mattamy) to conduct an Environmental Impact Study (EIS) for a proposed watermain to service the Whitevale North development located in Seaton in the city of Pickering, shown in Figure 1.

The majority of the watermain is proposed to be installed using open-cut methods. The crossings of the watercourse will be completed using trenchless techniques to minimize impacts on the aquatic environment. A restoration plan will be developed and implemented to ensure the disturbed areas are re-vegetated and stabilized. The entirety of the proposed watermain path and 50 m study area buffer is referred to as the “subject lands” hereafter.

This letter provides the EIS’s proposed Terms of Reference (TOR). At this time, we are seeking your input and would appreciate any comments on our approach and any additional information you may have that is relevant to our study.

Part I: Background Secondary Source Information

Burnside has reviewed the following existing background sources:

- Phase 1 Master Environmental Servicing Plan (MESP) (The Sernas Group et al., 2008)
- Phase 2 MESP (The Sernas Group et al., 2010)
- Master Environmental Servicing Plan Amendment (MESPA) (The Sernas Group et al., July 2013)
- Species at Risk Screening – Seaton Lands, Infrastructure Ontario Lands, (Niblett Environmental Associates Inc., August 21, 2013)
- Butternut Health Assessment, Seaton Lands, City of Pickering (City), Neighbourhood Areas 18, 19, and 21 (Niblett Environmental Associates Inc., August 22, 2013)

- Comprehensive Aquatic Framework (Seaton Environmental Consulting Team, April 2017)
- Process for *Endangered Species Act* (ESA) (2007) Authorizations, Seaton Community, City (Draft v. 4; Seaton Consulting Team, September 2018)
- Whitevale TFPM Development Functional Servicing and Stormwater Management Report (R.J. Burnside & Associates Limited, March 2023)
- Pickering Official Plan (OP) Edition 9 (March 2022, Consolidation)
- Durham Regional Official Plan (OP) (May 26, 2020, Consolidation)
- The Living City Policies, Toronto and Region Conservation Authority (TRCA), 2014
- TRCA Flora Points, 2019
- Aerial photographic imaging and 1:10,000 Ontario Base Mapping (OBM)
- Ontario Hydrology Network (OHN) mapping
- Ministry of Natural Resources and Forestry (MNRF) Natural Heritage Information Centre (NHIC) database for significant species and designated natural features
- Ontario Breeding Bird Atlas (OBBA) database for avian species records within the general area
- Ontario Reptile and Amphibian Atlas (ORAA) database for herpetofauna species records within the general area
- MNRF Land Information Ontario (LIO) database
- MNRF Natural Heritage Areas Mapping (2024)
- TRCA regulated features (updated April 1, 2024) and Ecological Land Classification (ELC) (2023) mapping
- MNRF Aquatic Resource Area mapping (2024)
- Fisheries and Oceans Canada (DFO) Aquatic Species at Rist (SAR) mapping (2024).

Based on this review, we have identified the following relevant information:

The subject lands are located within the jurisdiction of TRCA, including regulated lands. The subject lands consist of actively cultivated fields, the Seaton Natural Heritage System (NHS), including tributaries of Ganatsekiagon Creek, regulated wetlands, and various woodland communities.

The MESPA (2014) identifies Wetland G11 on the west side (Ganatsekiagon Creek Subwatershed), adjacent to the proposed works.

Table 1: Applicable Environmental Policies

Plan / Regulation	Land Use Designations
Pickering OP (Schedule XI)	Low and Medium Density Urban Residential Neighbourhood Parks
Durham Regional OP	Specific Policy Area A (Pickering) Key Natural Heritage and Hydrologic Features
TRCA (Ontario Regulation 166/06)	Portions of the subject lands are within mapped TRCA regulation limits

The following provincially listed SAR (ESA, 2007) have been identified as potentially present on or adjacent to the subject lands:

- Bank Swallow (*Riparia riparia*) (THR)
- Barn Swallow (*Hirundo rustica*) (SC)
- Bobolink (*Dolichonyx oryzivorus*) (THR)
- Butternut (*Juglans cinerea*) (END)
- Canada warbler (*Cardellina canadensis*) (SC)
- Chimney swift (*Chaetura pelagica*) (THR)
- Eastern meadowlark (*Sturnella magna*) (THR)
- Eastern wood-pewee (*Contopus virens*) (SC)
- Golden-winged warbler (*Vermivora chrysoptera*) (SC)
- Least bittern (*Ixobrychus exilis*) (THR)
- Little brown myotis (*Myotis lucifugus*) (END)
- Monarch (*Danaus plexippus*) (SC)
- Northern myotis (*Myotis septentrionalis*) (END)
- Red-headed woodpecker (*Melanerpes erythrocephalus*) (SC)
- Redside dace (*Clinostomus elongatus*) (END)
- Snapping turtle (*Chelydra serpentina*) (SC)
- Wood thrush (*Hylocichla mustelina*) (SC).

The following federally listed SAR (*Species at Risk Act* (SARA), 2002) have been identified as potentially present on or adjacent to the subject lands:

- Eastern milksnake (*Lampropeltis triangulum*) (SC).

The following species has been assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC (2018)) as at-risk but has no status under SARA (2002) or the ESA (2007):

- Midland painted turtle (*Chrysemys picta* subsp. *marginata*) (SC).

Part II: Proposed EIS Methodology

Fieldwork Methodology

Based on the background review, and a review of potential habitats based on aerial photography and TRCA ELC Mapping (2023), the proposed fieldwork methodology for the EIS is summarized in Table 2, below.

Table 2: Summary of Existing Information, Fieldwork Completed, and To Be Completed by Burnside in 2024 for Mattamy Zone 5 Watermain EIS

Study Component	Existing Data	Fieldwork Requirements	Features / Areas to be Assessed	Survey Timing Window
Amphibian Breeding Call Surveys	TRCA fauna records.	Three surveys following Marsh Monitoring Program Participant's Handbook for Surveying Amphibians (Bird Studies Canada).	G11 Wetland (One survey station)	March / April to June
Agency Feature Staking	MNRF, TRCA (2021), and Seaton MESPA (2013) mapped wetlands.	Wetland delineation verified with TRCA, staked and surveyed in field.	G11 Wetland	June to August 2024
Aquatic Habitat Assessment	Redside dace habitat classifications (CAF, 2017).	Aquatic habitat assessment in Spring / Summer 2024.	The vicinity of the proposed crossings of the Ganatsekiagon Creek Tributaries	Spring / Summer 2024 (One site visit)
ELC, identification of rare and SAR plants (i.e., Butternut, Black ash (*Fraxinus nigra*))	TRCA (2023), Burnside field verified 50 m adjacent to development lands in Whitevale North TFPM Bundle 3 EIS (Burnside, December 2023) and Whitevale West Scoped EIS (Burnside, January 2023) Butternut Health Assessments from Whitevale West and Whitevale North TFPM Bundle 3 (Burnside, 2017, 2019).	ELC to be undertaken on subject lands to classify and map vegetation communities to ecotype. ELC system for southern Ontario (Lee et al., 1998) with updated 2008 codes will be applied. Two-season botanical inventory and analysis of flora rarity (provincial, regional, and TRCA rankings). Locate any SAR plant species. Verify location and extent of natural heritage (wetlands, woodlands, TRCA's NHS).	Alignment and 50 m adjacent lands	ELC and Flora Inventory: Spring (mid-April to early May – COMPLETED May 2, 2024) Summer (mid-June to August)

Study Component	Existing Data	Fieldwork Requirements	Features / Areas to be Assessed	Survey Timing Window
Breeding Bird Surveys	TRCA fauna records.	Two surveys following the OBBA protocol (2021). Breeding bird surveys would incorporate observations of all SAR birds.	Proposed areas of impact	Between May 24 and July 10, spaced at least ten days apart
Bat Survey (leaf-off and acoustic)	Previous Burnside surveys have detected minimal presence of SAR bats in the immediate area, but extensive presence at nearby sites in Seaton.	Following the Treed Habitats – Maternity Roost Surveys protocol (MECP, 2022), leaf-off surveys will be conducted before May to identify candidate Maternity Roost habitat. If candidate habitat is found, acoustic surveys will be conducted in June.	All areas with trees within the proposed areas of impact	Leaf-off Surveys are conducted in April, before leaf-out. Acoustic Surveys are conducted in June. The choice of exit surveys or acoustic stations will be determined based on the candidate habitat identified
Tree Inventory	No existing data from survey.	Inventory of individual trees (10 cm in DBH and greater) found within the City's Tree Protection By-law. Inventory of grouped trees (10 cm in DBH and greater) outside the protection areas.	Trees 10 cm in diameter at breast height (DBH) and greater within and immediately adjacent to the proposed areas of impact	No timing window constraints. COMPLETED April 2024

Criteria for Determining the Significance, Sensitivity, and Rarity of Features Found On-site

In accordance with the Natural Heritage Reference Manual (NHRM) (MNR, 2010), habitats of endangered and threatened species are identified and evaluated based on provincial criteria.

Significant Woodlands are undertaken at the local planning level, using landscape-level data and criteria from the NHRM. Schedule I of the City's Official Plan (OP) shows the Seaton NHS. According to the MESPA (The Sernas Group et al., July 2013), the Seaton NHS includes wetlands, significant woodlands, the Lake Iroquois shoreline, valley systems to stable top-of-bank, Environmentally Significant Areas, locations of SAR, groundwater seepage / discharge areas, linkage corridors, and buffers. The City OP also identifies Significant Woodlands on Schedule III B, Resource Management: Key Natural Heritage Features. Significant woodlands are identified within and immediately adjacent to the subject lands. The City does not specifically identify Significant Wildlife Habitats within its OP. Significant Wildlife Habitat will be evaluated according to the MNRF Ecoregional Schedules for 6-E for the entire subject property as a part of the EIS.

Species rarity will be based on:

- Species' status under the ESA, 2007
- Species' S-rank as provided on the NHIC database
- Species' L-rank as provided on the TRCA website
- Rarity for Durham Region and the Greater Toronto Area (GTA) as listed in The Distribution and Status of the Vascular Plants of the Greater Toronto Area (Varga et al., 2000) and The Distribution and Status of the Vascular Plants of Central Region (Riley et al., 1989).

The locations of all provincially rare species encountered will be recorded using GPS and included in the figures (except those classified as Restricted Species). Locally rare species will also be recorded in the ELC unit in which they are found.

Analysis and Recommendations

The EIS will provide an analysis of potential impacts, recommend mitigation measures to minimize impacts, and demonstrate conformity with all applicable natural heritage policies.

Specifically, the EIS will include the following:

- Summary of background review and methodology
- Results of all field investigations including a description of ELC communities, botanical inventory, aquatic habitat assessment, breeding bird surveys, wildlife surveys and wildlife habitat
- Results of all SAR assessment surveys including results of bat habitat, Butternut and Black ash surveys
- Mapping of ELC communities, natural heritage features, and the proposed development plan
- SAR screening (for all potential SAR), based on existing and potential habitat
- Identification of the significance of natural features at a provincial and regional level, with reference to standard information sources from the Province and TRCA
- Identification of the environmental features potentially impacted by development
- A description of the proposed development

- A demonstration of how and where the proposed development can proceed without negative impacts on the function of the NHS
- Identification of mitigation measures, enhancement / restoration opportunities, and compensation measures, where necessary
- An assessment of potential impacts associated with the proposed development
- Conclusions demonstrating conformity with all applicable natural heritage policies, including TRCA policies, City and Durham Regional OPs, and the Provincial Policy Statement (PPS).

Reporting

All findings will be summarized in a report, complete with figures.

Part III: Information Requests

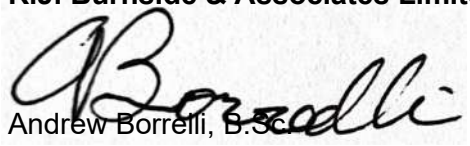
We request the following information to assist in our study:

- Any relevant natural heritage or regulation GIS data not available from TRCA's open data website
- Any updated natural heritage feature mapping not currently available from the City of Pickering OP
- A copy of the most current locally rare species lists, or comment on which locally rare species list is preferred, in order to assist with the assessment of species significance and rarity
- Any additional records of natural features, flora, or fauna in the area. Digital mapping would be preferred
- TRCA Regulation mapping if different from TRCA's open data website, including a breakdown of the features contributing to the Regulation Limit (i.e., floodplain, steep slopes, etc.). Digital mapping would be preferred.

If you have any questions or comments regarding these Terms of Reference, do not hesitate to contact the undersigned.

Yours truly,

R.J. Burnside & Associates Limited



Andrew Borrelli, B.Sc.
Ecologist

Lorraine Adderley, M.Sc., CERP
Project Coordinator / Senior Terrestrial Ecologist

AB/LJA:tm

Enclosure(s) Figure 1 – Study Area

cc: Andrew Scott, Mattamy Homes (enc.) (Via: Email)
Roy Werner, Mattamy Homes (enc.) (Via: Email)
Matthew Moote, R.J. Burnside & Associates Limited (enc.) (Via: Email)
Sam Webb, R.J. Burnside & Associates Limited (enc.) (Via: Email)

Preliminary Watermain Alignment

Study Area

Sources:

1. Ministry of Natural Resources and Forestry,© King's Printer for Ontario.
2. Natural Resources Canada,© His Majesty the King in Right of Canada.

Disclaimer:

R.J. Burnside & Associates Limited and the above mentioned sources and agencies are not responsible for the accuracy of the spatial, temporal, or other aspects of the data represented on this map. It is recommended that users confirm the accuracy of the information represented.

This map is the product of a Geographic Information System (GIS). As such, the data represented on this map may be subject to updates and future reproductions may not be identical.

Datum: North American 1983	
Coord. System: NAD 1983 UTM Zone 17N	
Projection: Transverse Mercator	
Central Meridian: 81°0'0.00"W	
False Easting: 500,000m	False Northing: 0m
Page Orientation: -18.6°	Scale Factor: 0.99960

N

Grid North

0 50 100 150 200

Metres

BURNSIDE

Client

MATTAMY (SEATON) LIMITED

Figure Title

WHITEVALE SUBDIVISION ZONE 5 WATERMAIN

STUDY AREA

Drawn	Checked	Date	Figure No.
HN	LA	2024/05/13	1
Scale		Project No.	
H 1:3,250		PEB175000.004	

File Path: \\barkleyshared work areas\PEB175000 0004 Whitevale West\13_GIS\PEB175000 Whitevale Servicing\PEB175000 Whitevale Servicing.aprx Print Date: 2024/05/13 Time: 09:57 AM

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix B

Species at Risk (SAR) Screening Table

Background Review of Potential Species at Risk and Species of Conservation Concern on the Subject Lands and/or Adjacent Lands

COMMON NAME **(Source)	SCIENTIFIC NAME	Provincial S-RANK[1]	Provincial SARO Status[2]	COSEWIC[3]	Federal SARA Status[3]	Federal SARA Schedule[4]	Habitat Description[5]	Habitat Present on the Subject Lands and/or Adjacent Lands?
Birds								
Bank Swallow (Source: OBBA)	*Riparia riparia*	S4B	THR	THR	THR	1	Prefers open habitats including, farmland, lake/river shorelines, grasslands, and wetlands. Nests in exposed earthen banks along shorelines and in artificial sites such as gravel pits.[6]	No candidate habitat on subject lands or adjacent lands. Site investigations confirm that breeding habitat is not present.
Barn Swallow (Source: OBBA)	*Hirundo rustica*	S4B	SC	SC	THR	1	Prefers farmland, lake/river shorelines, wooded clearings, urban populated areas, rocky cliffs, and wetlands. Nests inside or on exterior of buildings; under bridges and in road culverts; on rock faces, and in caves, etc.[7]	No breeding habitat on subject lands or adjacent lands; foraging habitat is present on the subject lands and adjacent lands (agricultural fields). Site investigations recorded one individual vocalizing at Breeding Bird Station 3, foraging over the agricultural fields.
Bobolink (Source: OBBA)	*Dolichonyx oryzivorus*	S4B	THR	SC	THR	1	Generally, prefers open grasslands and hay fields for nesting, typically featuring relatively tall vegetation. Sometimes uses large fields of winter wheat and rye in southwestern Ontario. Sensitive to vegetation structure and composition. Positively associated with high grass-to-forb ratios; moderate litter depth; tolerate wetter portions of fields compared to Eastern Meadowlark (EAME) and more likely to nest closer to field centres rather than field margins. Lower tolerance to presence of patches of bare ground. Appear to prefer larger fields than EAME.[8]	No candidate habitat on subject lands or adjacent lands. Fields were classified as intensive agriculture at the time of site investigations. Site investigations confirm that breeding habitat is not present.
Eastern Meadowlark (Source: OBBA, NHIC)	*Sturnella magna*	S4B, S3N	THR	THR	THR	1	Generally, prefers grassy pastures, meadows and hay fields. Prefers moderately tall grass with abundant litter cover, a high proportion of grass cover, moderate forb density, low proportions of shrub and woody vegetation cover, and low percent of bare ground. Prefers to nest in drier sites and frequently nests around field margins.[8]	No candidate habitat on subject lands or adjacent lands. Fields were classified as intensive agriculture at the time of site investigations. Site investigations confirm that breeding habitat is not present.
Eastern Wood-pewee (Source: OBBA, NHIC)	*Contopus virens*	S4B	SC	SC	SC	1	Prefers open space near the nest in the form of forest edges, clearings, roadways, and water. Does not require large areas of woods but occurs less frequently in woodlots surrounded by development than in those without.[6]	Confirmed habitat on subject lands. Candidate habitat on adjacent lands. Site investigations confirm that suitable breeding habitat is present on the subject lands. One individual was recorded at Breeding Bird Station 3, on the west side of the deciduous forest.

COMMON NAME **(Source)	SCIENTIFIC NAME	Provincial S-RANK[1]	Provincial SARO Status[2]	COSEWIC[3]	Federal SARA Status[3]	Federal SARA Schedule[4]	Habitat Description[5]	Habitat Present on the Subject Lands and/or Adjacent Lands?
Wood Thrush (Source: OBBA, NHIC)	*Hylocichla mustelina*	S4B	SC	THR	THR	1	Inhabits and breeds in woodlands ranging from small (3 ha) and isolated to large and contiguous. The presence of tall trees and a thick understorey are usually prerequisites for site occupancy.[6]	Confirmed habitat on subject lands. Candidate habitat on adjacent lands. Site investigations confirm that suitable breeding habitat is present on the subject lands. One individual was recorded at Breeding Bird Station 4, in a clearing on the west side of the deciduous forest.
Fish								
Redside Dace (Source: DFO)	*Clinostomus elongatus*	S1	END	END	END	1	Found in pools and slow-moving areas of small streams and headwaters with a gravel bottom. Generally found in areas with overhanging grasses and shrubs. During spawning, they are found in shallow parts of streams.[9]	Regulated habitat for this species confirmed in the protected Natural Heritage System.
Insects								
Monarch (Source: iNaturalist)	*Danaus plexippus*	S2N, S4B	SC	END	END	1	Throughout their life cycle, Monarchs use three different types of habitats. Only the caterpillars (larvae) feed on milkweed plants and are confined to meadows and open areas where milkweed grows. Adult butterflies can be found in more diverse habitats where they feed on nectar from a variety of wildflowers. Monarchs spend the winter in Oyamel Fir forests found in central Mexico. The largest threat to Ontario Monarchs is habitat loss and fragmentation at overwintering sites in central Mexico where forests are being logged and converted into agricultural fields and pastures. Widespread pesticide and herbicide use throughout the Monarch's range may also limit recovery.[9]	Candidate habitat present on subject and adjacent lands. The larval host plant, Common Milkweed (*Asclepias syriaca*), was recorded during ELC surveys on the subject and adjacent lands. Adult individuals have been confirmed on the adjacent lands in previous studies.
Mammals								
Little Brown Myotis (Source: R.J. Burnside)	*Myotis lucifugus*	S3	END	END	END	1	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius. Maternal Roosts: Often associated with buildings (attics, barns etc.). Occasionally found in trees (25-44 cm dbh).[11]	While Little Brown Myotis was recorded during acoustic surveys, they were not in sufficient numbers to indicate roosting habitat. Candidate habitat is present on adjacent lands in the NHS.

COMMON NAME **(Source)	SCIENTIFIC NAME	Provincial S-RANK[1]	Provincial SARO Status[2]	COSEWIC[3]	Federal SARA Status[3]	Federal SARA Schedule[4]	Habitat Description[5]	Habitat Present on the Subject Lands and/or Adjacent Lands?
Northern Myotis (Source: R.J. Burnside)	*Myotis septentrionalis*	S3	END	END	END	1	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius. Maternal Roosts: Often associated with cavities of large diameter trees (25-44 cm dbh). Occasionally found in structures (attics, barns etc.)[11]	Bat acoustic surveys confirmed that species is not present on subject lands. Candidate habitat is present on adjacent lands in the NHS.
Tri-colored Bat (Source: R.J. Burnside)	*Perimyotis subflavus*	S3?	END	END	END	1	Overwintering habitat: Deepest parts of caves and mines where temperature is the least variable. Maternal Roosts: Less is known about roosts of Tri-colored Bats. Most roost sites found within forested habitats. May roost in clumps of dead foliage and lichens. In more anthropogenically modified landscapes, maternity roosts may be barns or similar human-made structures.[11]	Bat acoustic surveys confirmed that species is not present on subject lands. Candidate habitat is present on adjacent lands in the NHS.
Plants								
Butternut (Source: NHIC)	*Juglans cinerea*	S2?	END	END	END	1	Butternut grows best in rich, moist and well-drained soils or limestone gravel sites. They are less commonly found in dry, rocky and sterile soils. They generally grow alone or in small groups in deciduous forests that are commonly comprised of Basswood, Black Cherry, Beed, Black Walnut, Elm, Hemlock, Hickory, Oak, Red Maple, Sugar Maple, Poplar, White Ash and Yellow Birch. In Ontario, they can be found throughout southern Ontario, south of the Canadian Shield.[9]	Confirmed habitat on the subject lands and adjacent lands during targeted Butternut surveys.
Reptiles and Amphibians								
Blanding's Turtle (Source: ORAA)	*Emydoidea blandingii*	S3	THR	END	END	1	Live in shallow water, usually in large wetlands and shallow lakes with lots of water plants. Can also be found hundreds of meters away from nearest waterbody when searching for a mate or travelling to a nesting site. [8]	No candidate habitat on the subject lands. No open-water wetlands are present. No candidate habitat on adjacent lands in MASM1-1 ecosite due to dense vegetation cover.
Midland Painted Turtle (Source: NHIC)	*Chrysemys picta marginata*	S4	No Status	SC	SC	1	Generally, prefers waterbodies such as ponds, marshes, lakes and slow-moving creeks that have a soft bottom and provide abundant basking sites and aquatic vegetation.[10]	No candidate habitat on the subject lands. No open-water wetlands are present. No candidate habitat on adjacent lands in MASM1-1 ecosite due to dense vegetation cover.

COMMON NAME **(Source)	SCIENTIFIC NAME	Provincial S-RANK[1]	Provincial SARO Status[2]	COSEWIC[3]	Federal SARA Status[3]	Federal SARA Schedule[4]	Habitat Description[5]	Habitat Present on the Subject Lands and/or Adjacent Lands?
Eastern Milksnake (Source: ORAA)	*Lampropeltis triangulum*	S4	No status	SC	SC	1	Habitat generalist. Found in wide variety of habitats, from open woodlands, bogs, swamps, woodland edges, marshes, lakeshores, old fields, pastures, farmyards, parks, gardens. Often in or near farm outbuildings, barns, and sheds, and are attracted to piles of rocks, logs, firewood, or building materials, or any place that offers shelter to snakes and their prey (rodents).[10]	Candidate habitat on subject lands and adjacent lands. There are no farm buildings, barns, sheds or piles of rocks present; however, woodlands, woodland edges and wetlands are present. Not confirmed during site investigations.
Snapping Turtle (Source: ORAA)	*Chelydra serpentina*	S4	SC	SC	SC	1	Generally, inhabit shallow waters where they can hide under the soft mud and leaf litter. Nesting sites usually occur on gravely or sandy areas along streams. Snapping Turtles often take advantage of man-made structures for nest sites, including roads (especially gravel shoulders), dams and aggregate pits.[9]	No suitable habitat on the subject lands. No open-water wetlands are present. Candidate habitat on adjacent lands in MASM1-1 ecosite, however unlikely due to dense vegetation cover.

** Sources: Natural Heritage Information Centre (NHIC) database of records searched on September 15, 2024 (4- 1x1 km2 Squares: 17PJ5062 and 17PJ5063); Ontario Breeding Bird Atlas (2001-2005) searched on September 15, 2024 (Squares 17PJ56); Ontario Reptile and Amphibian Atlas (ORAA) searched on September 15, 2024 (Squares 17PJ56); MNR SAR List, provided on September 16, 2024 (MNR Aurora District, Natosha Fortini, Management Biologist); R.J. Burnside & Associates (Burnside) observations during ecological field surveys in 2024.

[1]S-Ranks (provincial)
Provincial (or Subnational) ranks are used by the Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities. These ranks are not legal designations. Provincial ranks are assigned in a manner similar to that described for global ranks, but consider only those factors within the political boundaries of Ontario (Please refer to: http://explorer.natureserve.org/nsranks.htm)

SX — Presumed Extirpated - Species or community is believed to be extirpated from the province. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.
SH — Possibly Extirpated (Historical) - Species or community occurred historically in the province, and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20–40 years. A species or community could become SH without such a 20-40 year delay if the only known occurrences in a province were destroyed or if it had been extensively and unsuccessfully looked for. The SH rank is reserved for species or communities for which some effort has been made to relocate occurrences, rather than simply using this status for all elements not known from verified extant occurrences.
S1 — Critically Imperiled - Critically imperiled in the province or state because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the province.
S2 — Imperiled - Imperiled in the province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the province.
S3 — Vulnerable - Vulnerable in the province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
S4 — Apparently Secure - Uncommon but not rare; some cause for long-term concern due to declines or other factors.
S5 — Secure - Common, widespread, and abundant in the province.
SNR — Unranked - Province conservation status not yet assessed.
SU — Unrankable - Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
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 or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).
S#? – Inexact or Uncertain - Denotes inexact or uncertain numeric rank.

Breeding Status Qualifiers
B – Breeding Conservation status refers to the breeding population of the species in the nation or state/province.
N – Nonbreeding Conservation status refers to the non-breeding population of the species in the province.
M – Migrant species occurring regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. Conservation status refers to the aggregating transient population of the species in the province.

[2]SARO *Endangered Species Act, 2007*
(provincial status from http://www.ontario.ca/environment-and-energy/how-species-risk-are-listed#section-3)
The provincial review process is implemented by the MNRF's Committee on the Status of Species at Risk in Ontario (COSSARO).

Extinct - A species that no longer exists anywhere.
Extirpated (EXT) - Lives somewhere in the world, and at one time lived in the wild in Ontario, but no longer lives in the wild in Ontario.
Endangered (END) - Lives in the wild in Ontario but is facing imminent extinction or extirpation.
Threatened (THR) - Lives in the wild in Ontario, is not endangered, but is likely to become endangered if steps are not taken to address factors threatening it.
Special concern (SC) - Lives in the wild in Ontario, is not endangered or threatened, but may become threatened or endangered due to a combination of biological characteristics and identified threats.
Not at Risk (NAR) - A species that has been evaluated and found to be not at risk.
Data Deficient (DD) - A species for which there is insufficient information for a provincial status recommendation.

[3]SARA (Federal *Species at Risk Act*) Status and Schedule (includes COSEWIC Status)

The Act establishes Schedule 1, as the official list of wildlife species at risk. It classifies those species as being either Extirpated, Endangered, Threatened, or Special Concern. Once listed, the measures to protect and recover a listed wildlife species are implemented.

Extinct - A wildlife species that no longer exists.
Extirpated (EXT) - A wildlife species that no longer exists in the wild in Canada but exists elsewhere.
Endangered (END) - A wildlife species facing imminent extirpation or extinction.
Threatened (THR) - A wildlife species that is likely to become an endangered if nothing is done to reverse the factors leading to its extirpation or extinction.
Special Concern (SC) - A wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats.
Data Deficient (DD) - A category that applies when the available information is insufficient (a) to resolve a wildlife species' eligibility for assessment or (b) to permit an assessment of the wildlife species' risk of extinction.
Not At Risk (NAR) - A wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances.

[4]**SARA Schedule**
Schedule 1: is the official list of species that are classified as extirpated, endangered, threatened, and of special concern.
Schedule 2: species listed in Schedule 2 are species that had been designated as endangered or threatened and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.
Schedule 3: species listed in Schedule 3 are species that had been designated as special concern and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.

The Act establishes Schedule 1 as the official list of wildlife species at risk. However, please note that while Schedule 1 lists species that are extirpated, endangered, threatened and of special concern, the prohibitions do not apply to species of special concern.

Species that were designated at risk by COSEWIC prior to October 1999 (Schedule 2 & 3) must be reassessed using revised criteria before they can be considered for addition to Schedule 1 of SARA. After they have been assessed, the Governor in Council may on the recommendation of the Minister, decide on whether or not they should be added to the List of Wildlife Species at Risk.

[5]**Sources:**
[6]Cadman, M.D., et al. (eds). 2007. Atlas of the Breeding Birds of Ontario, 2001-2005. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto, xxii + 706 pp
[7]Species at Risk Public Registry https://species-registry.canada.ca/
[8]McCracken, J.D. et al. 2013. Recovery Strategy for the Bobolink (*Dolichonyx oryzivorus*) and Eastern Meadowlark (*Sturnella magna*) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario, viii + 88 pp.
[9]SARO List Species Descriptions (Species at risk in Ontario | ontario.ca)
[10]Ontario Nature Reptile and Amphibian Atlas (ON Reptile & Amphibian Atlas (ontarioinsects.org))
[11]Environment Canada. 2015. Recovery Strategy for Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*) and Tri-colored Bat (*Perimyotis subflavus*) in Canada [Proposed]. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. Ix + 110 pp.
[12]Humphrey, C. 2017. Recovery Strategy for the Eastern Small-footed Myotis (*Myotis leibii*) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario. vii + 76 pp.
[13]MNRF. 2018. City of Niagara Falls Species at Risk Table. Guelph District.
[14]Department of Fisheries and Oceans (DFO) Aquatic Species at Risk found online at: http://www.dfo-mpo.gc.ca/species-especes/sara-lep/identify-eng.html.
[15]Fisheries and Oceans Canada (DFO). 2018. Management Plan for the Northern Brook Lamprey (*Ichthyomyzon fossor*), Great Lakes – Upper St. Lawrence populations, in Canada. *Species at Risk Act* Management Plan Series. Fisheries and Oceans Canada, Ottawa. vi + 33 pp.

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix C

Significant Wildlife Habitat (SWH) Screening Table

Significant Wildlife Habitat Screening – Ecoregion 6E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Wildlife Species**	**Defining Criteria**	**Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?**
Table 1.1: Seasonal Concentration Areas of Animals					
Waterfowl Stopover & Staging Areas (Terrestrial) **Rationale:** Habitat important to migrating waterfowl.	CUM1 CUT1 - Plus evidence of annual spring flooding from melt water or run-off within these ecosites.	Fields with sheet water during Spring (mid-March to May). • Fields flooding during spring melt and run-off provide important invertebrate foraging habitat for migrating waterfowl. • Agricultural fields with waste grains are commonly used by waterfowl, these are not considered SWH unless they have spring sheet water available.	American Black Duck Wood Duck Green-winged Teal Blue-winged Teal Mallard Northern Pintail Northern Shoveler American Wigeon Gadwall	Studies carried out and verified presence of an annual concentration of any listed species, evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects. • Any mixed species aggregations of 100 or more individuals required. • The flooded field ecosite habitat plus a 100-300 m radius area, dependent on local site conditions and adjacent land use is the SWH. • Annual use of habitat is documented from information sources or field studies (annual use can be based on studies or determined by past surveys with species numbers and dates). • **SWHMiST Index #7** provides development effects and mitigation measures.	No potential on the subject lands or adjacent lands. The ecosites are not present and the habitat criteria for Significant Wildlife Habitat is not present.
Waterfowl Stopover & Staging Areas (Aquatic) **Rationale:** Important for local and migrant waterfowl populations during the spring or fall migration or both periods combined. Sites identified are usually only one of a few in the eco-district.	MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7	• Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration. Sewage treatment ponds and SWM ponds do not qualify as a SWH, however a reservoir managed as a large wetland or pond/lake does qualify. • These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water).	Canada Goose Cackling Goose Snow Goose American Black Duck Northern Pintail Northern Shoveler American Wigeon Gadwall Green-winged Teal Blue-winged Teal Hooded Merganser Common Merganser Lesser Scaup Greater Scaup Long-tailed Duck Surf Scoter White-winged Scoter Black Scoter Ring-necked duck Common Goldeneye Bufflehead Redhead Ruddy Duck	**Studies carried out & verified presence of:** • Aggregations of 100 or more of listed species for 7 days, results in >700 waterfowl use days. • Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWH. • The combined area of the Ecological Land Classification (ELC) ecosites and a 100 m radius area is the SWH. • Wetland area and shorelines associated with sites identified within the SWHTG Appendix K are SWH. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • Annual Use of Habitat is Documented from Information Sources or Field Studies (Annual can be based on completed studies or determined from past surveys with species numbers and dates recorded). • **SWHMiST Index #7** provides development effects and mitigation measures.	No potential on the subject lands. The ecosites are not present and the habitat criteria for Significant Wildlife Habitat is not present. There is potential on the adjacent lands in the MASM1-1 ecosite, although unlikely due to dense vegetation cover. Target species were not observed during breeding bird surveys.

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Wildlife Species**	**Defining Criteria**	**Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?**
			Red-breasted Merganser Brant Canvasback Ruddy Duck		
Shorebird Migratory Stopover Area **Rationale**: High quality shorebird stopover habitat is extremely rare and typically has a long history of use.	BBO1 BBO2 BBS1 BBS2 BBT1 BBT2 SDO1 SDS2 SDT1 MAM1 MAM2 MAM3 MAM4 MAM5	• 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 armour 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 SWH.	Greater Yellowlegs Lesser Yellowlegs Marbled Godwit Hudsonian Godwit Black-bellied Plover American Golden-Plover Semipalmated Plover Solitary Sandpiper Spotted Sandpiper Semipalmated Sandpiper Pectoral Sandpiper White-rumped Sandpiper Baird's Sandpiper Least Sandpiper Purple Sandpiper Stilt Sandpiper Short-billed Dowitcher Red-necked Phalarope Whimbrel Ruddy Turnstone Sanderling Dunlin	**Studies confirming:** • Presence of 3 or more of listed species and >1000 shorebird use days during spring or fall migration period (shorebird use days are the accumulated number of shorebirds counted per day over the course of the fall or spring migration period). • Whimbrel stop briefly (<24 hrs.) during spring migration, any site with >100 Whimbrel used for 3 years or more is significant. • The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100 m radius area. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • **SWHMiST Index #8** provides development effects and mitigation measures.	No potential on the subject lands or adjacent lands. The ecosites are not present and the habitat criteria for Significant Wildlife Habitat is not present.
Raptor Wintering Area **Rationale**: Sites used by multiple species, a high number of individuals and used annually are most significant.	Hawks/Owls: Combination of ELC Community Series; need to have present one Community Series from each land class; Forest: FOD, FOM, FOC.	• The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. • Raptor wintering sites (hawk/owl) need to be **>** 20 ha, with a combination of forest and upland. • Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15ha) with adjacent woodlands. • Field area of the habitat is to be wind swept with limited snow depth or accumulation. • Eagle sites have open water, large trees and snags available for roosting.	Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl **Special Concern:** Short-eared Owl Bald Eagle	**Studies confirm the use of these habitats by:** • One or more Short-eared Owls or; One or more Bald Eagle or; At least 10 individuals and two of the listed hawk/owl species. • To be significant a site must be used regularly (3 in 5 years) for a minimum of 20 days by the above number of birds. • The habitat area for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects."	No potential on the subject lands or adjacent lands. Despite the mosaic of forest and upland ecosites present, the fields are rotated annually and are very disturbed.

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Wildlife Species**	**Defining Criteria**	**Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?**
	Upland: CUM; CUT; CUS; CUW. Bald Eagle: Forest community Series: FOD, FOM, FOC, SWD, SWM or SWC on shoreline areas adjacent to large rivers or adjacent to lakes with open water (hunting area).			• **SWHMiST Index #10 and #11** provides development effects and mitigation measures.	
Bat Hibernacula **Rationale**: Bat hibernacula are rare habitats in all Ontario landscapes.	**Bat Hibernacula may be found in these ecosites:** CCR1 CCR2 CCA1 CCA2 (Note: buildings are not considered to be SWH)	• Hibernacula may be found in caves, mine shafts, underground foundations and Karsts. • Active mine sites should not be considered as SWH. • The locations of bat hibernacula are relatively poorly known.	Big Brown Bat Tri-coloured Bat	• All sites with confirmed hibernating bats are SWH. • The habitat area includes a 200 m radius around the entrance of the hibernaculum for most development types and 1000 m for wind farms. • Studies are to be conducted during the peak swarming period (August to September). Surveys should be conducted following methods outlined in the “Bats and Bat Habitats: Guidelines for Wind Power Projects”. • **SWHMiST Index #1** provides development effects and mitigation measures.	No potential on the subject lands or adjacent lands. The ecosites and habitat criteria for Significant Wildlife Habitat is not present.
Bat Maternity Colonies **Rationale:** Known locations of forested bat	Maternity colonies considered SWH are found in forested ecosites.	• Maternity colonies can be found in tree cavities, vegetation and often in buildings (buildings are not considered to be SWH). • Maternity roosts are not found in caves and mines in Ontario.	Big Brown Bat Silver-haired Bat	• Maternity Colonies with confirmed use by: – >10 Big Brown Bats – >5 Adult Female Silver- haired Bats	No potential on the subject lands or adjacent lands. The habitat criteria for Significant Wildlife Habitat is not present.

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Wildlife Species**	**Defining Criteria**	**Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?**
maternity colonies are extremely rare in all Ontario landscapes.	**All ELC ecosites in ELC Community Series:** FOD FOM SWD SWM	• Maternity colonies located in Mature deciduous or mixed forest stands with >10/ha large diameter (>25 cm dbh) wildlife trees. • Female Bats prefer wildlife tree (snags) in early stages of decay, class 1-3 or class 1 or 2. • Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred.		• The area of the habitat includes the entire woodland, or a forest stand ELC ecosite or an ecoelement containing the maternity colonies. • Evaluation methods for maternity colonies should be conducted following methods outlined in the “Bats and Bat Habitats: Guidelines for Wind Power Projects”. • SWHMiST Index #12 provides development effects and mitigation measures.	
Turtle Wintering Areas **Rationale:** Generally, sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	Snapping and Midland Painted Turtles. **ELC Community Classes:** SW, MA, OA and SA **ELC Community Series:** FEO and BOO For Northern Map Turtle: Open water areas such as deeper rivers or streams and lakes with current can also be used as over-wintering habitat.	• For most turtles, wintering areas are in the same general area as their core habitat. Water must be deep enough not to freeze and have soft mud substrates. • Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate Dissolved Oxygen. • Man-made ponds such as sewage lagoons or storm water ponds should not be considered SWH.	Midland Painted Turtle **Special Concern:** Northern Map Turtle Snapping Turtle	• Presence of 5 over-wintering Midland Painted Turtles is significant. • One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significant. • The mapped ELC ecosite area with the over wintering turtles is the SWH. If the hibernation site is within a stream or river, the deep-water pool where the turtles are over wintering is the SWH. • Over wintering areas may be identified by searching for congregations (Basking Areas) of turtles on warm, sunny days during the fall (September–October) or spring (March–May). • Congregation of turtles is more common where wintering areas are limited and therefore significant. • **SWHMiST Index #28** provides development effects and mitigation measures for turtle wintering habitat.	No potential on the subject lands. The habitat criteria for Significant Wildlife Habitat is not present. Candidate habitat present on adjacent lands in MASM1-1 ecosite, however unlikely due to dense vegetation cover.
Reptile Hibernaculum	For all snakes, habitat may be found in any ecosite other	• For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural or naturalized locations. The existence of	**Snakes:** Eastern Gartersnake Northern Watersnake	**Studies confirming:**	No potential on the subject lands or adjacent lands. The habitat criteria for Significant Wildlife Habitat is not present.

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Wildlife Species**	**Defining Criteria**	**Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?**
Rationale: Generally, sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	than very wet ones. Talus, Rock Barren, Crevice, Cave, and Alvar sites may be directly related to these habitats. Observations or congregations of snakes on sunny warm days in the spring or fall is a good indicator. For Five-lined Skink, ELC Community Series of FOD and FOM and ecosites: FOC1 and FOC3.	features that go below frost line; such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying candidate SWH. • Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line. • 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 groundcover. • Five-lined Skink prefer mixed forests with rock outcrop openings providing cover rock overlaying granite bedrock with fissures.	Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake **Special Concern:** Milksnake Eastern Ribbonsnake **Lizard: Special Concern:** (Southern Shield population): Five-lined Skink	• Presence of snake hibernacula used by a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. • Congregations of a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. near potential hibernacula (e.g., foundation or rocky slope) on sunny warm days in Spring (April/May) and Fall (September/October). • **Note**: If there are Special Concern Species present, then site is SWH. • **Note:** Sites for hibernation possess specific habitat parameters (e.g., temperature, humidity, etc.) and consequently are used annually, often by many of the same individuals of a local population (i.e., strong hibernation site fidelity). Other critical life processes (e.g., mating) often take place near hibernacula. The feature in which the hibernacula is located plus a 30 m radius area is the SWH. • **SWHMiST Index #13** provides development effects and mitigation measures for snake hibernacula. • Presence of any active hibernaculum for Skink is significant. • SWHMiST Index #37 provides development effects and mitigation measures for five-lined Skink wintering habitat.	
Colonially - Nesting Bird Breeding Habitat (Bank & Cliff) **Rationale:** Historical use and number of nests in a colony make this habitat significant. An identified colony can be very important to local populations. All swallow population are	Eroding banks, sandy hills, borrow pits, steep slopes, and sand piles. Cliff faces, bridge abutments, silos, barns. **Habitat found in the following ecosites:** CUM1 CUT1 CUS1 BLO1 BLS1	• Any site or areas with exposed soil banks, undisturbed or naturally eroding that is not a licensed permitted aggregate area. • 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.	Cliff Swallow Northern Rough-winged Swallow (this species is not colonial but can be found in Cliff Swallow colonies)	**Studies confirming:** • Presence of 1 or more nesting sites with 8 or more cliff swallow pairs and/or rough-winged swallow pairs during the breeding season. • A colony identified as SWH will include a 50 m radius habitat area from the peripheral nests. • Field surveys to observe and count swallow nests are to be completed during the breeding season. Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • **SWHMiST Index #4** provides development effects and mitigation measures.	No potential on the subject lands or adjacent lands. While CUM1 ecosites are present, the size criteria for Significant Wildlife Habitat is not present.

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Wildlife Species**	**Defining Criteria**	**Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?**
declining in Ontario.	BLT1 CLO1 CLS1 CLT1				
Colonially - Nesting Bird Breeding Habitat (Tree/Shrubs) **Rationale:** Large colonies are important to local bird population, typically sites are only known colony in area and are used annually.	SWM2 SWM3 SWM5 SWM6 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7 FET1	• Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used. • Most nests in trees are 11 to 15 m from ground, near the top of the tree.	Great Blue Heron Black-crowned Night-Heron Great Egret Green Heron	**Studies confirming:** • Presence of 2 or more active nests of Great Blue Heron or other listed species. • The habitat extends from the edge of the colony and a minimum 300 m radius or extent of the Forest ecosite containing the colony or any island <15.0 ha with a colony is the SWH. • Confirmation of active heronries are to be achieved through site visits conducted during the nesting season (April to August) or by evidence such as the presence of fresh guano, dead young and/or eggshells. • **SWHMiST Index #5** provides development effects and mitigation measures.	Potential habitat on subject lands and adjacent lands for Green Heron, however, target species were not observed during breeding bird surveys. A Great Blue Heron flyover was observed during 2024 fieldwork, however nesting habitat is not present on the subject lands or adjacent lands as no heronries were observed during breeding bird surveys.
Colonially - Nesting Bird Breeding Habitat (Ground) **Rationale;** Colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Any rocky island or peninsula (natural or artificial) within a lake or large river (two-lined on a 1;50,000 NTS map). Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird). MAM1 – 6 MAS1 – 3 CUM CUT	• Nesting colonies of gulls and terns are on islands or peninsulas associated with open water or in marshy areas. • Brewers Blackbird colonies are found loosely on the ground in low bushes in close proximity to streams and irrigation ditches within farmlands.	Herring Gull Great Black-backed Gull Little Gull Ring-billed Gull Common Tern Caspian Tern Brewer's Blackbird	**Studies confirming:** • Presence of > 25 active nests for Herring Gulls or Ring-billed Gulls, >5 active nests for Common Tern or >2 active nests for Caspian Tern. • Presence of 5 or more pairs for Brewer's Blackbird. • Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant. • The edge of the colony and a minimum 150 m radius area of habitat, or the extent of the ELC ecosites containing the colony or any island <3.0 ha with a colony is the SWH. • Studies would be done during May/June when actively nesting. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • **SWHMiST Index #6** provides development effects and mitigation measures.	No potential on the subject lands or adjacent lands. The habitat criteria for Significant Wildlife Habitat is not present.

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Wildlife Species**	**Defining Criteria**	**Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?**
	CUS				
Migratory Butterfly Stopover Areas **Rationale:** Butterfly stopover areas are extremely rare habitats and are biologically important for butterfly species that migrate south for the winter.	Combination of ELC Community Series; need to have present one Community Series from each land class. <u>Field</u>: CUM CUT CUS <u>Forest</u>: FOC FOD FOM CUP Anecdotally, a candidate site for butterfly stopover will have a history of butterflies being observed.	• A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present and will be located within 5 km of Lake Erie or Ontario. • The habitat is typically a combination of field and forest and provides the butterflies with a location to rest prior to their long migration south. • The habitat should not be disturbed, fields/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat. • Staging areas usually provide protection from the elements and are often spits of land or areas with the shortest distance to cross the Great Lakes.	Painted Lady Red Admiral <u>Special Concern</u> Monarch	**Studies confirm:** • The presence of Monarch Use Days (MUD) during fall migration (August/October). MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/day, significant variation can occur between years and multiple years of sampling should occur. • Observational studies are to be completed and need to be done frequently during the migration period to estimate MUD. • MUD of >5000 or >3000 with the presence of Painted Ladies or Red Admiral's is to be considered significant. • **SWHMiST Index #16** provides development effects and mitigation measures.	No potential on the subject lands or adjacent lands. The habitat criteria for Significant Wildlife Habitat is not present. The subject lands are greater than 5 km from Lake Ontario.
Landbird Migratory Stopover Areas **Rationale:** Sites with a high diversity of species as well as high numbers are most significant.	**All ecosites associated with these ELC Community Series:** FOC FOM FOD SWC SWM SWD	• Woodlots >10 ha in size and within 5 km of Lake Ontario. • If woodlands are rare in an area of shoreline, woodland fragments 2-5 ha can be considered for this habitat. • If multiple woodlands are located along the shoreline those Woodlands <2 km from Lake Ontario are more significant. • Sites have a variety of habitats; forest, grassland and wetland complexes. • The largest sites are more significant. • Woodlots and forest fragments are important habitats to migrating birds, these features located along the shore and located within 5 km of Lake Ontario are Candidate SWH.	All migratory songbirds. Canadian Wildlife Service Ontario website: http://www.ec.gc.ca/nature/default.asp?lang=En&n=421B7A9D-1 All migrant raptors species: *Ontario Ministry of Natural Resources: Fish and Wildlife Conservation Act, 1997.* Schedule 7: Specially Protected Birds (Raptors)	**Studies confirm:** • Use of the habitat by >200 birds/day and with >35 spp with at least 10 bird spp. recorded on at least 5 different survey dates. This abundance and diversity of migrant bird species is considered above average and significant. • Studies should be completed during spring (April/May) and fall (August/October) migration using standardized assessment techniques. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • **SWHMiST Index #9** provides development effects and mitigation measures.	No potential on the subject lands or adjacent lands. The habitat criteria for Significant Wildlife Habitat is not present. The subject lands are greater than 5 km from Lake Ontario.

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Wildlife Species**	**Defining Criteria**	**Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?**
Deer Yarding Areas **<u>Rationale:</u>** Winter habitat for deer is considered to be the main limiting factor for northern deer populations. In winter, deer congregate in "yards" to survive severe winter conditions. Deer yards typically have a long history of annual use by deer, yards typically represent 10-15% of an areas summer range.	**Note:** MNRF to determine this habitat. **ELC Community Series** providing a thermal cover component for a deer yard would include: FOM FOC SWM SWC **Or these ELC ecosites:** CUP2 CUP3 FOD3 CUT	• Deer yarding areas or winter concentration areas (yards) are areas deer move to in response to the onset of winter snow and cold. This is a behavioural response and deer will establish traditional use areas. The yard is composed of two areas referred to as Stratum I and Stratum II. Stratum II covers the entire winter yard area and is usually a mixed or deciduous forest with plenty of browse available for food. Agricultural lands can also be included in this area. Deer move to these areas in early winter and generally, when snow depths reach 20 cm, most of the deer will have moved here. If the snow is light and fluffy, deer may continue to use this area until 30 cm snow depth. In mild winters, deer may remain in the Stratum II area the entire winter. • The Core of a deer yard (Stratum I) is located within the Stratum II area and is critical for deer survival in areas where winters become severe. It is primarily composed of coniferous trees (pine, hemlock, cedar, spruce) with a canopy cover of more than 60%. • MNRF determines deer yards following methods outlined in "Selected Wildlife and Habitat Features: Inventory Manual". • Woodlots with high densities of deer due to artificial feeding are not significant.	White-tailed Deer	**No Studies Required:** • Snow depth and temperature are the greatest influence on deer use of winter yards. Snow depths > 40 cm for more than 60 days in a typically winter are minimum criteria for a deer yard to be considered as SWH. • Deer Yards are mapped by MNRF District offices. Locations of Core or Stratum 1 and Stratum 2 Deer yards considered significant by MNRF will be available at local MNRF offices or via Land Information Ontario (LIO). • Field investigations that record deer tracks in winter are done to confirm use (best done from an aircraft). Preferably, this is done over a series of winters to establish the boundary of the Stratum I and Stratum II yard in an "average" winter. MNRF will complete these field investigations. • If a SWH is determined for Deer Wintering Area or if a proposed development is within Stratum II yarding area, then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • SWHMiST Index #2 provides development effects and mitigation measures.	No potential on the subject lands or adjacent lands. The habitat criteria for Significant Wildlife Habitat is not present. No deer yarding areas were identified by the MNR.
Deer Winter Congregation Areas **Rationale:** Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in	**All Forested ecosites with these ELC Community Series:** FOC FOM FOD SWC SWM SWD	• Woodlots will typically be >100 ha in size. Woodlots <100 ha may be considered as significant based on MNRF studies or assessment. • Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands. • If deer are constrained by snow depth refer to the Deer Yarding Area habitat within Table 1.1 of this Schedule. • Large woodlots > 100 ha and up to 1500 ha are known to be used annually by densities of deer that range from 0.1-1.5 deer/ha. • Woodlots with high densities of deer due to artificial feeding are not significant.	White-tailed Deer	**Studies confirm:** • Deer management is an MNRF responsibility, deer winter congregation areas considered significant will be mapped by MNRF. • Use of the woodlot by white- tailed deer will be determined by MNRF, all woodlots exceeding the area criteria are significant, unless determined not to be significant by MNRF. • Studies should be completed during winter (January/February) when >20 cm of snow is on the ground using aerial survey techniques, ground or road surveys. or a pellet count deer density survey. • If a SWH is determined for Deer Wintering Area or if a proposed development is within Stratum II yarding	No potential on the subject lands or adjacent lands. The habitat criteria for Significant Wildlife Habitat is not present. No deer yarding areas were identified by the MNR.

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Wildlife Species**	**Defining Criteria**	**Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?**
large numbers in suitable woodlands to reduce or avoid the impacts of winter conditions.	Conifer plantations much smaller than 50 ha may also be used.			area, then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • **SWHMiST Index #2** provides development effects and mitigation measures.	
Table 1.2.1: Rare Vegetation Communities					
Cliffs and Talus Slopes **Rationale:** Cliffs and Talus Slopes are extremely rare habitats in Ontario.	**Any ELC ecosite within Community Series:** TAO CLO TAS CLS TAT CLT	• 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.		• Most cliff and talus slopes occur along the Niagara Escarpment. • Confirm any ELC Vegetation Type for Cliffs or Talus Slopes. • **SWHMiST Index #21** provides development effects and mitigation measures.	No potential on the subject lands or adjacent lands. The ecosites and habitat criteria for Significant Wildlife Habitat is not present. Subject lands are not in the Niagara Escarpment.
Sand Barren **Rationale;** Sand barrens are rare in Ontario and support rare species. Most Sand Barrens have been lost due to cottage development and forestry.	**ELC ecosites:** SBO1 SBS1 SBT1 Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicket-like (SBS1), or more closed and treed (SBT1). Tree cover always ≤ 60%.	• Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. Usually located within other types of natural habitat such as forest or savannah. Vegetation can vary from patchy and barren to tree covered, but less than 60%.		• A sand barren area >0.5 ha in size. • Confirm any ELC Vegetation Type for Sand Barrens. • Site must not be dominated by exotic or introduced species (<50% vegetative cover is exotic sp.). • **SWHMiST Index #20** provides development effects and mitigation measures.	No potential on the subject lands or adjacent lands. The ecosites and habitat criteria for Significant Wildlife Habitat is not present.
Alvar **Rationale;** Alvars are extremely rare	ALO1 ALS1 ALT1 FOC1 FOC2	• 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. The hydrology of alvars is complex, with alternating periods of inundation and drought. Vegetation cover varies from sparse lichen-moss		**Field studies that identify:** • An Alvar site > 0.5 ha in size. • Four of the five Alvar Indicator Species at a Candidate Alvar site is Significant.	No potential on the subject lands or adjacent lands. The habitat criteria for Significant Wildlife Habitat is not present.

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Wildlife Species**	**Defining Criteria**	**Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?**
habitats in Ecoregion 6E.	CUM2 CUS2 CUT2-1 CUW2 **Five Alvar Indicator Species:** *Carex crawei* *Panicum philadelphicum* *Eleocharis compressa* *Scutellaria parvula* *Trichostema brachiatum* These indicator species are very specific to Alvars within Ecoregion 6E.	associations to grasslands and shrublands and comprising a number of characteristic or indicator plants. 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. • Alvar is particularly rare in Ecoregion 6E where the only known sites are found in the western islands of Lake Erie.		• Site must not be dominated by exotic or introduced species (<50% vegetative cover is exotic sp.). • The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses. • **SWHMiST Index #17** provides development effects and mitigation measures.	
Old Growth Forest **Rationale;** Due to historic logging practices and land clearance for agriculture, old growth forest is rare in the Ecoregion 6E.	**Forest Community Series:** FOD FOC FOM SWD SWC SWM	Old Growth forests are characterized by heavy mortality or turnover of over-storey trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris.		**Field Studies will determine:** • If dominant trees species are >140 years old, then the area containing these trees is SWH. • The forested area containing the old growth characteristics will have experienced no recognizable forestry activities (cut stumps will not be present). • The area of forest ecosites combined or an eco-element within an ecosite that contains the old growth characteristics is the SWH. • Determine ELC vegetation types for the forest area containing the old growth characteristics. • **SWHMiST Index #23** provides development effects and mitigation measures.	No potential on the subject lands or adjacent lands. The habitat criteria for Significant Wildlife Habitat is not present. The MNR did not identify Old Growth forest in the EIS study area.
Savannah **Rationale:**	TPS1 TPS2 TPW1	A Savannah is a tallgrass prairie habitat that has tree cover between 25–60%.		**Field studies confirm:**	No potential on the subject lands or adjacent lands. The habitat criteria for Significant Wildlife Habitat is not present.

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Wildlife Species**	**Defining Criteria**	**Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?**
Savannahs are extremely rare habitats in Ontario.	TPW2 CUS2			• No minimum size to site. Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. • One or more of the Savannah indicator species listed in Appendix N should be present. **Note**: Savannah plant spp. list from Ecoregion 6E should be used. • Area of the ELC ecosite is the SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover is exotic sp.). • **SWHMiST Index #18** provides development effects and mitigation measures.	
Tallgrass Prairie **Rationale:** Tallgrass Prairies are extremely rare habitats in Ontario.	TPO1 TPO2	• No minimum size to site. Site must be restored or a natural site. Remnant sites such as railway Right of Ways (ROW) are not considered to be SWH. • A Tallgrass Prairie has ground cover dominated by prairie grasses. An open Tallgrass Prairie habitat has < 25% tree cover.		**Field studies confirm:** • One or more of the Prairie indicator species listed in Appendix N should be present. **Note:** Prairie plant spp. list from Ecoregion 6E should be used. • Area of the ELC ecosite is the SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover is exotic sp.). • **SWHMiST Index #19** provides development effects and mitigation measures.	No potential on the subject lands or adjacent lands. The ecosites and habitat criteria for Significant Wildlife Habitat is not present.
Other Rare Vegetation Communities **Rationale:** Plant communities that often contain rare species which depend on the habitat for survival.	• Provincially Rare S1, S2 and S3 vegetation communities are listed in Appendix M of the SWHTG. • Any ELC ecosite Code that has a possible ELC Vegetation Type that is Provincially Rare is Candidate SWH.	Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps.		• ELC ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in Appendix M. • The MNRF/Natural Heritage Information Centre (NHIC) will have up to date listing for rare vegetation communities. **Field studies should confirm:** • If an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of SWHTG. • Area of the ELC Vegetation Type polygon is the SWH. • **SWHMiST Index #37** provides development effects and mitigation measures.	No potential on the subject lands. No rare vegetation communities were identified during ELC field surveys.

Table 1.2.2: Specialized Habitats for Wildlife considered Significant Wildlife Habitat

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Wildlife Species**	**Defining Criteria**	**Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?**
Waterfowl Nesting Area **Rationale;** Important to local waterfowl populations, sites with greatest number of species and highest number of individuals are significant.	**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 (PSW).	• A waterfowl nesting area extends 120 m from a wetland (> 0.5 ha) or a wetland (>0.5ha) and any small wetlands (0.5ha) within 120 m or a cluster of 3 or more small (<0.5 ha) wetlands within 120 m of each individual wetland where waterfowl nesting is known to occur. • Upland areas should be at least 120 m wide so that predators such as racoons, skunks, and foxes have difficulty finding nests. • Wood Ducks and Hooded Mergansers utilize large diameter trees (>40 cm dbh) in woodlands for cavity nest sites.	American Black Duck Northern Pintail Northern Shoveler Gadwall Blue-winged Teal Green-winged Teal Wood Duck Hooded Merganser Mallard	**Studies confirmed:** • Presence of 3 or more nesting pairs for listed species excluding Mallards, or; • Presence of 10 or more nesting pairs for listed species including Mallards. • Any active nesting site of an American Black Duck is considered significant. • Nesting studies should be completed during the spring breeding season (April - June). Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • A field study confirming waterfowl nesting habitat will determine the boundary of the waterfowl nesting habitat for the SWH, this may be greater or less than 120 m from the wetland and will provide enough habitat for waterfowl to successfully nest. • **SWHMiST Index #25** provides development effects and mitigation measures.	No potential on the subject lands. While some of the ecosites are present, none of the wildlife species listed were recorded during breeding bird surveys. Candidate habitat present on adjacent lands in MASM1-1 ecosite; however unlikely due to dense vegetation cover (little open water). None of the wildlife species were recorded during breeding bird surveys.
Bald Eagle & Osprey Nesting, Foraging & Perching Habitat **Rationale;** Nest sites are fairly uncommon in Eco-region 6E and are used annually by these species. Many suitable nesting locations may be lost due to increasing shoreline development pressures and	**ELC Forest Community Series:** FOD FOM FOC SWD SWM and SWC (directly adjacent to riparian areas – rivers, lakes, ponds and wetlands.	• Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water. • Osprey nests are usually at the top of a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree’s canopy. • Nests located on man-made objects are not to be included as SWH (e.g., telephone poles and constructed nesting platforms).	Osprey **Special Concern** Bald Eagle	**Studies confirm the use of these nests by**: • One or more active Osprey or Bald Eagle nests in an area. • Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the SWH. • For an Osprey, the active nest and a 300 m radius around the nest or the contiguous woodland stand is the SWH, maintaining undisturbed shorelines with large trees within this area is important. • For a Bald Eagle the active nest and a 400-800 m radius around the nest is the SWH. Area of the habitat from 400-800 m is dependent on-site lines from the nest to the development and inclusion of perching and foraging habitat. • To be significant a site must be used annually. When found inactive, the site must be known to be inactive for >3 years or suspected of not being used for >5 years before being considered not significant.	No potential on the subject lands or adjacent lands. The habitat criteria for Significant Wildlife Habitat is not present. Neither Bald Eagle or Osprey were recorded during any breeding bird surveys or other field surveys during the 2024 season.

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Wildlife Species**	**Defining Criteria**	**Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?**
scarcity of habitat.				• Observational studies to determine nest site use, perching sites and foraging areas need to be done from mid-March to mid-August. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • **SWHMiST Index #26** provides development effects and mitigation measures.	
Woodland Raptor Nesting Habitat **Rationale:** Nests sites for these species are rarely identified; these are area sensitive habitats and are often used annually by these species.	May be found in all forested ELC ecosites. **May also be found in:** SWC SWM SWD and CUP3	• All natural or conifer plantation woodland/forest stands >30 ha with >10ha 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 off-shore islands. • In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest.	Northern Goshawk Cooper’s Hawk Sharp-shinned Hawk Red-shouldered Hawk Barred Owl Broad-winged Hawk	**Studies confirm:** • Presence of 1 or more active nests from species list is considered significant. • Red-shouldered Hawk and Northern Goshawk – A 400 m radius around the nest or 28 ha area of habitat is the SWH (the 28 ha habitat area would be applied where optimal habitat is irregularly shaped around the nest). • Barred Owl – A 200 m radius around the nest is the SWH. • Broad-winged Hawk and Coopers Hawk– A 100 m radius around the nest is the SWH. • Sharp-Shinned Hawk – A 50 m radius around the nest is the SWH. • Conduct field investigations from mid-March to end of May. The use of call broadcasts can help in locating territorial (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search area. • **SWHMiST Index #27** provides development effects and mitigation measures.	No potential on the subject lands or adjacent lands. While some of the ecosites are present, none of the wildlife species listed were recorded during breeding bird surveys. On the adjacent lands, the size of contiguous forest does not be the criteria for Significant Wildlife Habitat.
Turtle Nesting Areas **Rationale;** These habitats are rare and when identified will often be the only breeding site for local populations of turtles.	**Exposed mineral soil (sand or gravel) areas adjacent (<100 m) or within the following ELC ecosites:** MAS1 MAS2 MAS3 SAS1 SAM1	• Best nesting habitat for turtles are close to water and 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.	Midland Painted Turtle <u>Special Concern Species:</u> Northern Map Turtle Snapping Turtle	**Studies confirm:** • Presence of 5 or more nesting Midland Painted Turtles. • One or more Northern Map Turtle or Snapping Turtle nesting is a SWH. • The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100 m around the nesting area dependent on slope, riparian vegetation and adjacent land use is the SWH. • Travel routes from wetland to nesting area are to be considered within the SWH as part of the 30-100 m area of habitat.	No potential on the subject lands or adjacent lands. While the MASM1-1 ecosite is present on the subject lands, it is filled with dense vegetation and lacks beach areas, therefore, the habitat criteria for Significant Wildlife Habitat is not present.

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Wildlife Species**	**Defining Criteria**	**Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?**
	SAF1 BOO1 FEO1			• Field investigations should be conducted in prime nesting season typically late spring to early summer. Observational studies observing the turtles nesting is a recommended method. • **SWHMiST Index #28** provides development effects and mitigation measures for turtle nesting habitat.	
Seeps and Springs **Rationale:** Seeps/Springs are typical of headwater areas and are often at the source of coldwater streams.	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. • Seeps and springs are important feeding and drinking areas especially in the winter will typically support a variety of plant and animal species.	Wild Turkey Ruffed Grouse Spruce Grouse White-tailed Deer Salamander spp.	**Field Studies confirm:** • Presence of a site with 2 or more seeps/springs should be considered SWH. • The area of a ELC forest ecosite or an ecoelement within ecosite containing the seeps/springs is the SWH. The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation the habitat. • **SWHMiST Index #30** provides development effects and mitigation measures.	No potential on the subject lands or adjacent lands. Seeps or springs were not identified during field surveys completed in 2024.
Amphibian Breeding Habitat (Woodland) **Rationale:** These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations.	All ecosites associated with these ELC Community Series: FOC FOM FOD SWC SWM SWD Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to	• Presence of a wetland, pond or woodland pool (including vernal pools) >500 m^2 (about 25 m diameter) 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.	Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog	**Studies confirm:** • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog species with Call Level Codes of 3. • A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the woodland/wetlands. • The habitat is the wetland area plus a 230 m radius of woodland area. If a wetland area is adjacent to a woodland, a travel corridor connecting the wetland to the woodland is to be included in the habitat. • **SWHMiST Index #14** provides development effects and mitigation measures.	No potential on the subject lands or adjacent lands; while some of the ecosites are present, no open water wetlands, ponds or woodland pools were identified.

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Wildlife Species**	**Defining Criteria**	**Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?**
	migrating amphibians.				
Amphibian Breeding Habitat (Wetlands) **Rationale;** Wetlands supporting breeding for these amphibian species are extremely important and fairly rare within Central Ontario landscapes.	**ELC Community Classes:** SW MA FE BO OA and SA. Typically, these wetland ecosites will be isolated (>120 m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (e.g., Bull Frog) may be adjacent to woodlands.	• Wetlands >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.	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	**Studies confirm:** • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog/toad species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog/toad species with Call Level Codes of 3 or; Wetland with confirmed breeding Bullfrogs are significant. • The ELC ecosite wetland area and the shoreline are the SWH. • A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the wetlands. • If a SWH is determined for Amphibian Breeding Habitat (Wetlands) then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • **SWHMiST Index #15** provides development effects and mitigation measures.	No potential on the subject lands. While wetland ecosites are present, they are not isolated and do not meet the size criteria for Significant Wildlife. No candidate habitat present on the adjacent lands. In addition to the thick vegetation that does not allow permanent water bodies to form, amphibian breeding surveys that took place in the MASM1-1 ecosite at station AMPH-001 found that the species abundance was not met to be Significant Wildlife Habitat.
Woodland Area-Sensitive Bird Breeding Habitat **Rationale:** Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats for area sensitive interior	**All ecosites associated with these ELC Community Series:** FOC FOM FOD SWC SWM SWD	• Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs. old) forest stands or woodlots >30 ha. • Interior forest habitat is at least 200 m from forest edge habitat.	Yellow-bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler Ovenbird Scarlet Tanager Winter Wren **Special Concern:** Cerulean Warbler Canada Warbler	**Studies confirm:** • Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. • **Note**: any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH. • Conduct field investigations in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • **SWHMiST Index #34** provides development effects and mitigation measures.	No potential on the subject lands. While some of the ecosites are present, none of the wildlife species listed were recorded during breeding bird surveys. The habitat criteria for Significant Wildlife Habitat is not present.

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Wildlife Species**	**Defining Criteria**	**Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?**
forest song birds.					
Table 1.3: Habitat for Species of Conservation Concern considered Significant Wildlife Habitat					
Marsh Breeding Bird Habitat **Rationale;** Wetlands for these bird species are typically productive and fairly rare in Southern Ontario landscapes.	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SAS1 SAM1 SAF1 FEO1 BOO1 **For Green Heron:** All SW, MA and CUM1 sites	• Nesting occurs in wetlands. • All wetland habitat is to be considered as long as there is shallow water with emergent aquatic vegetation present. • For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently, it may be found in upland shrubs or forest a considerable distance from water.	American Bittern Virginia Rail Sora Common Moorhen American Coot Pied-billed Grebe Marsh Wren Sedge Wren Common Loon Sandhill Crane Green Heron Trumpeter Swan **Special Concern:** Black Tern Yellow Rail	**Studies confirm:** • Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or 1 pair of Sandhill Cranes breeding by any combination of 5 or more of the listed species. • **Note**: any wetland with breeding of 1 or more Black Terns, Trumpeter Swan, Green Heron or Yellow Rail is SWH. • Area of the ELC ecosite is the SWH. • Breeding surveys should be done in May/June when these species are actively nesting in wetland habitats. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • **SWHMiST Index #35** provides development effects and mitigation measures.	No potential on the subject lands as the ecosite and habitat criteria for Significant Wildlife is not present. Candidate habitat present on adjacent lands in the MASM1-1 ecosite. However, the wildlife species were not observed during site investigations.
Open Country Bird Breeding Habitat **Rationale;** This wildlife habitat is declining throughout Ontario and North America. Species such as the Upland Sandpiper have declined significantly the past 40 years based on CWS (2004) trend records.	CUM1 CUM2	• Large grassland areas (includes natural and cultural fields and meadows) >30 ha. • Grasslands not Class 1 or 2 agricultural lands, and not being actively used for farming (i.e., no row cropping or intensive hay or livestock pasturing in the last 5 years). • Grassland sites considered significant should have a history of longevity, either abandoned fields, mature hayfields and pasturelands that are at least 5 years or older. • The Indicator bird species are area sensitive requiring larger grassland areas than the common grassland species.	Upland Sandpiper Grasshopper Sparrow Vesper Sparrow Northern Harrier Savannah Sparrow **Special Concern** Short-eared Owl	**Field Studies confirm:** • Presence of nesting or breeding of 2 or more of the listed species. • A field with 1 or more breeding Short-eared Owls is to be considered SWH. • The area of SWH is the contiguous ELC ecosite field areas. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • **SWHMiST Index #32** provides development effects and mitigation measures.	No potential on the subject lands or adjacent lands as the habitat criteria for Significant Wildlife is not present. None of the wildlife species were recorded during breeding bird surveys.

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Wildlife Species**	**Defining Criteria**	**Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?**
Shrub/Early Successional Bird Breeding Habitat **Rationale;** This wildlife habitat is declining throughout Ontario and North America. The Brown Thrasher has declined significantly over the past 40 years based on CWS (2004) trend records.	CUT1 CUT2 CUS1 CUS2 CUW1 CUW2 Patches of shrub ecosites can be complexed into a larger habitat for some bird species.	• Large field areas succeeding to shrub and thicket habitats >10 ha in size. • Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (i.e., no row-cropping, haying or live-stock pasturing in the last 5 years). • Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species. • Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands.	**Indicator Spp:** Brown Thrasher Clay-coloured Sparrow **Common Spp.** Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher **Special Concern:** Yellow-breasted Chat Golden-winged Warbler	**Field Studies confirm:** • Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species. • A habitat with breeding Yellow-breasted Chat or Golden-winged Warbler is to be considered as SWH. • The area of the SWH is the contiguous ELC ecosite field/thicket area. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • **SWHMiST cxlix Index #33** provides development effects and mitigation measures.	No potential on the subject lands or adjacent lands as the habitat criteria for significant wildlife is not present. None of the wildlife species were recorded during breeding bird surveys.
Terrestrial Crayfish **Rationale:** Terrestrial Crayfish are only found within SW Ontario in Canada and their habitats are very rare.	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SWD SWT SWM CUM1 with inclusions of above meadow marsh or swamp ecosites can be used by terrestrial crayfish.	• Wet meadow and edges of shallow marshes (no minimum size) should be surveyed for Terrestrial Crayfish. • Constructs burrows in marshes, mudflats, meadows, the ground can’t be too moist. Can often be found far from water. • Both species are a semi-terrestrial burrower which spends most of its life within burrows consisting of a network of tunnels. Usually the soil is not too moist so that the tunnel is well formed.	Chimney or Digger Crayfish (*Fallicambarus fodiens*) Devil Crayfish or Meadow Crayfish (*Cambarus diogenes*)	**Studies Confirm:** • Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable meadow marsh, swamp or moist terrestrial sites. • Area of ELC ecosite or an ecoelement area of meadow marsh or swamp within the larger ecosite area is the SWH. • Surveys should be done April to August in temporary or permanent water. **Note** the presence of burrows or chimneys are often the only indicator of presence, observance or collection of individuals is very difficult. • **SWHMiST Index #36** provides development effects and mitigation measures.	No potential on the subject lands. While some of the ecosites are present, none of the wildlife species listed were recorded during site investigation. The habitat criteria for Significant Wildlife Habitat is not present. Candidate habitat on the adjacent lands in the MASM1-1 ecosite.
Special Concern and	All plant and animal Element	When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or provincially Rare	All Special Concern and Provincially Rare (S1-S3, SH) plant and animal	**Studies Confirm:**	**Confirmed on subject lands:** • Butternut (END)

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Wildlife Species**	**Defining Criteria**	**Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?**
Rare Wildlife Species **Rationale:** These species are quite rare or have experienced significant population declines in Ontario.	Occurrences (EO) within a 1 or 10 km grid. Older element occurrences were recorded prior to GPS being available, therefore location information may lack accuracy.	species; linking candidate habitat on the site needs to be completed to ELC ecosites.	species. Lists of these species are tracked by the NHIC.	• Assessment/inventory of the site for the identified Special Concern or rare species needs to be completed during the time of year when the species is present or easily identifiable. • The area of the habitat to the finest ELC scale that protects the habitat form and function is the SWH, this must be delineated through detailed field studies. The habitat needs be easily mapped and cover an important life stage component for a species e.g., specific nesting habitat or foraging habitat. • **SWHMiST Index #37** provides development effects and mitigation measures.	• Barn Swallow (SC) (foraging habitat only) • Wood Thrush (SC) • Eastern Wood-pewee (SC) • Monarch (SC) • Redside Dace (END) **Confirmed on adjacent lands:** • Eastern Wood-pewee • Wood Thrush • Butternut (END) **Candidate on adjacent lands:** • Snapping Turtle (SC) • Blanding's Turtle (THR) • Monarch • Barn Swallow • Little Brown Myotis (END) • Northern Myotis (END) • Tri-coloured Bat (END)
Table 1.4.1: Animal Movement Corridors					
Amphibian Movement Corridors **Rationale;** Movement corridors for amphibians moving from their terrestrial habitat to breeding habitat can be extremely important for local populations.	Corridors may be found in all ecosites associated with water. Corridors will be determined based on identifying the significant breeding habitat for these species in Table 1.1.	• Movement corridors between breeding habitat and summer habitat. • Movement corridors must be determined when Amphibian breeding habitat is confirmed as SWH from Table 1.2.2 (Amphibian Breeding Habitat–Wetland) of this Schedule.	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	• Field Studies must be conducted at the time of year when species are expected to be migrating or entering breeding sites. • Corridors should consist of native vegetation, with several layers of vegetation. • Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant. • Corridors should have at least 15 m of vegetation on both sides of waterway or be up to 200 m wide of woodland habitat and with gaps <20 m. • Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat. • **SWHMiST Index #40** provides development effects and mitigation measures.	Candidate habitat on subject lands and adjacent lands in the tributaries of Ganatsekiagon Creek and wetland ecosites. Significant Wildlife Habitat for Amphibian Breeding Habitat – Wetlands was not found on the subject or adjacent lands.
Deer Movement Corridors **Rationale:** Corridors important for all species to be	Corridors may be found in all forested ecosites. A Project Proposal in Stratum II Deer	Movement corridor must be determined when Deer Wintering Habitat is confirmed as SWH from Table 1.1 of this schedule. • A deer wintering habitat identified by the MNRF as SWH in Table 1.1 of this Schedule will have corridors	White-tailed Deer	• Studies must be conducted at the time of year when deer are migrating or moving to and from winter concentration areas. • Corridors that lead to a deer wintering habitat should be unbroken by roads and residential areas.	No potential on the subject lands or adjacent lands. The habitat criteria for Significant Wildlife Habitat is not present. Deer wintering habitat was not identified by the MNRF.

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Wildlife Species**	**Defining Criteria**	**Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?**
able to access seasonally important life-cycle habitats or to access new habitat for dispersing individuals by minimizing their vulnerability while travelling.	Wintering Area has potential to contain corridors.	that the deer use during fall migration and spring dispersion. • Corridors typically follow riparian areas, woodlots, areas of physical geography (ravines, or ridges).		• Corridors should be at least 200 m wide with gaps <20 m and if following riparian area with at least 15 m of vegetation on both sides of waterway. • Shorter corridors are more significant than longer corridors, SWHMiST Index #39 provides development effects and mitigation measures.	
Table 1.5.1: Significant Wildlife Habitat Exceptions for Ecodistricts within EcoRegion 6E					
6E-14 **Mast Producing Areas** **Rationale:** The Bruce Peninsula has an isolated and distinct population of black bears. Maintenance of large woodland tracts with mast-producing tree species is important for bear.	**All Forested habitat represented by ELC Community Series**: FOM FOD	• Woodland ecosites >30 ha with mast-producing tree species, either soft (cherry) or hard (oak and beech). • Black bears require forested habitat that provides cover, winter hibernation sites, and mast- producing tree species. Forested habitats need to be large enough to provide cover and protection for black bears.	Black Bear	**All woodlands >30 ha with a 50% composition of these ELC Vegetation Types are considered significant:** FOM1-1 FOM2-1 FOM3-1 FOD1-1 FOD1-2 FOD2-1 FOD2-2 FOD2-3 FOD2-4 FOD4-1 FOD5-2 FOD5-3 FOD5-7 FOD6-5 SWHMiST Index #3 provides development effects and mitigation measures.	No potential on the subject lands or adjacent lands. The habitat criteria for Significant Wildlife Habitat is not present.
6E- 17 **Lek** **Rationale:** Sharp-tailed grouse only occur on Manitoulin Island in	CUM CUS CUT	• The Lek or dancing ground consists of bare, grassy or sparse shrubland. There is often a hill or rise in topography. • Leks are typically a grassy field/meadow >15 ha with adjacent shrublands and >30 ha with adjacent deciduous woodland. Conifer trees within 500 m are not tolerated.	Sharp-tailed Grouse	• Studies confirming Lek habitat are to be completed from late March to June. • Any site confirmed with sharp-tailed grouse courtship activities is considered significant. • The field/meadow ELC ecosites plus a 200 m radius area with shrub or deciduous woodland is the Lek habitat.	No potential on the subject lands or adjacent lands. The habitat criteria for Significant Wildlife Habitat is not present.

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Wildlife Species	Defining Criteria	Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?
Ecoregion 6E, Leks are an important habitat to maintain their /*population.		• Grasslands (field/meadow) are to be >15 ha when adjacent to shrubland and >30 ha when adjacent to deciduous woodland. • Grasslands are to be undisturbed with low intensities of agriculture (light grazing or late haying). • Leks will be used annually if not destroyed by cultivation or invasion by woody plants or tree planting.		• SWHMiST cxlix Index #32 provides development effects and mitigation measures.	

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix D

Plant List

Botanical Inventory Plant List

Scientific Name	Common Name	S-RANK	ESA (2007)	COSEWIC Status	SARA (2002) Status	Coefficient of Conservatism	Coefficient of Wetness	Native/Introduced	OWES Wetland Plant List	**Durham Region (Varga et al. 2000)**	**Greater Toronto Area (Varga et al. 2000)**	**Site District 6E-7 (Uxbridge/Seaton/Brooklin) (Varga et al. 2000)**	**Toronto Region Conservation Rank (2023)**	FODM5-9	MASM1-1	CUT1-A (p2)	FODM6-5 (p3)	SWDM2-2 (6) (p4)	MAM2-2 (5) (p5)	MASM1-1 (4) (p6)	THDMS (3) (p7)	FOD7-2 (2) (p8)	FODM11	THDM2-6	SWTM2-1	SWDM2-2	MAMM2-4 / MEFM1-1 / THDM2-6	FODM5-9	TAGM5
Abies balsamea	**Balsam Fir**	**S5**				**5**	**-3**	**N**	**S**	**X**	**X**	**X**	**L3**									**x**							
Acer negundo	Manitoba Maple	S5				0	0	N	S	X	X	X	L+?								x	x	x						x
Acer saccharum	Sugar Maple	S5				4	3	N		X	X	X	L5	x		x	x					x	x	x			x	x	x
Achillea millefolium	Common Yarrow	SNA				0	3	I		X	X	X	L+			x													
Achillea sp.	Yarrow Species																										x		
Actaea rubra	Red Baneberry	S5				6	3	N		X	X	X																x	
Agrimonia gryposepala	Hooked Agrimony	S5				2	3	N		X	X	X	L5			x													
Agrostis gigantea	Redtop	SNA				0	-3	I		X	X	X	L+							x									
Alisma triviale	Northern Water-plantain	S5				1	-5	N	I	X	X	X	L5							x									
Alliaria petiolata	Garlic Mustard	SNA				0	0	I		X	X	X	L+									x							
Allium tricoccum	Wild Leek	S4				7	3	N		X	X	X	L4									x	x						x
Amphicarpaea bracteata	American Hog-peanut	S5				4	0	N	S	X	X	X	L5														x		
Anemone cylindrica	Long-headed Anemone	S4				7	5	N		U	U	U	L3														x		
Arisaema triphyllum	Jack-in-the-pulpit	S5				5	-3	N	S	X	X	X	L5				x						x						x
Asclepias syriaca	Common Milkweed	S5				0	5	N		X	X	X	L5			x					x								
Barbarea vulgaris	Bitter Wintercress	SNA				0	0	I		X	X	X	L+									x							
Brassica sp.	Mustard Species													x															
Bromus inermis	Smooth Brome	SNA				0	5	I		X	X	X	L+								x			x			x		
Carex lupulina	Hop Sedge	S5				6	-5	N	I	X	X	X	L4					x											
Carex pedunculata	Long-stalked Sedge	S5				5	3	N		X	X	X	L5	x															
Carex pensylvanica	Pennsylvania Sedge	S5				5	5	N		X	X	X	L4															x	
Carex sp.	Sedge Species													x															
Carya cordiformis	Bitternut Hickory	S5				6	0	N		X	X	X	L4	x		x							x					x	x
Caulophyllum giganteum	**Giant Blue Cohosh**	**S5**				**5**	**5**	**N**			**R**	**R1**	**L4**	**x**															
Celastrus orbiculatus	Oriental Bittersweet	SNA				0	5	I		X	X	X	L+			x							x					x	x
Cinna latifolia	Drooping Woodreed	S5				7	-3	N	S	U	U	X	L4									x							
Circaea canadensis	Broad-leaved Enchanter's Nightshade	S5				2	3	N		X	X	X																	
Circaea canadensis	Canada Enchanter's Nightshade	S5				2	3	N		X	X	X	L5				x					x	x					x	x
Cirsium arvense	Canada Thistle	SNA				0	3	I		X	X	X	L+									x							
Cornus alternifolia	Alternate-leaved Dogwood	S5				6	3	N		X	X	X	L5			x	x					x							
Cornus sericea	Red-osier Dogwood	S5				2	-3	N		X	X	X	L5			x						x		x	x	x	x	x	
Crataegus punctata	Dotted Hawthorn	S5				4	5	N		X	X	X	L5			x	x					x							x
Crataegus sp.	Hawthorn Species																					x	x				x		
Dactylis glomerata	Orchard Grass	SNA				0	3	I		X	X	X	L+								x	x		x			x		

Daucus carota	Wild Carrot	SNA				0	5	I		X	X	X	L+									x		x			x		
Dipsacus fullonum	Common Teasel	SNA				0	3	I		X	X	X	L+									x							
Epipactis helleborine	Broad-leaved Helleborine	SNA				0	3	I		X	X	X	L+				x												
Equisetum arvense	Field Horsetail	S5				0	0	N	S	X	X	X	L5			x						x		x					
Erigeron annuus	Annual Fleabane	S5				0	3	N		X	X	X	L5										x				x		x
Erigeron philadelphicus	Philadelphia Fleabane	S5				1	-3	N	S	X	X	X				x													
Erythronium americanum	Yellow Trout-lily	S5				5	5	N						x								x							
Euthamia graminifolia	Grass-leaved Goldenrod	S5				2	0	N		X	X	X	L5											x					
Eutrochium maculatum	Spotted Joe Pye Weed	S5				3	-5	N		X	X	X													x				
Fragaria virginiana	Wild Strawberry	S5				2	3	N		X	X	X	L5			x						x		x	x				
Fraxinus americana	White Ash	S4				4	3	N		X	X	X	L5	x								x	x				x		x
Fraxinus pennsylvanica	Red Ash	S4				3	-3	N	S	X	X	X	L5	x	x	x	x	x			x	x	x	x		x		x	x
Fraxinus sp.	Ash Species																								x				
Galeopsis sp.	Hempnettle Species																					x							
Galium sp.	Bedstraw sp.																		x										
Geranium robertianum	Herb-Robert	S5				2	3	N		X	X	X	L+?	x									x						x
Geum aleppicum	Yellow Avens	S5				2	0	N	S	X	X	X	L5				x						x						x
Geum canadense	Canada Avens	S5				3	0	N	S	X	X	X	L5				x					x	x						x
Geum laciniatum	**Rough Avens**	**S4**				**4**	**-3**	**N**	**S**	**R1**	**U**	**R**	**L4**														**x**		
Geum sp.	Avens Species													x															
Glyceria striata	Fowl Mannagrass	S5				3	-5	N	I	X	X	X	L5		x		x												
Hesperis matronalis	Dame's Rocket	SNA				0	3	I		X	X	X	L+									x							
Hieracium sp.	Hawkweed Species																										x		
Hydrophyllum virginianum	Virginia Waterleaf	S5				6	0	N		X	X	X	L5	x								x	x						x
Impatiens capensis	Spotted Jewelweed	S5				4	-3	N	I	X	X	X	L5				x	x	x			x							
Juglans cinerea	Butternut	S2?	END	END	END	6	3	N		X	X	X	L3			x	x					x							x
Juglans nigra	**Black Walnut**	**S4?**				**5**	**3**	**N**		**U**	**X**	**R**	**L5**			**x**	**x**					**x**	**x**	**x**			**x**		
Lemna minor	Small Duckweed	S5				5	-5	N	I	X	X	X	L5							x									
Leucanthemum vulgare	Oxeye Daisy	SNA				0	5	I		X	X	X	L+										x						x
Lonicera sp.	Honeysuckle Species																				x	x							
Lonicera tatarica	Tatarian Honeysuckle	SNA				0	3	I		X	X	X	L+									x		x			x		x
Lycopus europaeus	European Water-horehound	SNA				0	-5	I	I	X	X	X	L+		x					x									
Lysimachia arvensis	Scarlet Pimpernel	SNA				0	3	I		X	X	X	L+										x						x
Lythrum salicaria	Purple Loosestrife	SNA				0	-5	I	I	X	X	X	L+					x				x			x		x		
Maianthemum canadense	Wild Lily-of-the-valley	S5				5	3	N		X	X	X	L4	x														x	x
Maianthemum racemosum	Large False Solomon's Seal	S5				4	3	N		X	X	X	L5	x														x	
Malus pumila	Common Apple	SNA				0	5	I		X	X	X	L+											x	x				
Matteuccia struthiopteris	Ostrich Fern	S5				5	0	N	S	X	X	X										x							
Myosoton aquaticum	Giant-chickweed	SNA				0	0	I	S				L+						x										
Nepeta cataria	Catnip	SNA				0	3	I		X	X	X	L+									x							
Onoclea sensibilis	Sensitive Fern	S5				4	-3	N	I	X	X	X	L5		x			x				x			x	x			
Ostrya virginiana	Eastern Hop-hornbeam	S5				4	3	N		X	X	X	L5			x	x					x							
Parthenocissus quinquefolia	**Virginia Creeper**	**S4?**				**6**	**3**	**N**			**R**		**L5**	**x**							**x**	**x**		**x**			**x**	**x**	

Phalaris arundinacea	Reed Canarygrass	S5				0	-3	N	S	X	X	X	L+?		x			x	x			x							
Phleum pratense	Common Timothy	SNA				0	3	I		X	X	X	L+			x							x				x		
Phragmites australis	Common Reed	SU				0	-3	N		X	X	X												x					
Pinus strobus	Eastern White Pine	S5				4	3	N	S	X	X	X	L4										x						
Pinus sylvestris	Scots Pine	SNA				0	3	I		X	X	X	L+										x				x		
Poa compressa	Canada Bluegrass	SNA				0	3	I		X	X	X	L+			x													
Poa pratensis	Kentucky Bluegrass	S5				0	3	N		X	X	X											x				x		
Podophyllum peltatum	May-apple	S5				5	3	N		X	X	X	L5	x			x					x	x				x		x
Populus balsamifera	Balsam Poplar	S5				4	-3	N	S	X	X	X	L5			x					x			x	x				
Populus tremuloides	Trembling Aspen	S5				2	0	N	S	X	X	X	L5			x													
Populus x canadensis	Canada Poplar	SNA				0	0	N		X	X	X	L+							x									
Potentilla recta	Sulphur Cinquefoil	SNA				0	5	I		X	X	X	L+									x							x
Prunus pensylvanica	Pin Cherry	S5				3	3	N		X	X	X	L4										x						
Prunus serotina	Black Cherry	S5				3	3	N		X	X	X	L5	x								x	x					x	x
Prunus virginiana	Chokecherry	S5				2	3	N		X	X	X	L5	x		x	x					x	x					x	x
Pyrus communis	Common Pear	SNA				0	5	I		X	X	X	L+			x							x	x			x		x
Quercus rubra	Northern Red Oak	S5				6	3	N		X	X	X	L4															x	
Ranunculus repens	Creeping Buttercup	SNA				0	0	I			X	X	L+									x							
Rhamnus cathartica	European Buckthorn	SNA				0	0	I	S	X	X	X	L+	x		x	x					x	x	x	x	x	x	x	x
Rhus typhina	Staghorn Sumac	S5				1	3	N		X	X	X	L5								x								
Ribes missouriense	Missouri Gooseberry	SNA				0	5	I						x															
Ribes sp.	Currant Species																					x	x						
Rosa blanda	Smooth Rose	S5				3	3	N		X	X	X	L4	x		x	x												
Rosa sp.	Rose Species																					x	x						
Rubus allegheniensis	Allegheny Blackberry	S5				2	3	N		X	X	X	L5														x		
Rubus idaeus ssp. strigosus	North American Red Raspberry	S5				2	3	N		X	X	X	L5	x								x							
Rubus occidentalis	Black Raspberry	S5				2	5	N		X	X	X	L5									x							
Rudbeckia hirta	Black-eyed Susan	S5				0	3	N		X	X	X	L4			x													
Salix alba	White Willow	SNA				0	-3	I	S	X	X	X	L+							x									
Salix bebbiana	Bebb's Willow	S5				4	-3	N	I	X	X	X	L4			x				x									
Salix eriocephala	Cottony Willow	S5				4	-3	N	S	X	X	X	L5											x	x				
Salix sp.	Willow Species																							x					
Sanguinaria canadensis	Bloodroot	S5				5	3	N		X	X	X	L5	x								x				x	x		
Schoenoplectus tabernaemontani	Soft-stemmed Bulrush	S5				5	-5	N	I	X	X	X	L4							x									
Scirpus atrovirens	Dark-green Bulrush	S5				3	-5	N	S	X	X	X	L5		x					x					x				
Scirpus hattorianus	Mosquito Bulrush	S4				6	-3	N	S		X		L3					x											
Scirpus pendulus	**Hanging Bulrush**	**S5**				**3**	**-5**	**N**	**I**	**U**	**U**	**R**	**L3**							**x**									
Securigera varia	Purple Crown-vetch	SNA				0	5	I		X	X	X	L+	x							x								
Solidago caesia	Blue-stemmed Goldenrod	S5				5	3	N		X	X	X	L5										x						x
Solidago canadensis	Canada Goldenrod	S5				1	3	N		X	X	X	L5	x	x	x		x					x	x			x		x
Solidago canadensis var. canadensis	Canada Goldenrod	S5				1	3	N		X	X	X	L5													x		x	x
Solidago flexicaulis	Zigzag Goldenrod	S5				6	3	N		X	X	X	L5	x			x					x							x

Solidago gigantea	Giant Goldenrod	S5				4	-3	N	S	X	X	U	L5				x					x						
Solidago rugosa ssp. rugosa	Northern Rough-stemmed Goldenrod	S5				4	0	N		X	X	X	L5			x												
Sorbus aucuparia	European Mountain-ash	SNA				0	5	I		X	X	X	L+										x					x
Symphyotrichum cordifolium	Heart-leaved Aster	S5				5	5	N		X	X	X	L5			x							x			x		
Symphyotrichum lanceolatum	Panicled Aster	S5				3	-3	N		X	X	X				x												
Symphyotrichum lateriflorum	Calico Aster	S5				3	0	N	S	X	X	X	L5	x			x					x	x					x
Symphyotrichum novae-angliae	New England Aster	S5				2	-3	N		X	X	X	L5			x												
Symphyotrichum puniceum	Purple-stemmed Aster	S5				6	-5	N	I	X	X	X	l5		x					x		x			x	x		
Taraxacum officinale	Common Dandelion	SNA				0	3	I		X	X	X	L+	x									x					
Thalictrum dioicum	Early Meadow-rue	S5				6	3	N		X	X	X	L5	x			x											
Thuja occidentalis	Eastern White Cedar	S5				4	-3	N	S	X	X	X	L5										x					
Tilia americana	Basswood	S5				4	3	N		X	X	X	L5			x	x					x	x				x	x
Toxicodendron radicans	**Poison Ivy**	**S5**				**2**	**0**	**N**		**U**	**X**	**R**											**x**			**x**		
Toxicodendron radicans var. rydbergii	Western Poison Ivy	S5				2	0	N		X	X	X	L5	x		x						x	x				x	x
Tussilago farfara	Coltsfoot	SNA				0	3	I	S	X	X	X	L+					x				x				x		
Typha angustifolia	Narrow-leaved Cattail	SNA				0	-5	I	I	X	X	X	L+		x					x								
Typha latifolia	Broad-leaved Cattail	S5				1	-5	N	I	X	X	X	L4		x													
Typha x glauca	Blue Hybrid Cattail	SNA				0	-5	N	I	X	X	X	L+		x													
Ulmus americana	White Elm	S5				3	-3	N	S	X	X	X	L5	x	x		x	x				x	x	x		x		x	x
Uvularia grandiflora	Large-flowered Bellwort	S5				6	5	N		X	X	X	L3	x														
Verbena urticifolia	White Vervain	S5				4	0	N	S	X	X	X	L5									x					x	
Viburnum opulus var. opulus	Cranberry Viburnum	SNA				0	-3	I		X	X	X	L+			x						x	x				x		x
Vicia cracca	Tufted Vetch	SNA				0	5	I		X	X	X	L+			x					x	x	x				x		x
Vincetoxicum rossicum	European Swallowwort	SNA				0	5	I		X	X	X	L+			x		x			x	x	x		x		x		x
Viola sororia	Woolly Blue Violet	S5				4	0	N	S	X	X	X	L5									x							
Vitis riparia	Riverbank Grape	S5				0	0	N		X	X	X	L5	x		x		x				x	x	x			x	x	x

*** Bolded species are those that are rare (R, R1 – R3) on the (Varga et al. 2000) regional rarity lists.**

Natural Heritage Information Centre. 2018. Vascular Plant Species List (28 Jun 2018). Downloaded on November 15, 2018.

Varga, S., Leadbeater, D., Webber, J., Kaiser, J., Crins, B., Kamstra, J., Banville, D., Ashley, E., Miller, G., Kingsley, C., Jacobsen, C., Mewa, K., Tebby, L., Mosley, E., and E. Zajc. 2000. Distribution and Status of the Vascular Plants of the Greater Toronto Area. Ontario Ministry of Natural Resources Aurora District. 103 pp.

ESA Status

Species at Risk in Ontario list: The list of species that are classified as species at risk under the Endangered Species Act (2007).

EXT: Extinct – A species that no longer exists anywhere.

EXP: Extirpated – A species that no longer exists in the wild in Ontario but still occurs elsewhere.

END: Endangered – A species facing imminent extinction or extirpation in Ontario which is a candidate for regulation under Ontario's Endangered Species Act (ESA).

THR: Threatened – A species that is at risk of becoming endangered in Ontario if limiting factors are not reversed.

SC: Special Concern (formerly Vulnerable) – A species with characteristics that make it sensitive to human activities or natural events.

NAR: Not at Risk – A species that has been evaluated and found to be not at risk.

DD: Data Deficient (formerly Indeterminate) – A species for which there is insufficient information for a provincial status recommendation.

COSEWIC Status

Committee on the Status of Endangered Wildlife in Canada status: Species has been assessed by COSEWIC as having status, but status is not necessarily adopted on the official Schedule 1 to SARA.

EXT: Extinct – A species that no longer exists.

EXP:	Extirpated – A species no longer existing in the wild in Canada, but occurring elsewhere.
END:	Endangered – A species facing imminent extirpation or extinction.
THR:	Threatened – A species likely to become endangered if limiting factors are not reversed.
SC:	Special Concern (formerly vulnerable) – A species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.
NAR:	Not At Risk – A species that has been evaluated and found to be not at risk of extinction given the current circumstances.
DD:	Data Deficient (formerly Indeterminate) – Available information is insufficient to resolve a species' eligibility for assessment or to permit an assessment of the species' risk of extinction.

SARA Schedule 1 Status

Species at Risk Act Schedule 1 Status: Schedule 1 is the official list of species that are classified as extirpated, endangered, threatened, and of special concern. The Act establishes Schedule 1, as the official list of species at risk. It classifies those species as being either Extirpated, Endangered, Threatened, or a Special Concern. Once listed, the measures to protect and recover a listed species are implemented.

EXT:	Extinct – A species that no longer exists.
EXP:	Extirpated – A species that no longer exists in the wild in Canada but exists elsewhere in the wild.
END:	Endangered – A species that is facing imminent extirpation or extinction.
THR:	Threatened – A species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.
SC:	Special Concern – A species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.

Global Rank

GX	Presumed Extinct (species)/Eliminated (ecological communities and systems) — Species not located despite intensive searches and virtually no likelihood of rediscovery. Ecological community or system eliminated throughout its range, with no restoration potential.
GH	Possibly Extinct (species)/ Eliminated (ecological communities and systems) — Known from only historical occurrences but still some hope of rediscovery. There is evidence that the species may be extinct or the ecosystem may be eliminated throughout its range, but not enough to state this with certainty.
G1	Critically Imperiled—At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.
G2	Imperiled—At high risk of extinction or elimination due to very restricted range, very few populations, steep declines, or other factors.
G3	Vulnerable—At moderate risk of extinction or elimination due to a restricted range, relatively few populations, recent and widespread declines, or other factors.
G4	Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors.
G5	Secure—Common; widespread and abundant.

Variant Ranks

G#G#:	Range Rank – A numeric range rank (e.g., G2G3, G1G3) is used to indicate the range of uncertainty about the exact status of a taxon or ecosystem type. Ranges cannot skip more than two ranks (e.g., GU should be used rather than G1G4).
GU:	Unrankable – Currently unrankable due to lack of information or due to substantially conflicting information about status or trends. NOTE: Whenever possible (when the range of uncertainty is three consecutive ranks or less), a range rank (e.g., G2G3) should be used to delineate the limits (range) of uncertainty.
GNR:	Unranked – Global rank not yet assessed
GNA:	Not Applicable – A conservation status rank is not applicable because the species is not a suitable target for conservation activities.

Rank Qualifiers

?:	Inexact Numeric Rank – Denotes inexact numeric rank; this should not be used with any of the Variant Global Conservation Status Ranks or GX or GH.
Q:	Questionable taxonomy that may reduce conservation priority – Distinctiveness of this entity as a taxon or ecosystem type at the current level is questionable; resolution of this uncertainty may result in change from a species to a subspecies or hybrid, or inclusion of this taxon or type in another taxon or type, with the resulting taxon having a lower priority (numerically higher) conservation status rank. The “Q” modifier is only used at a global level and not at a national or subnational level.
C:	Captive or Cultivated Only – Taxon or ecosystem at present is presumed or possibly extinct or eliminated in the wild across their entire native range but is extant in cultivation, in captivity, as a naturalized population (or populations) outside their native range, or as a reintroduced population or ecosystem restoration, not yet established. The “C” modifier is only used at a global level and not at a national or subnational level. Possible ranks are GXC or GHC. This is equivalent to “Extinct” in the Wild (EW) in IUCN’s Red List terminology (IUCN 2001).

Subnational Rank

S-Rank: Provincial (or Subnational) ranks are used by the Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities. These ranks are not legal designations. Provincial ranks are assigned in a manner similar to that described for global ranks but consider only those factors within the political boundaries of Ontario.

S1:	Critically Imperiled – Critically imperiled in the nation or state/province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state/province.
S2:	Imperiled – Imperiled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.
S3:	Vulnerable – Vulnerable in the nation or state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
S4:	Apparently Secure – Uncommon but not rare; some cause for long-term concern due to declines or other factors.
S5:	Secure – Common, widespread, and abundant in the nation or state/province.

Appendix X - Botanical Inventory Plant List
Project Number, Project Name

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 or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).
SX:	Presumed Extirpated – Species or community is believed to be extirpated from the nation or state/province. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.
SH:	Possibly Extirpated (Historical) – Species or community occurred historically in the nation or state/province, and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20-40 years. A species or community could become NH or SH without such a 20-40 year delay if the only known occurrences in a nation or state/province were destroyed or if it had been extensively and unsuccessfully looked for. The NH or SH rank is reserved for species or communities for which some effort has been made to relocate occurrences, rather than simply using this status for all elements not known from verified extant occurrences.
SE:	Species is considered exotic in Ontario
SNR:	Unranked – Nation of state/province conservation status not yet assessed.
SU:	Unrankable – Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
SNA:	Not Applicable – A conservation status rank is not applicable because the species is not a suitable target for conservation activities.

Native?:

N:	Native to Ontario. Species does not have exotic status under NHIC database.
I:	Introduced to Ontario. Species has exotic status rank under NHIC database.

OWES Plant List

S:	Wetland Species
I:	Wetland Indicator

TRCA Flora Scores and Ranks (2023). Accessed February, 12, 2024

L1-L3	species of regional conservation concern
L4	species of conservation concern in urban area
L5	species not of conservation concern at this time
Lx	species is extirpated from TRCA
L+	introduced species, not native to TRCA
L+?	species is probably introduced
ns	criterion not scored
e	extirpated from site
cf	identification not certain
p	planted only
pr	regenerating but of planted origin
pn	both natural origin and planted

The Distribution and Status of the Vascular Plants of the Greater Toronto Area (Varga et. al. 2000).

Codes are defined as follows:

X:	Present
U:	Uncommon native species
R:	Rare native species
R#:	Number of stations for a rare native species
E:	Extirpated native species
+ or I:	Introduced species
X+:	Introduced in municipality
SR:	Sight record
LR:	Literature record

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix E

Breeding Bird Survey Summary Table

Breeding Bird Survey Summary Table

Common Name	Scientific Name	Provincial SRANK[1]	Provincial SARO (Endangered Species Act, 2007)[2]	Federal COSEWIC[3]	Federal SARA (Species at Risk Act)[3]	Federal SARA Schedule[4]	Provincial MNR Area Sensitive Species[5]	Habitat Unit Reference Where Breeding Evidence Recorded						Highest Number Recorded (All Habitat Units Combined)	Highest Recorded Breeding Evidence[6]
								BB1	BB2	BB3	BB4	BB5	BB6		
American Crow	*Corvus brachyrhynchos*	S5B							x		x		x	6	Possible, H
American Goldfinch	*Spinus tristis*	S5						x	x	x	x	x	x	8	Probable, T
American Redstart	*Setophaga ruticilla*	S5B					Yes			x	x			2	Possible, S
American Robin	*Turdus migratorius*	S5						x		x	x	x	x	7	Confirmed, NY
American Woodcock	*Scolopax minor*	S4B							x					1	Possible, H
Baltimore Oriole	*Icterus galbula*	S4B							x		x			2	Probable, A
Barn Swallow	*Hirundo rustica*	S4B	SC	SC	THR	1				x				1	Possible, S Vocalizing, but foraging over agricultural fields; no breeding habitat present.
Black-capped Chickadee	*Poecile atricapillus*	S5							x		x			2	Possible, S
Brown-headed Cowbird	*Molothrus ater*	S5						x	x			x		3	Probable, T
Common Grackle	*Quiscalus quiscula*	S5						x			x			3	Possible, S
Common Yellowthroat	*Geothlypis trichas*	S5B, S3N							x	x	x	x		4	Probable, T
Eastern Wood-pewee	*Contopus virens*	S4B	SC	SC	SC	1				x				1	Possible, S
Field Sparrow	*Spizella pusilla*	S4B, S3N							x					1	Possible, S
Gray Catbird	*Dumetella carolinensis*	S5B, S3N									x			1	Probable, T
Great Blue Heron	*Ardea herodias*	S4											x	1	Observed, X
Great Crested Flycatcher	*Myiarchus crinitus*	S5B								x				1	Possible, S
House Finch	*Haemorhous mexicanus*	SNA									x			1	Possible, S
House Wren	*Troglodytes aedon*	S5B									x	x		2	Probable, T
Indigo Bunting	*Passerina cyanea*	S5B							x	x	x	x		4	Possible, S
Killdeer	*Charadrius vociferus*	S4B						x	x		x		x	6	Probable, T
Mourning Dove	*Zenaida macroura*	S5											x	3	Possible, H
Northern Cardinal	*Cardinalis cardinalis*	S5						x	x					3	Probable, T
Pine Warbler	*Setophaga pinus*	S5B, S3N						x						1	Possible, S

Common Name	Scientific Name	Provincial SRANK[1]	Provincial SARO (Endangered Species Act, 2007)[2]	Federal COSEWIC[3]	Federal SARA (Species at Risk Act)[3]	Federal SARA Schedule[4]	Provincial MNR Area Sensitive Species[5]	Habitat Unit Reference Where Breeding Evidence Recorded						Highest Number Recorded (All Habitat Units Combined)	Highest Recorded Breeding Evidence[6]
								BB1	BB2	BB3	BB4	BB5	BB6		
Red-bellied Woodpecker	*Melanerpes carolinus*	S5								x				1	Possible, S
Red-eyed Vireo	*Vireo olivaceus*	S5B						x		x				4	Probable, T
Red-tailed Hawk	*Buteo jamaicensis*	S5							x					1	Possible, S
Red-winged Blackbird	*Agelaius phoeniceus*	S5						x		x	x	x	x	18	Probable, T
Rose-breasted Grosbeak	*Pheucticus ludovicianus*	S5B								x				1	Possible, S
Song Sparrow	*Melospiza melodia*	S5						x	x		x	x	x	6	Probable, T
Turkey Vulture	*Cathartes aura*	S5B, S3N								X				1	Observed, X
Willow Flycatcher	*Empidonax traillii*	S4B										x	x	2	Possible, S
Wood Thrush	*Hylocichla mustelina*	S4B	SC	THR	THR	1					x			1	Possible, S
Yellow Warbler	*Setophaga petechia*	S5B									x	x	x	3	Probable, T
TOTAL SPECIES	**33**														

[1]S-Ranks (provincial)
Provincial (or Subnational) ranks are used by the Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities. These ranks are not legal designations. Provincial ranks are assigned in a manner similar to that described for global ranks, but consider only those factors within the political boundaries of Ontario (Please refer to: Conservation Status Categories | NatureServe Explorer)

SX — Presumed Extirpated - Species or community is believed to be extirpated from the province. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.
SH — Possibly Extirpated (Historical) - Species or community occurred historically in the province, and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20–40 years. A species or community could become SH without such a 20–40-year delay if the only known occurrences in a province were destroyed or if it had been extensively and unsuccessfully looked for. The SH rank is reserved for species or communities for which some effort has been made to relocate occurrences, rather than simply using this status for all elements not known from verified extant occurrences.
S1 — Critically Imperiled - Critically imperiled in the province or state because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the province.
S2 — Imperiled - Imperiled in the province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the province.
S3 — Vulnerable - Vulnerable in the province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
S4 — Apparently Secure - Uncommon but not rare; some cause for long-term concern due to declines or other factors.
S5 — Secure - Common, widespread, and abundant in the province.
SNR — Unranked - Province conservation status not yet assessed.
SU — Unrankable - Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
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 or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).
S#? – Inexact or Uncertain - Denotes inexact or uncertain numeric rank.

Breeding Status Qualifiers
B – Breeding Conservation status refers to the breeding population of the species in the nation or state/province.
N – Nonbreeding Conservation status refers to the non-breeding population of the species in the province.
M – Migrant species occurring regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. Conservation status refers to the aggregating transient population of the species in the province.

[2]SARO *Endangered Species Act, 2007*
(provincial status from http://www.ontario.ca/environment-and-energy/how-species-risk-are-listed#section-3)
The provincial review process is implemented by the MNRF's Committee on the Status of Species at Risk in Ontario (COSSARO).

Extinct - A species that no longer exists anywhere.
Extirpated (EXT) - Lives somewhere in the world, and at one time lived in the wild in Ontario, but no longer lives in the wild in Ontario.
Endangered (END) - Lives in the wild in Ontario but is facing imminent extinction or extirpation.
Threatened (THR) - Lives in the wild in Ontario, is not endangered, but is likely to become endangered if steps are not taken to address factors threatening it.
Special concern (SC) - Lives in the wild in Ontario, is not endangered or threatened, but may become threatened or endangered due to a combination of biological characteristics and identified threats.
Not at Risk (NAR) - A species that has been evaluated and found to be not at risk.
Data Deficient (DD) - A species for which there is insufficient information for a provincial status recommendation.

[3]SARA (Federal *Species at Risk Act*) Status and Schedule (includes COSEWIC Status)
The Act establishes Schedule 1, as the official list of wildlife species at risk. It classifies those species as being either Extirpated, Endangered, Threatened, or Special Concern. Once listed, the measures to protect and recover a listed wildlife species are implemented.

Extinct - A wildlife species that no longer exists.
Extirpated (EXT) - A wildlife species that no longer exists in the wild in Canada but exists elsewhere.
Endangered (END) - A wildlife species facing imminent extirpation or extinction.
Threatened (THR) - A wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.
Special Concern (SC) - A wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats.
Data Deficient (DD) - A category that applies when the available information is insufficient (a) to resolve a wildlife species' eligibility for assessment or (b) to permit an assessment of the wildlife species' risk of extinction.
Not At Risk (NAR) - A wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances.

[4]**SARA Schedule**
Schedule 1: is the official list of species that are classified as extirpated, endangered, threatened, and of special concern.
Schedule 2: species listed in Schedule 2 are species that had been designated as endangered or threatened and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.
Schedule 3: species listed in Schedule 3 are species that had been designated as special concern and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.

The Act establishes Schedule 1 as the official list of wildlife species at risk. However, please note that while Schedule 1 lists species that are extirpated, endangered, threatened and of special concern, the prohibitions do not apply to species of special concern.

Species that were designated at risk by COSEWIC prior to October 1999 (Schedule 2 & 3) must be reassessed using revised criteria before they can be considered for addition to Schedule 1 of SARA. After they have been assessed, the Governor in Council may on the recommendation of the Minister, decide on whether or not they should be added to the List of Wildlife Species at Risk.

[5]Source: Ontario Ministry of Natural Resources. 2000. *Significant Wildlife Habitat Technical Guide* & Appendices.

[6]Ontario Breeding Bird Atlas - Breeding Evidence Codes

Observed	
X	Species observed during its breeding season, but NOT in suitable nesting habitat (no breeding evidence found). Note that this code is rarely used as birds tend to occupy nesting habitat during the breeding season. Do not use for species known to be migrants.

Possible	
H	Species observed in suitable nesting Habitat during its breeding season.
S	Singing male or adult producing other sounds associated with breeding (e.g., calls or drumming) in suitable nesting habitat during the species' breeding season.

Probable	
M	Multiple singing/calling/drumming individuals (7 or more) heard during one visit to a single square and in suitable nesting habitat during the species' breeding season. Use with caution to avoid counting migrants.
P	Pair observed in suitable nesting habitat during the species' breeding season.
T	Presumed Territory based on the presence of an adult bird (usually singing, but not necessarily so), in the same suitable nesting habitat patch on at least two visits, one week or more apart, during the species' breeding season. Use discretion when using this code. "T" is not to be used for colonial birds, or species that might forage or loaf a long distance from their nesting site (e.g., Turkey Vulture, and male waterfowl).
D	Courtship or displays involving a male and female (e.g., courtship feeding, copulation) or antagonistic behavior between two or more individuals (e.g., territorial disputes or chases), in suitable nesting habitat during the species' breeding season.
V	Bird Visiting a probable nest site in suitable nesting habitat during the species' breeding season.
A	Agitated behavior or alarm calls of an adult in suitable nesting habitat during the species' breeding season.
B	Brood patch or cloacal protuberance on an adult in suitable nesting habitat during the species' breeding season.
N	Nest-building by wrens or nest hole excavation by woodpeckers (both may build dummy or roosting nests, so nest-building alone is not enough to confirm breeding).

Confirmed	
NB	Nest building, including the carrying of nesting material, by all species except wrens and woodpeckers.
DD	Distraction Display, injury-feigning, or other displays attempting to draw attention away from a nest or young.
NU	Empty Nest Used or identifiable eggshells from earlier in the same nesting season.
FY	Recently Fledged Young (nidicolous species – whose young are raised in a nest) or downy young (nidifugous species – whose young leave the nest soon after hatching) incapable of sustained flight.
AE	Adult Entering, occupying, or leaving a nest site (visible or not) or whose behavior suggests the presence of an occupied nest.
FS	Adult carrying a Faecal Sac.
CF	Adult carrying food for young.
NE	Nest containing eggs.
NY	Nest with young (seen or heard).

BURNSIDE

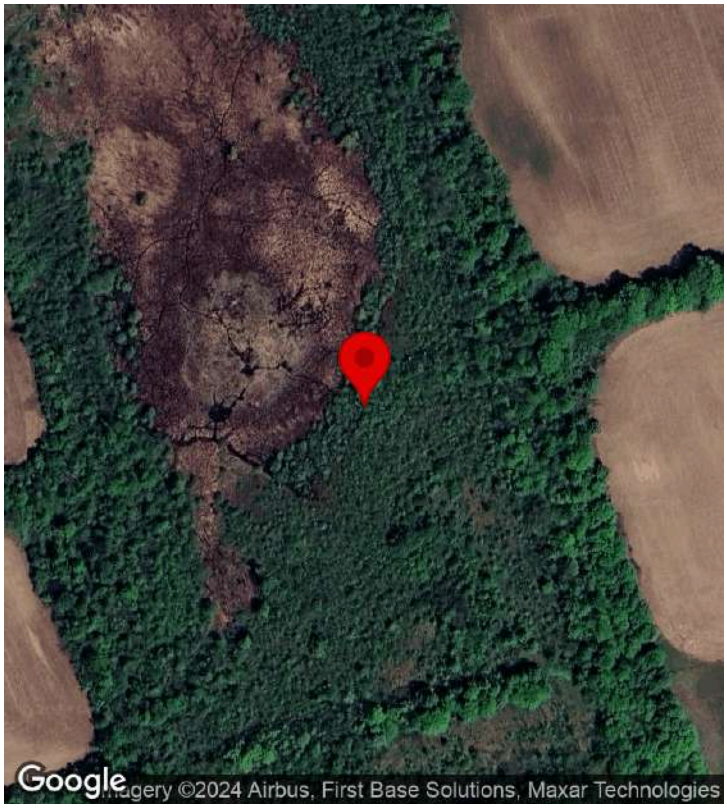
[THE DIFFERENCE IS OUR PEOPLE]

Appendix F

Amphibian Survey Summary Data Sheet

EPA Amphibian Survey

PEB175000.3200: AMP-001



LOCATION

43.905593, -79.122945

UTM Coordinates (WGS84)	17-650731m.E 4863100m.N
Project Number	PEB175000.3200
Habitat(s)	Marsh
Habitat Comments	Wetland G11
Habitat Photos	
Station Observation Direction	North West
Call Record Summary	1. 2024-4-18: Spring Peeper, 1. Calls not simultaneous, number of individuals can be accurately counted. [1], 2. 2024-4-18: Wood Frog, 1. Calls not simultaneous, number of individuals can be accurately counted. [1], 3. 2024-5-23: Gray Treefrog, 2. Some calls simultaneous, number of individuals can be reliably estimated. [10], 4. 2024-6-18: Green Frog, 3. Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated. [0]

WEATHER RECORDS (3 Items)

WX - PEB175000: 2024-4-18 22:15

Weather Summary	Observations on 2024-04-18 from 22:15 to 22:18 || Beaufort Sky Class: (2) Cloudy or Overcast || Beaufort Wind Class: (0) Calm, smoke rises vertically: 0-2km/hr || Temp. (Start - End of Survey): 10°C°C - Not-Recorded°C || Overnight Temp. (High - Low): 6°C - 3°C || Overnight Precip.: Non-Applicable || Observed Ground Conditions: Saturated || Other Comments: None

WX - PEB175000: 2024-5-23 21:18

Weather Summary	Observations on 2024-05-23 from 21:18 to 21:21 || Beaufort Sky Class: (0) Clear (no cloud cover) || Beaufort Wind Class: (0) Calm, smoke rises vertically: 0-2km/hr || Temp. (Start - End of Survey): 23°C°C - 23°C°C || Overnight Temp. (High - Low): 23°C - 13°C || Overnight Precip.: No || Observed Ground Conditions: Dry || Other Comments: None

WX - PEB175000: 2024-6-18 21:36

Weather Summary	Observations on 2024-06-18 from 21:36 to 23:00 || Beaufort Sky Class: (1) Partly Cloudy (scattered or broken or variable) || Beaufort Wind Class: (2) Slight breeze, wind felt on face; leaves rustle: 6-11km/hr || Temp. (Start - End of Survey): 25°C°C - 23°C°C || Overnight Temp. (High - Low): Not-Recorded - Not-Recorded || Overnight Precip.: Non-Applicable || Observed Ground Conditions: undefined || Other Comments: None

CALLS (4 Items)

1. 2024-4-18: Spring Peeper

Call Record Title	1. 2024-4-18: Spring Peeper
Call Record Title (2)	1. 2024-4-18: Spring Peeper, 1. Calls not simultaneous, number of individuals can be accurately counted. [1]
Observers	Matthew Moote, Christian Jordan
Start Time	22:15
End Time	22:18
Call Code	1. Calls not simultaneous, number of individuals can be accurately counted.
Call Count	1
S Rank	S5
Provincially Tracked	N
Time Stamp Call	April 18, 2024

2. 2024-4-18: Wood Frog

Call Record Title	2. 2024-4-18: Wood Frog
Call Record Title (2)	2. 2024-4-18: Wood Frog, 1. Calls not simultaneous, number of individuals can be accurately counted. [1]
Observers	Matthew Moote
Start Time	22:15
End Time	22:18
Call Code	1. Calls not simultaneous, number of individuals can be accurately counted.
Call Count	1
S Rank	S5
Provincially Tracked	N
Time Stamp Call	May 6, 2024

3. 2024-5-23: Gray Treefrog

Call Record Title	3. 2024-5-23: Gray Treefrog
Call Record Title (2)	3. 2024-5-23: Gray Treefrog, 2. Some calls simultaneous, number of individuals can be reliably estimated. [10]
Audio Recording	1 Audio File
Observers	Hannah Maciver, Christian Jordan
Start Time	21:18
End Time	21:21
Call Code	2. Some calls simultaneous, number of individuals can be reliably estimated.
Call Count	10
S Rank	S5
Provincially Tracked	N

Incidental Type(s)	Mammal
Incidental Notes	Eastern Cottontail - 1
Time Stamp Call	May 23, 2024

4. 2024-6-18: Green Frog

Call Record Title	4. 2024-6-18: Green Frog
Call Record Title (2)	4. 2024-6-18: Green Frog, 3. Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated. [0]
Observers	Matthew Moote; Christian Jordan
Start Time	21:38
End Time	21:41
Call Code	3. Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated.
Call Count	0
S Rank	S5
Provincially Tracked	N
Time Stamp Call	June 25, 2024

BURNSIDE

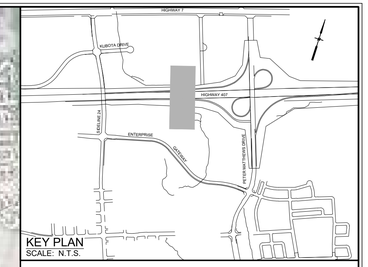
[THE DIFFERENCE IS OUR PEOPLE]

Appendix G

Detailed Design Drawings

© 2024 Microsoft Corporation © 2024 Maxar ©CNES (2024) Distribution Airbus DS © 2024 TomTom

REFER TO DWG C102



KEY PLAN
SCALE: N.T.S.

LEGEND

─●─ MH12A	PROPOSED SANITARY SEWER/MANHOLE
─ ─●─ ─ MH12A	FUTURE SANITARY SEWER/MANHOLE
─ - ─	PROPOSED WATERMAIN
▨	PROPOSED WATERMAIN INSTALLED IN STEEL CASING
▨	PROPOSED WATERMAIN INSTALLED HORIZONTAL DIRECTIONAL DRILLING
🟥	TREE CLEARING AREA

SITE PLAN
PREPARED BY: XXXXXXXXXXXXXX
DATE: XXXXXXXXXXXXXX

TOPOGRAPHIC & LEGAL
PREPARED BY:XXXXXXXXXXXXXX
DATE: XXXXXXXXXXXXXXXXX

BENCHMARK NOTES
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

1. This drawing is the exclusive property of R. J. Burnside & Associates Limited. The reproduction of any part without prior written consent of this office is strictly prohibited.
2. The contractor shall verify all dimensions, levels, and datums on site and report any discrepancies or omissions to this office prior to construction.
3. This drawing is to be read and understood in conjunction with all other plans and documents applicable to this project.

NOT FOR CONSTRUCTION

No.	Issue / Revision	Date	Auth.
1	ISSUED FOR SPA	xxxxxxxxxx	xx

R.J. Burnside & Associates Limited
1465 Pickering Parkway
Pickering, Ontario, L1V 7G7
Telephone: (905) 420-5777
Fax: (905) 420-5247
web www.rjburnside.com

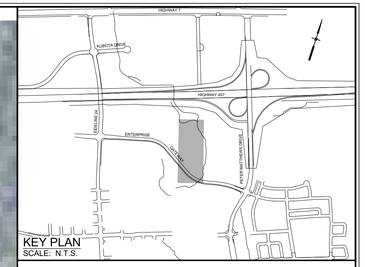
Client
MATTAMY (SEATON) LIMITED
6696 FINANCE DRIVE
MISSISSAUGA, ONTARIO
L5N 7J6

Project Name:
WHITEVALE SUBDIVISION - EXTERNAL WATERMAIN

Drawing Title
UNDERGROUND PLAN

Drawn X.X.	Checked X.X.	Designed X.X.	Checked X.X.	Date YY/MM/DD	Drawing No. C101
Project No. PEB17500.0004		Contract No. CONTRACT NO.		Revision No. 0	
Scale 1:500	0 5.0 10.0 20.0 30.0m				

File: u:\17500\3000\03-PRD_EXT WM\17500.0004 - EXT WATERMAIN PLAN.dwg Date Plotted: October 28, 2024 - 9:17 AM



KEY PLAN
SCALE: N.T.S.

LEGEND

—●— MH12A	PROPOSED SANITARY SEWER/MANHOLE
— —○— — MH12A	FUTURE SANITARY SEWER/MANHOLE
— – —	PROPOSED WATERMAIN
▨	PROPOSED WATERMAIN INSTALLED IN STEEL CASING
▨	PROPOSED WATERMAIN INSTALLED HORIZONTAL DIRECTIONAL DRILLING
🟥	TREE CLEARING AREA

SITE PLAN
PREPARED BY: XXXXXXXXXXXXXX
DATE: XXXXXXXXXXXXXX

TOPOGRAPHIC & LEGAL
PREPARED BY:XXXXXXXXXXXXXX
DATE: XXXXXXXXXXXXXXXXX

BENCHMARK NOTES
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

1. This drawing is the exclusive property of R. J. Burnside & Associates Limited. The reproduction of any part without prior written consent of this office is strictly prohibited.
2. The contractor shall verify all dimensions, levels, and datums on site and report any discrepancies or omissions to this office prior to construction.
3. This drawing is to be read and understood in conjunction with all other plans and documents applicable to this project.

NOT FOR CONSTRUCTION

No.	Issue / Revision	Date	Auth.
1	ISSUED FOR SPA	xxxxxxxxxx	xx

BURNSIDE

R.J. Burnside & Associates Limited
1465 Pickering Parkway
Pickering, Ontario, L1V 7G7
Telephone: (905) 420-5777
Fax: (905) 420-5247
web www.rjburnside.com

Client
MATTAMY (SEATON) LIMITED
6696 FINANCE DRIVE
MISSISSAUGA, ONTARIO
L5N 7J6

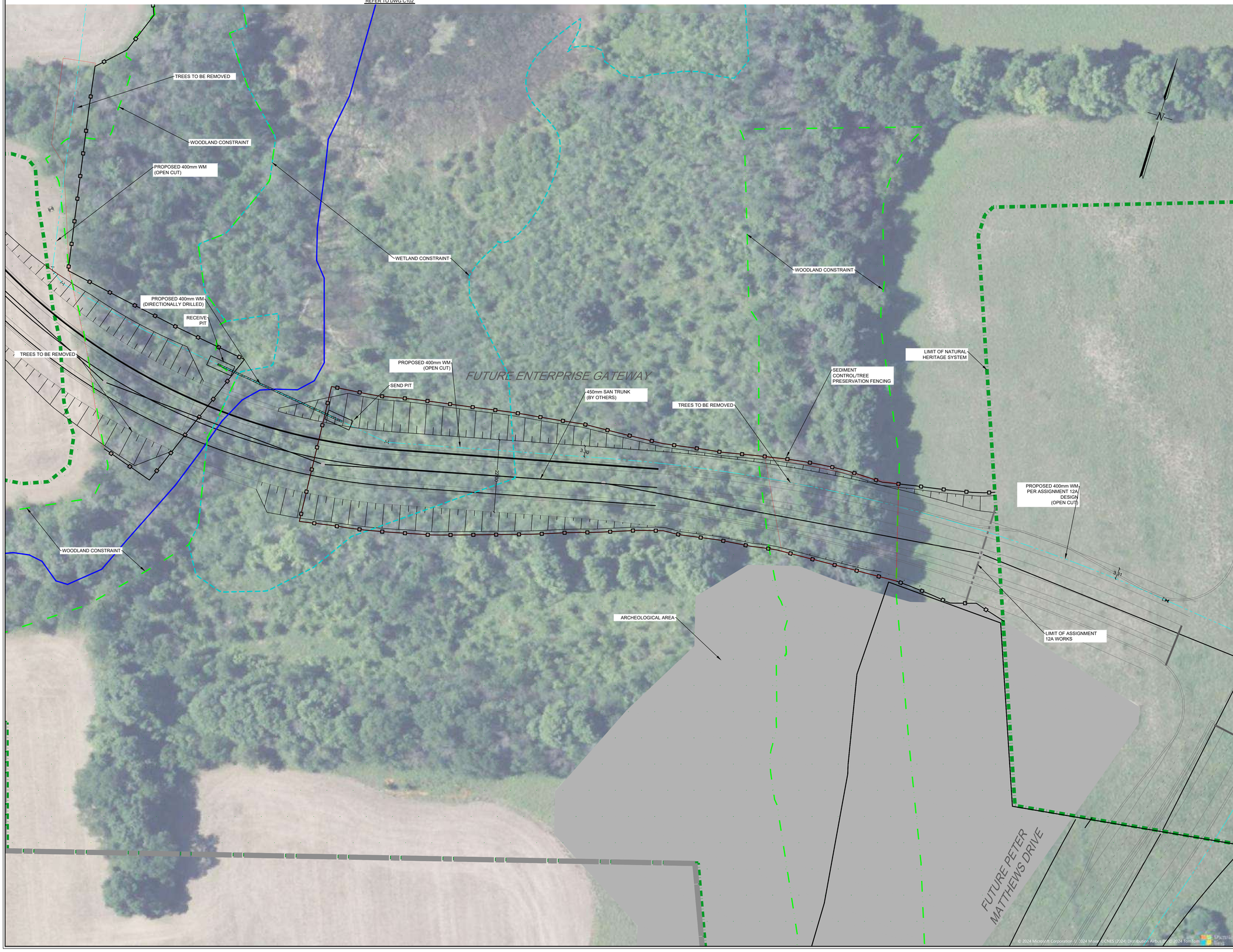
mattamyHOMES

Project Name:
WHITEVALE SUBDIVISION - EXTERNAL WATERMAIN

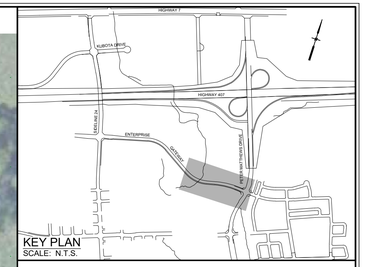
Drawing Title
UNDERGROUND PLAN

Drawn	Checked	Designed	Checked	Date	Drawing No.
X.X.	X.X.	X.X.	X.X.	YY/MM/DD	C102
Project No. PEB17500.0004		Contract No. CONTRACT NO.		Revision No. 0	
Scale 1:500	0 5.0 10.0 20.0 30.0m				

File: u:\17500\3000\03-PRD_EXT WM\17500.0004 - EXT WATERMAIN PLAN.dwg Date Plotted: October 28, 2024 - 9:17 AM



© 2024 Microsoft Corporation © 2024 Maxar ©CNES (2024) Distribution Airbus DS © 2024 TomTom



KEY PLAN
SCALE: N.T.S.

LEGEND

MH12A	PROPOSED SANITARY SEWER/MANHOLE
MH12A	FUTURE SANITARY SEWER/MANHOLE
— - - —	PROPOSED WATERMAIN
▨	PROPOSED WATERMAIN INSTALLED IN STEEL CASING
▨	PROPOSED WATERMAIN INSTALLED HORIZONTAL DIRECTIONAL DRILLING
🟥	TREE CLEARING AREA

SITE PLAN
PREPARED BY: XXXXXXXXXXXXXX
DATE: XXXXXXXXXXXXXX

TOPOGRAPHIC & LEGAL
PREPARED BY:XXXXXXXXXXXXXX
DATE: XXXXXXXXXXXXXXXXX

BENCHMARK NOTES
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

1. This drawing is the exclusive property of R. J. Burnside & Associates Limited. The reproduction of any part without prior written consent of this office is strictly prohibited.
2. The contractor shall verify all dimensions, levels, and datums on site and report any discrepancies or omissions to this office prior to construction.
3. This drawing is to be read and understood in conjunction with all other plans and documents applicable to this project.

NOT FOR CONSTRUCTION

No.	Issue / Revision	Date	Auth.
1	ISSUED FOR SPA	xxxxxxxxxx	xx

R.J. Burnside & Associates Limited
1465 Pickering Parkway
Pickering, Ontario, L1V 7G7
Telephone: (905) 420-5777
Fax: (905) 420-5247
web www.rjburnside.com

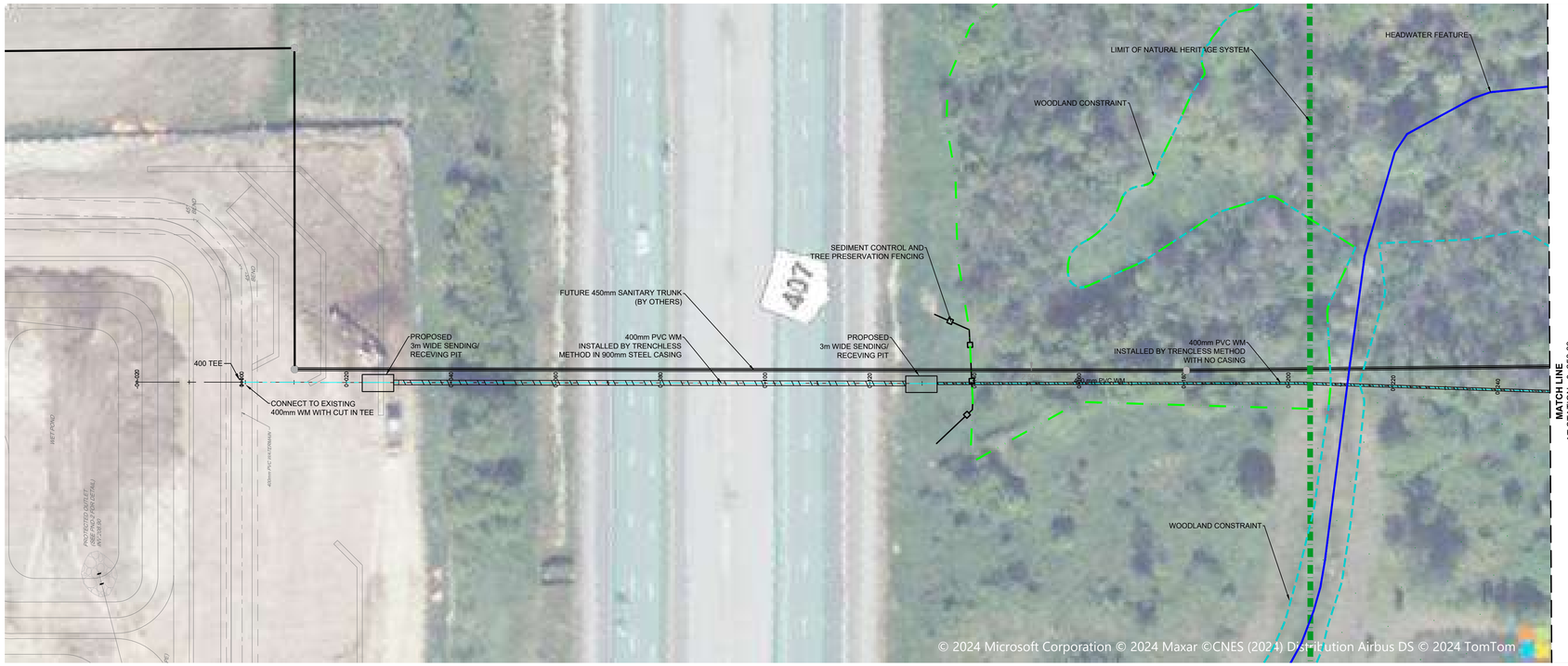
Client
MATTAMY (SEATON) LIMITED
6696 FINANCE DRIVE
MISSISSAUGA, ONTARIO
L5N 7J6

Project Name:
WHITEVALE SUBDIVISION - EXTERNAL WATERMAIN

Drawing Title
UNDERGROUND PLAN

Drawn X.X.	Checked X.X.	Designed X.X.	Checked X.X.	Date YY/MM/DD	Drawing No. **C103**
Project No. PEB17500.0004		Contract No. CONTRACT NO.		Revision No. 0	
Scale 1:500	0 5.0 10.0 20.0 30.0m				

File: u:\175000\3000\03-PRD_EXT WM\17500.0004 - EXT WATERMAIN PLAN.dwg Date Plotted: October 28, 2024 - 9:17 AM



KEY PLAN
SCALE: N.T.S.

LEGEND

—●— MH12A	PROPOSED SANITARY SEWER/MANHOLE
— —○— MH12A	FUTURE SANITARY SEWER/MANHOLE
— - —	PROPOSED WATERMAIN
▨	PROPOSED WATERMAIN INSTALLED IN STEEL CASING
▨	PROPOSED WATERMAIN INSTALLED HORIZONTAL DIRECTIONAL DRILLING
🟥	TREE CLEARING AREA

SITE PLAN
PREPARED BY: XXXXXXXXXXXXXX
DATE: XXXXXXXXXXXXXX

TOPOGRAPHIC & LEGAL
PREPARED BY:XXXXXXXXXXXXXX
DATE: XXXXXXXXXXXXXXXXX

BENCHMARK NOTES
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

1. This drawing is the exclusive property of R. J. Burnside & Associates Limited. The reproduction of any part without prior written consent of this office is strictly prohibited.
2. The contractor shall verify all dimensions, levels, and datums on site and report any discrepancies or omissions to this office prior to construction.
3. This drawing is to be read and understood in conjunction with all other plans and documents applicable to this project.

NOT FOR CONSTRUCTION

No.	Issue / Revision	Date	Auth.
1	ISSUED FOR SPA	xxxxxxxxxx	xx

R.J. Burnside & Associates Limited
1465 Pickering Parkway
Pickering, Ontario, L1V 7G7
Telephone: (905) 420-5777
Fax: (905) 420-5247
web www.rjburnside.com

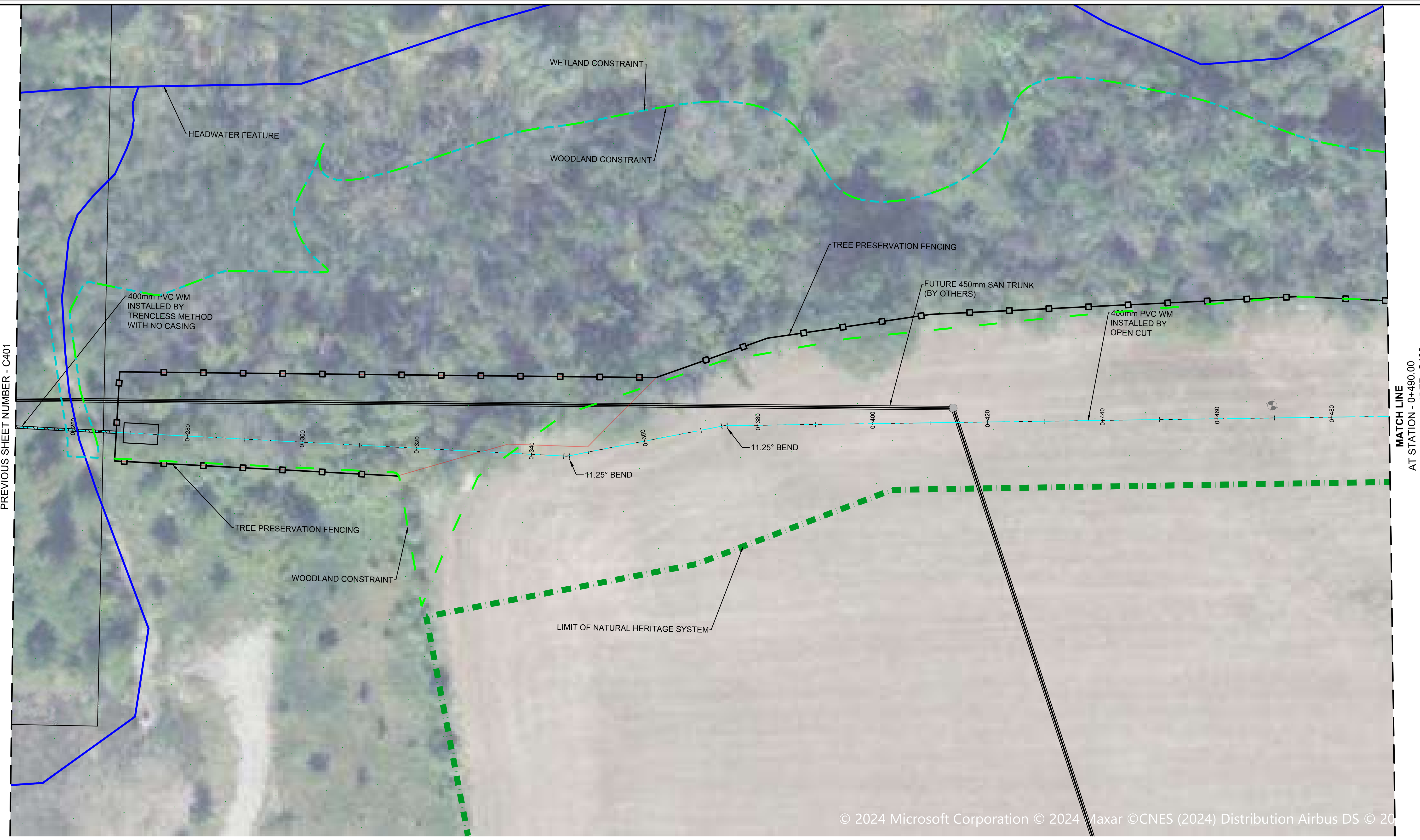
Client
MATTAMY (SEATON) LIMITED
6696 FINANCE DRIVE
MISSISSAUGA, ONTARIO
L5N 7J6

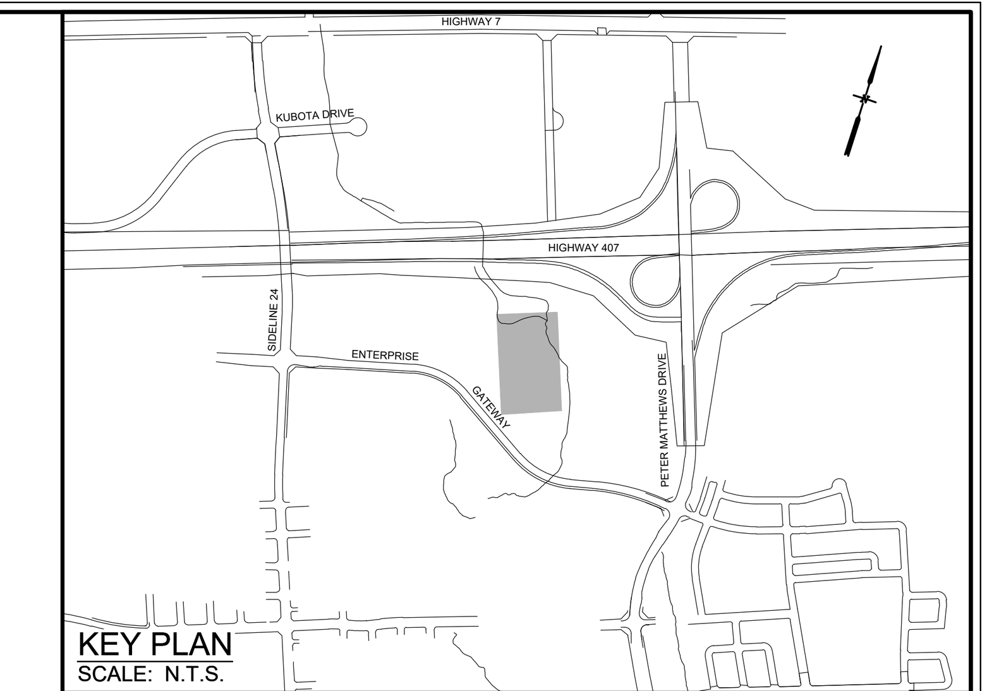
Project Name:
WHITEVALE SUBDIVISION - EXTERNAL WATERMAIN

Drawing Title
PLAN AND PROFILE

Drawn	Checked	Designed	Checked	Date	Drawing No.
X.X.	X.X.	X.X.	X.X.	YY/MM/DD	C401
Project No. PEB17500.0004		Contract No. CONTRACT NO.		Revision No. 0	
Scale H 1:500 V 1:100	0 5.0 10.0 20.0 30.0m				

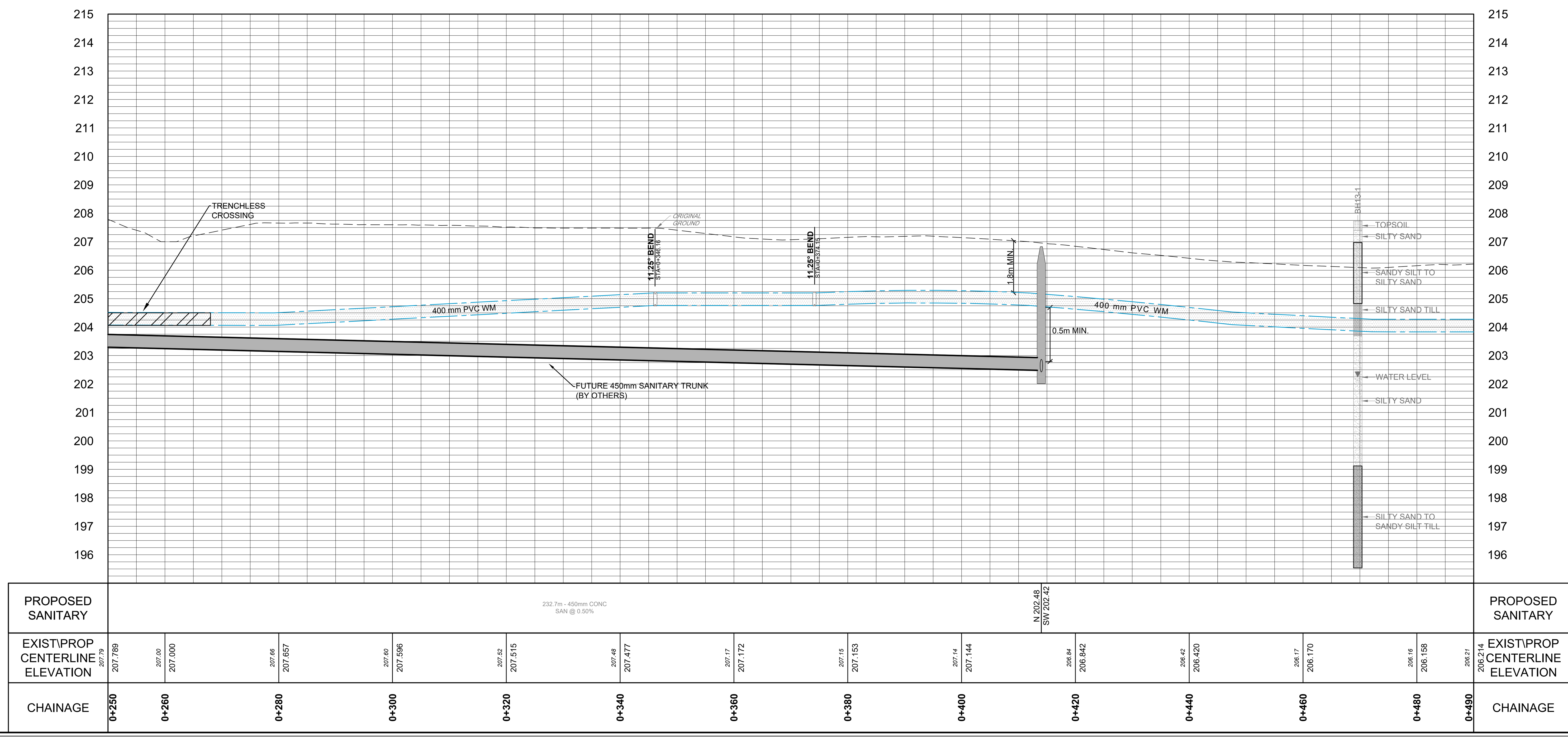
File: u:\175000\3000\03-PRD_EXT WM\17500.0004 - PP - EXT WATR CONN.dwg Date Plotted: October 28, 2024 - 9:19 AM





LEGEND

- MH12A — PROPOSED SANITARY SEWER/MANHOLE
- MH124 — FUTURE SANITARY SEWER/MANHOLE
- PROPOSED WATERMAIN
- PROPOSED WATERMAIN INSTALLED IN STEEL CASING
- PROPOSED WATERMAIN INSTALLED HORIZONTAL DIRECTIONAL DRILLING
- TREE CLEARING AREA



SITE PLAN
PREPARED BY: XXXXXXXXXXXXXX
DATE: XXXXXXXXXXXXXX

TOPOGRAPHIC & LEGAL
PREPARED BY:XXXXXXXXXXXXXX
DATE: XXXXXXXXXXXXXXXX

BENCHMARK NOTES
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

1. This drawing is the exclusive property of R. J. Burnside & Associates Limited. The reproduction of any part without prior written consent of this office is strictly prohibited.
2. The contractor shall verify all dimensions, levels, and datums on site and report any discrepancies or omissions to this office prior to construction.
3. This drawing is to be read and understood in conjunction with all other plans and documents applicable to this project.

NOT FOR CONSTRUCTION

No.	Issue / Revision	Date	Auth.
1	ISSUED FOR SPA	xxxxxxxxxx	xx

BURNSIDE
R.J. Burnside & Associates Limited
1465 Pickering Parkway
Pickering, Ontario, L1V 7G7
Telephone: (905) 420-5777
Fax: (905) 420-5247
web www.rjburnside.com

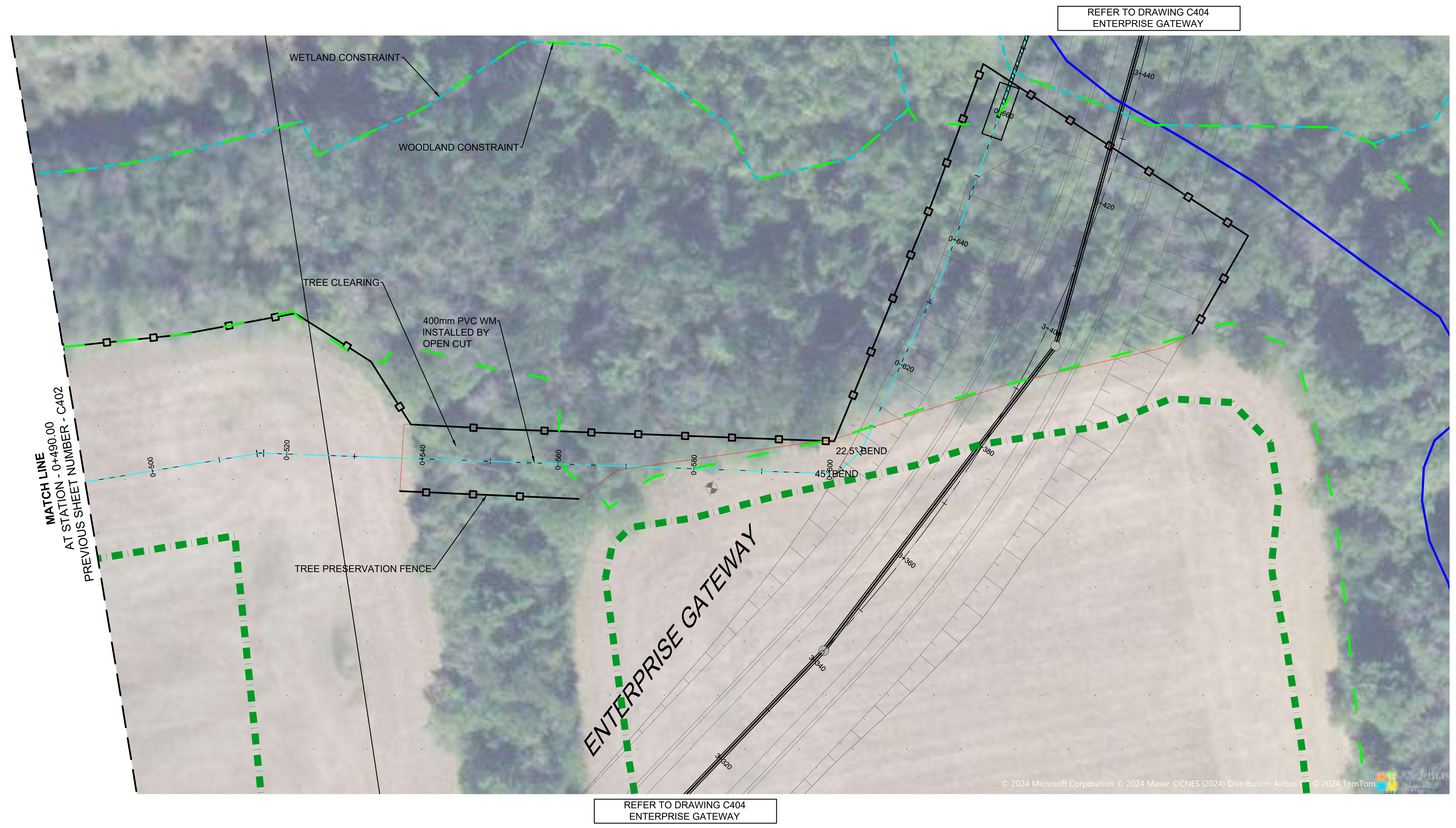
Client
MATTAMY (SEATON) LIMITED
6696 FINANCE DRIVE
MISSISSAUGA, ONTARIO
L5N 7J6

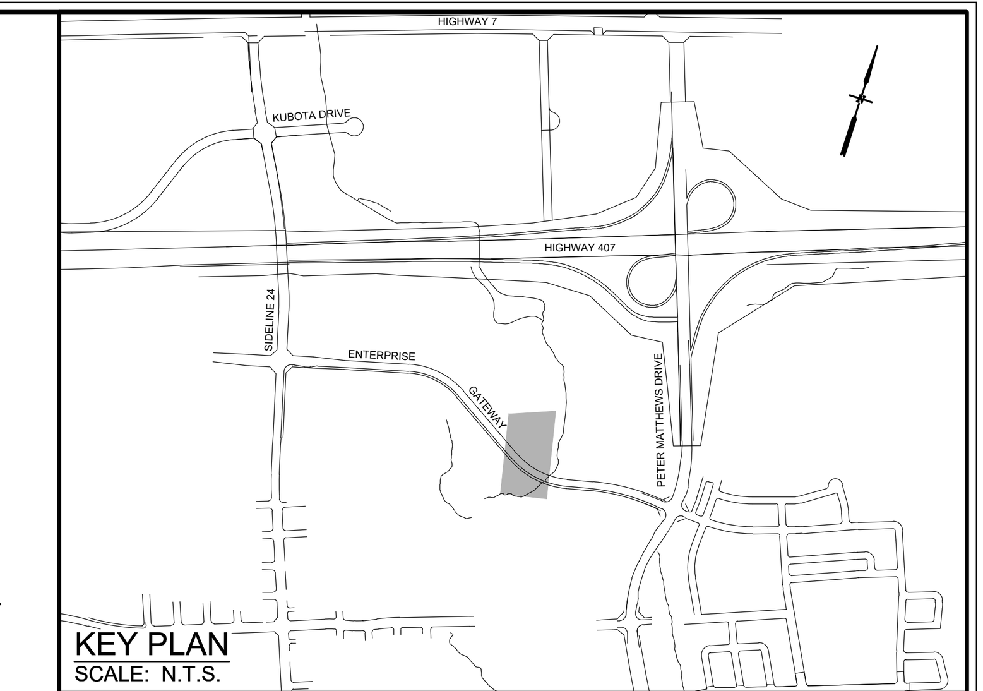
Project Name:
WHITEVALE SUBDIVISION - EXTERNAL WATERMAIN

Drawing Title
PLAN AND PROFILE

Drawn	Checked	Designed	Checked	Date	Drawing No.
X.X.	X.X.	X.X.	X.X.	YY/MM/DD	C402
Project No. PEB17500.0004		Contract No. CONTRACT NO.		Revision No. 0	
Scale H 1:500 V 1:100					

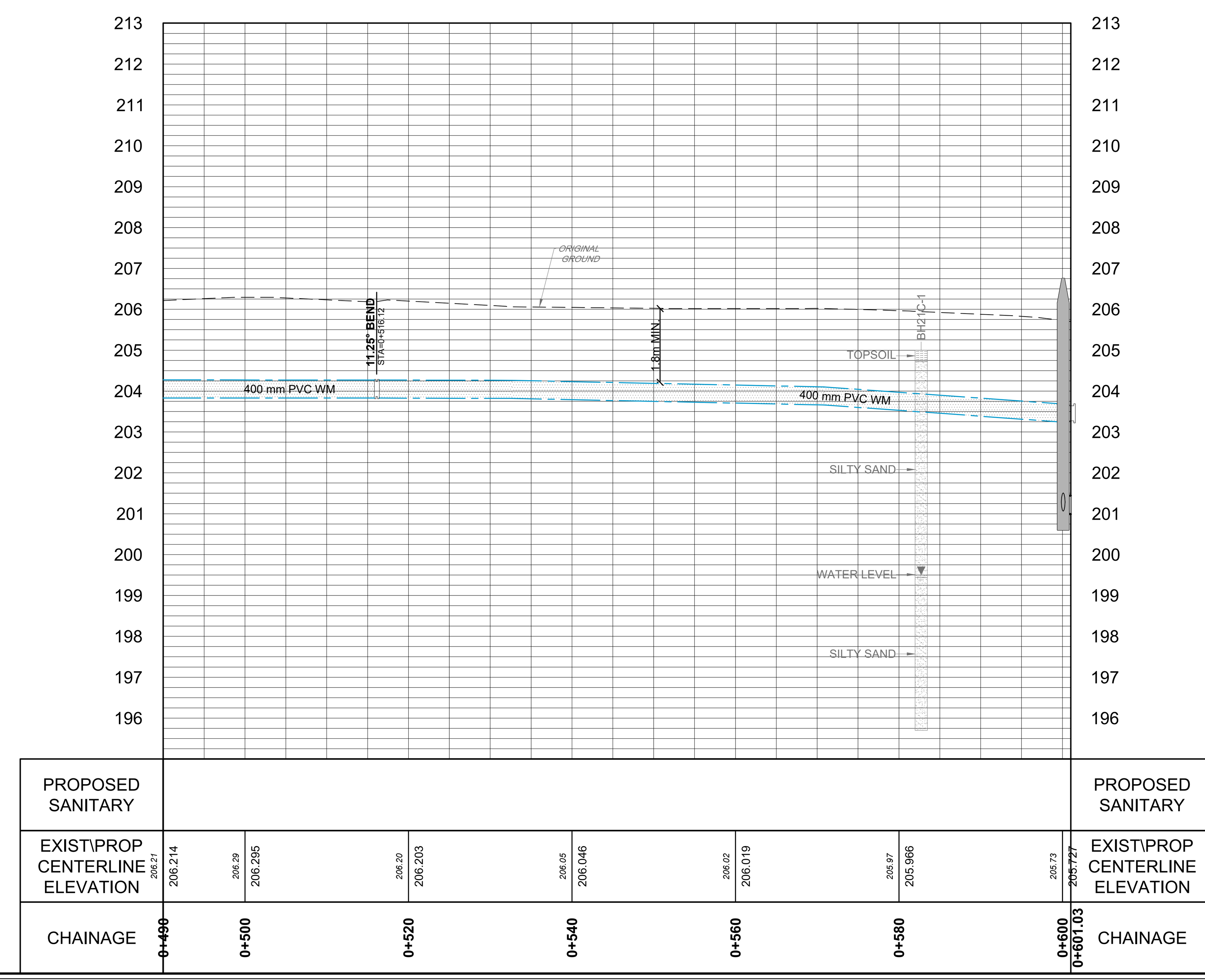
File: u:\175000\3000\03-PRD_EXT WM\17500.0004 - PP - EXT WATR CONN.dwg Date Plotted: October 28, 2024 - 9:19 AM





LEGEND

- PROPOSED SANITARY SEWER/MANHOLE
- FUTURE SANITARY SEWER/MANHOLE
- PROPOSED WATERMAIN
- PROPOSED WATERMAIN INSTALLED IN STEEL CASING
- PROPOSED WATERMAIN INSTALLED HORIZONTAL DIRECTIONAL DRILLING
- TREE CLEARING AREA



SITE PLAN
PREPARED BY: XXXXXXXXXXXXXX
DATE: XXXXXXXXXXXXXX

TOPOGRAPHIC & LEGAL
PREPARED BY:XXXXXXXXXXXXXX
DATE: XXXXXXXXXXXXXXXX

BENCHMARK NOTES
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

1. This drawing is the exclusive property of R. J. Burnside & Associates Limited. The reproduction of any part without prior written consent of this office is strictly prohibited.
2. The contractor shall verify all dimensions, levels, and datums on site and report any discrepancies or omissions to this office prior to construction.
3. This drawing is to be read and understood in conjunction with all other plans and documents applicable to this project.

NOT FOR CONSTRUCTION

No.	Issue / Revision	Date	Auth.
1	ISSUED FOR SPA	xxxxxxxxxx	xx

BURNSIDE
R.J. Burnside & Associates Limited
1465 Pickering Parkway
Pickering, Ontario, L1V 7G7
Telephone: (905) 420-5777
Fax: (905) 420-5247
web www.rjburnside.com

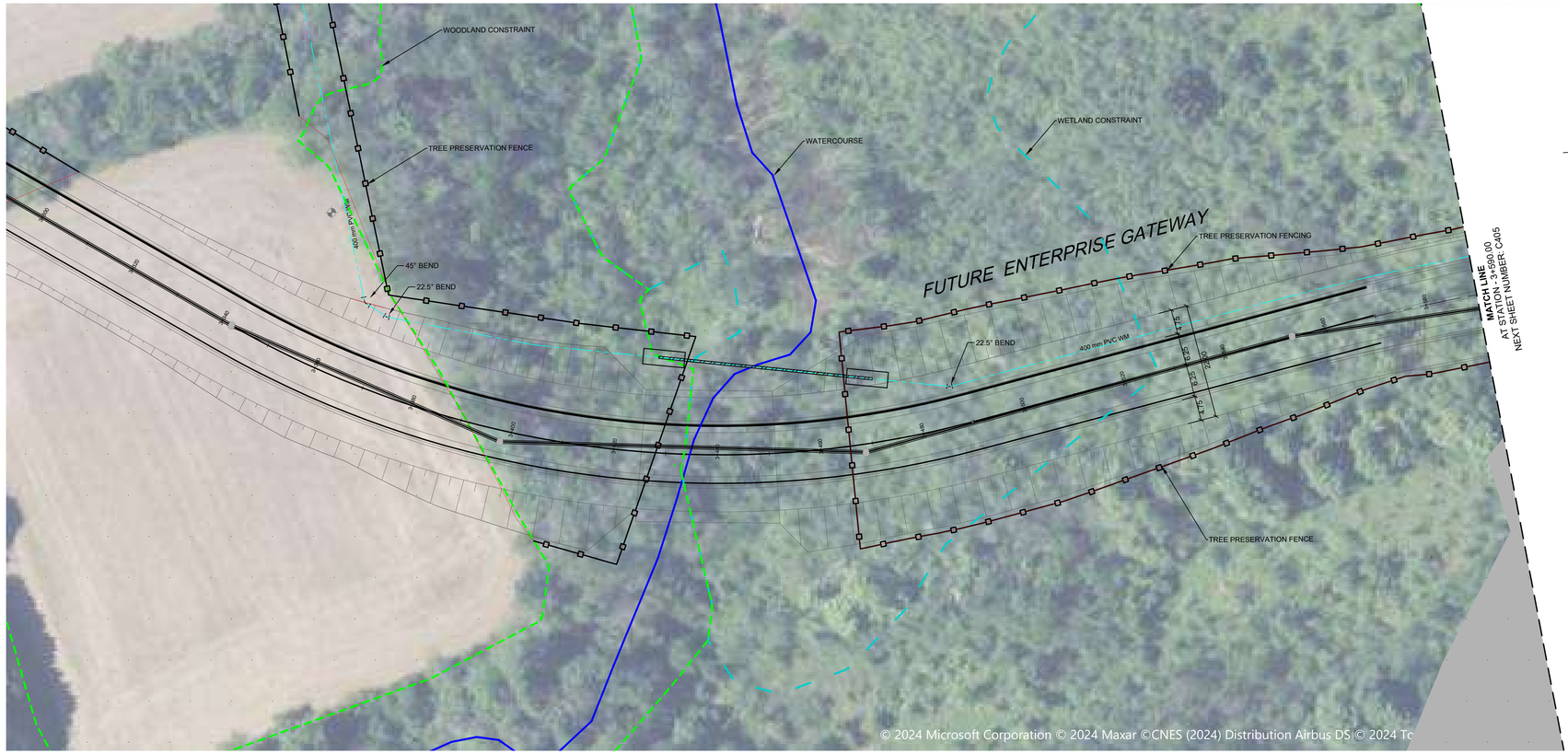
Client
MATTAMY (SEATON) LIMITED
6696 FINANCE DRIVE
MISSISSAUGA, ONTARIO
L5N 7J6

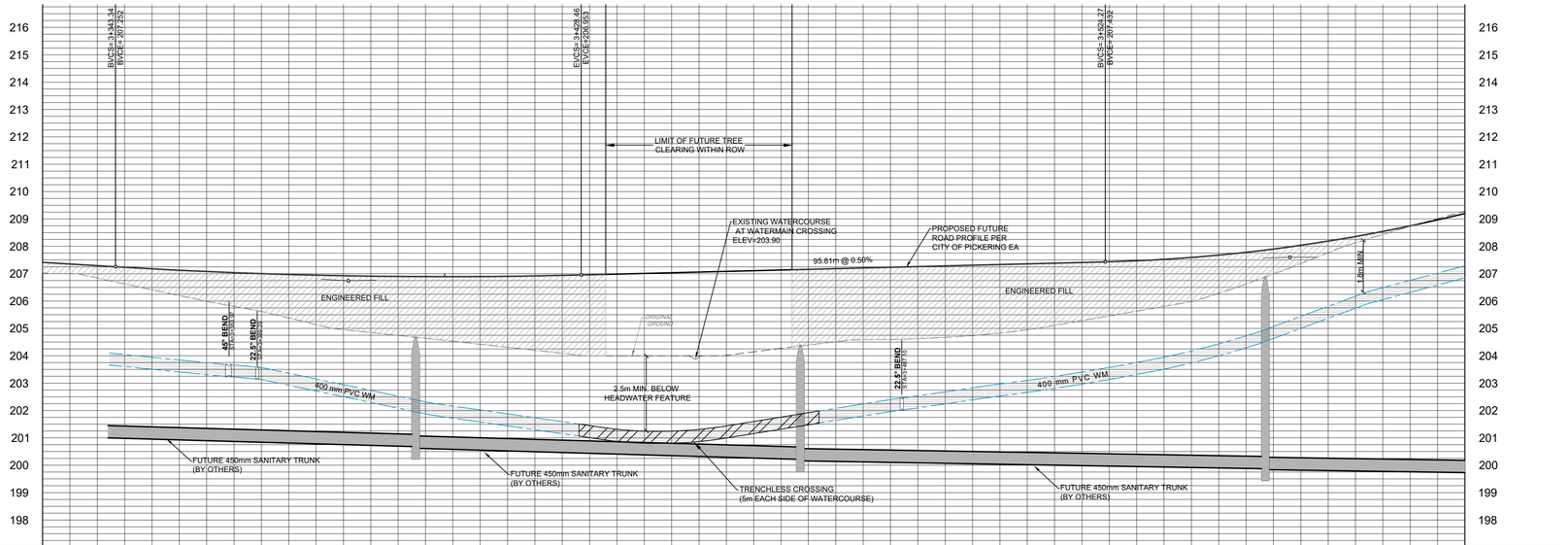
mattamyHOMES

Project Name:
WHITEVALE SUBDIVISION - EXTERNAL WATERMAIN

Drawing Title
PLAN AND PROFILE

Drawn	Checked	Designed	Checked	Date	Drawing No.
X.X.	X.X.	X.X.	X.X.	YY/MM/DD	C403
Project No. PEB17500.0004		Contract No. CONTRACT NO.		Revision No. 0	
Scale 1:500		0 5.0 10.0 20.0 30.0m			





REFER TO DRAWING C403
EXTERNAL WATERMAIN CONNECTION

KEY PLAN
SCALE: N.T.S.

LEGEND

MH12A	PROPOSED SANITARY SEWER/MANHOLE
MH12A	FUTURE SANITARY SEWER/MANHOLE
— - - —	PROPOSED WATERMAIN
▨	PROPOSED WATERMAIN INSTALLED IN STEEL CASING
▨	PROPOSED WATERMAIN INSTALLED HORIZONTAL DIRECTIONAL DRILLING
🟥	TREE CLEARING AREA

SITE PLAN
PREPARED BY: XXXXXXXXXXXXXX
DATE: XXXXXXXXXXXXXX

TOPOGRAPHIC & LEGAL
PREPARED BY:XXXXXXXXXXXXXX
DATE: XXXXXXXXXXXXXXXXX

BENCHMARK NOTES
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

1. This drawing is the exclusive property of R. J. Burnside & Associates Limited. The reproduction of any part without prior written consent of this office is strictly prohibited.
2. The contractor shall verify all dimensions, levels, and datums on site and report any discrepancies or omissions to this office prior to construction.
3. This drawing is to be read and understood in conjunction with all other plans and documents applicable to this project.

NOT FOR CONSTRUCTION

No.	Issue / Revision	Date	Auth.
1	ISSUED FOR SPA	xxxxxxxxxx	xx

R.J. Burnside & Associates Limited
1465 Pickering Parkway
Pickering, Ontario, L1V 7G7
Telephone: (905) 420-5777
Fax: (905) 420-5247
web www.rjburnside.com

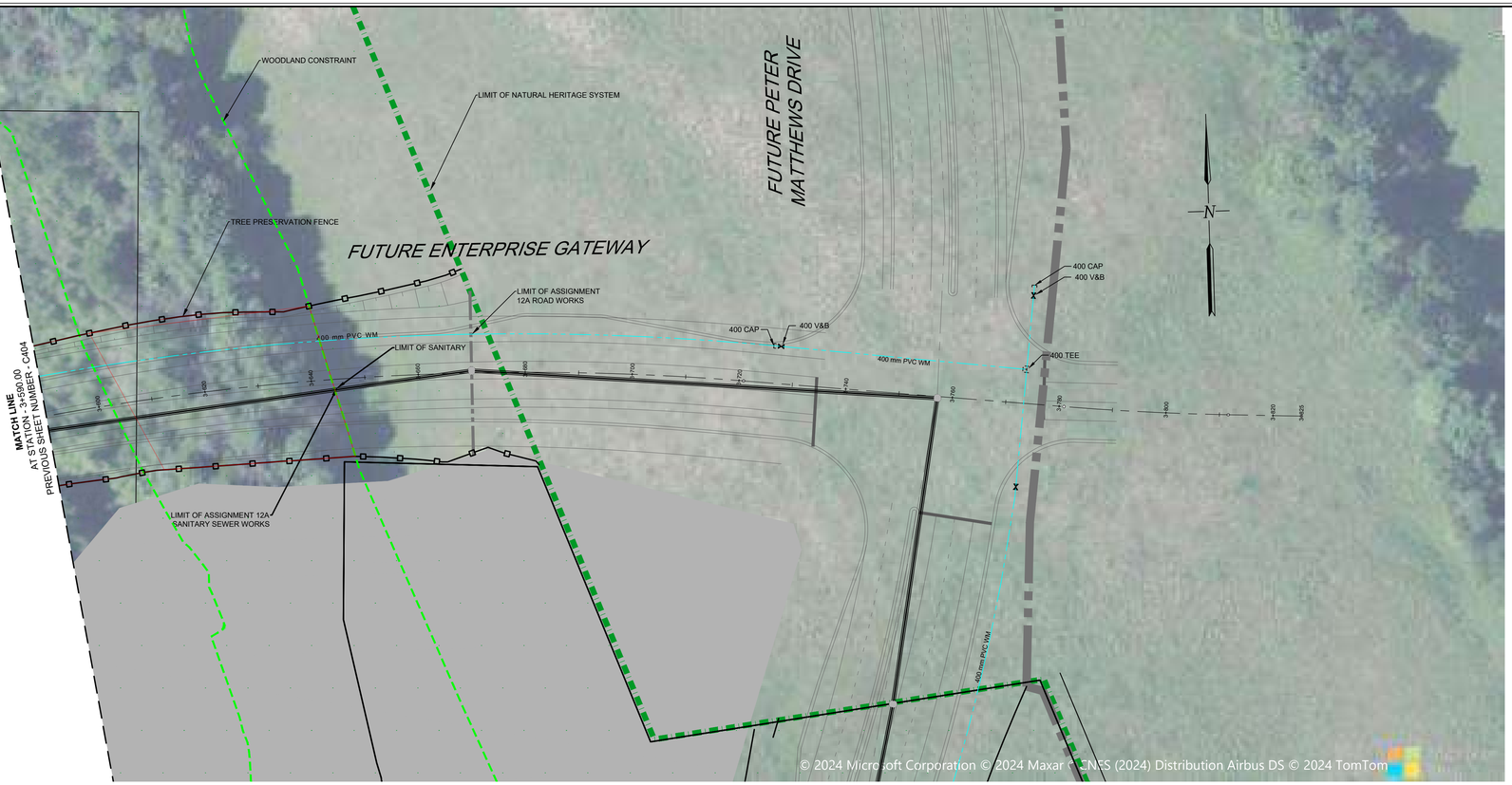
Client
MATTAMY (SEATON) LIMITED
6696 FINANCE DRIVE
MISSISSAUGA, ONTARIO
L5N 7J6

Project Name:
WHITEVALE SUBDIVISION - EXTERNAL WATERMAIN

Drawing Title
PLAN AND PROFILE

Drawn	Checked	Designed	Checked	Date	Drawing No.
X.X.	X.X.	X.X.	X.X.	YY/MM/DD	C404
Project No. PEB17500.0004		Contract No. CONTRACT NO.		Revision No. 0	
Scale H 1:500 V 1:100		0 5.0 10.0 20.0 30.0m			

File: u:\175000\3000\03-PRD_EXT WM\17500.0004 - PP - S EMP COLL.dwg Date Plotted: October 28, 2024 - 9:21 AM



CHAINAGE	3+590	3+600	3+620	3+640	3+660	3+680	3+700	3+720	3+740	3+760	3+780
PROPOSED SANITARY	116.3m - 450mm CONC SAN @ 0.30%					E 199.44 W 199.49 87.2m - 450mm CONC SAN @ 0.50%				S 198.92 W 199.00	
EXIST\PROP CENTERLINE ELEVATION	209.20 209.284	209.69 209.828	210.48 210.396	210.96 211.209	211.13 212.351	210.99 212.978	210.55 212.996	210.02 212.469	209.67 211.793	209.77 211.376	211.000

KEY PLAN
SCALE: N.T.S.

LEGEND

MH12A	PROPOSED SANITARY SEWER/MANHOLE
MH12A	FUTURE SANITARY SEWER/MANHOLE
— - —	PROPOSED WATERMAIN
▨	PROPOSED WATERMAIN INSTALLED IN STEEL CASING
▨	PROPOSED WATERMAIN INSTALLED HORIZONTAL DIRECTIONAL DRILLING
🟥	TREE CLEARING AREA

SITE PLAN
PREPARED BY: XXXXXXXXXXXXXX
DATE: XXXXXXXXXXXXXX

TOPOGRAPHIC & LEGAL
PREPARED BY:XXXXXXXXXXXXXX
DATE: XXXXXXXXXXXXXXXXX

BENCHMARK NOTES
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

1. This drawing is the exclusive property of R. J. Burnside & Associates Limited. The reproduction of any part without prior written consent of this office is strictly prohibited.
2. The contractor shall verify all dimensions, levels, and datums on site and report any discrepancies or omissions to this office prior to construction.
3. This drawing is to be read and understood in conjunction with all other plans and documents applicable to this project.

NOT FOR CONSTRUCTION

No.	Issue / Revision	Date	Auth.
1	ISSUED FOR SPA	xxxxxxxxxx	xx

R.J. Burnside & Associates Limited
1465 Pickering Parkway
Pickering, Ontario, L1V 7G7
Telephone: (905) 420-5777
Fax: (905) 420-5247
web www.rjburnside.com

Client
MATTAMY (SEATON) LIMITED
6696 FINANCE DRIVE
MISSISSAUGA, ONTARIO
L5N 7J6

Project Name:
WHITEVALE SUBDIVISION - EXTERNAL WATERMAIN

Drawing Title
PLAN AND PROFILE

Drawn	Checked	Designed	Checked	Date	Drawing No.
X.X.	X.X.	X.X.	X.X.	YY/MM/DD	**C405**
Project No. PEB17500.0004		Contract No. CONTRACT NO.		Revision No. 0	
Scale H 1:500 V 1:100		0 5.0 10.0 20.0 30.0m			

File: u:\175000\3000\03-PRD_EXT WM\17500.0004 - PP - S EMP COLL.dwg Date Plotted: October 28, 2024 - 9:21 AM

R.J. Burnside & Associates Limited