Environmental Impact Study

1009 Tweddle Road

Prepared for:
Trim Road I LP
7 de Tellier
Gatineau, Québec
J8T 8C2

Prepared by:
Bowfin Environmental Consulting Inc.
168 Montreal Road
Cornwall, ON
K6H 1B3

March 2022

List of Acronyms and Definitions

ABBO - Atlas of Breeding Birds of Ontario
CC - Co-Efficient of Conservation
COSEWIC - Committee on the Status of Endangered Wildlife in Canada
DBH - Diameter at breast height
EIS – Environmental Impact Statement
ELC - Ecological Land Classification
ESA - *Endangered Species Act* (Provincial)
LIO - Land Information Ontario
MBCA - *Migratory Bird Convention Act* (Federal)
MECP - Ministry of Environment, Conservation and Parks
MNRF - Ministry of Natural Resources and Forestry
NHIC – Natural Heritage Information Centre
NHRM - Natural Heritage Reference Manual
OMNR/MNRF - Ontario Ministry of Natural Resources (old name)
-Ministry of Natural Resources and Forestry (new name)
OWES - Ontario Wetland Evaluation System
PSW - Provincially Significant Wetlands
RVCA – Rideau Valley Conservation Authority
SAR - Species at Risk (in this report they refer to species that are provincially or federally listed as endangered or threatened and receive protection under ESA or SARA)
SARA - *Species at Risk Act* (Federal)
SARO - Species at Risk in Ontario
SWHTG - Significant Wildlife Habitat Technical Guide
TCR – Tree Conservation Report

SRANK DEFINITIONS

S1 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 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 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.

? Inexact Numeric Rank—Denotes inexact numeric rank

SNA Not Applicable, A conservation status rank is not applicable because the species is not a suitable target for conservation activities.

S#B Breeding

S#N Non-Breeding

SARA STATUS DEFINITIONS

END Endangered: a wildlife species facing imminent extirpation or extinction.

THR Threatened: a wildlife 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 wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats.

SARO STATUS DEFINITIONS

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

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

SC Special concern: A species with characteristics that make it sensitive to human activities or natural events.

Coefficient of Conservatism Ranking Criteria

0 Obligate to ruderal areas.

1 Occurs more frequently in ruderal areas than natural areas.

2 Facultative to ruderal and natural areas.

3 Occurs less frequent in ruderal areas than natural areas.

4 Occurs much more frequently in natural areas than ruderal areas.

5 Obligate to natural areas (quality of area is low).

6 Weak affinity to high-quality natural areas.

7 Moderate affinity to high-quality natural areas.

8 High affinity to high-quality natural areas.

9 Very high affinity to high-quality natural areas.

10 Obligate to high-quality natural areas.

Table of Contents

List of Figures

List of Tables

List of Photographs

1.0 INTRODUCTION

Trim Road I LP, here after referred to as the proponent, is proposing to develop the 1009 Tweddle Road property, situated on the northeast corner of the Tweddle[1] Road and Jeanne d'Arc Boulevard North intersection (Figure 1 and Figure 2). An initial Environmental Impact Statement was completed by WSP for Grandmaître (previous landowners) in February 2017 and was submitted for this proposal during the pre-consultation. The comments from the City were than an updated Environmental Impact Study (EIS) was required. The proponent retained Bowfin Environmental Consulting (Bowfin) to complete the natural heritage assessment work.

The entire property is 3.3 ha of which 1.7 ha is the Ottawa River and/or is designated as a Provincially Significant Wetland (PSW). The 1.7 ha portion will not be disturbed by the proposed development. The bulk of the remaining property consists of disturbed areas (fill) though there is a wooded area along the east portion of the site and trees along the roads (Figure 2).

It is noted that the work completed for this project began under the 2003 Official Plan as amended (OP). That is still the OP that is in effect, however Council in November 2021 approved a new OP to replace the 2003 OP. The new OP is only awaiting the province's approval. As such, this EIS has been updated to the November 2021 version and supporting mapping from the 2003 OP is found in the appendices.

As per the 2021 OP, an EIS is required to determine if significant natural features have been designated in or adjacent to the site followed by an assessment of the potential impacts to any identified natural environment from the proposed development. For the City, the natural heritage features (NHF) are listed in Subsection 4.8.1 Policy 3. These are summarized in Table 1 below. The City provides more significance to those features that are inside of a Natural Heritage System (NHS) than those that are outside of its boundaries. The NHS includes both Core Natural Areas (CNA) and Natural Linkage Areas (NLAs). All of these are now found on Schedule C11. Though it is noted that, as per 5.6.4.1 Policy 2, the edge of the boundary would need to be field verified on-site, as the OP only displays to a reasonable level of detail. Where identified, the boundaries of any significant features are noted and the potential for the development of the site to cause negative impacts is assessed. For those features which may be negatively impacted, mitigation measures and where appropriate compensation measures are recommended. The various features are evaluated, when needed, following the appropriate reference document for this jurisdiction (Table 1).

[1] Note that the road name has recently changed from Trim to Tweddle

This EIS portion follows the *City of Ottawa Environmental Impact Statement Guidelines* (City of Ottawa, 2015). The Tree Conservation Report is provided as a stand-alone document (Bowfin 2022).

The field work for EIS was led by Michelle Lavictoire who has a Master of Science in Natural Resource Sciences and over 25 years of experience in completing natural environment assessments.

Table 1: Summary of Natural Heritage Features Protected in the City of Ottawa

Natural Heritage Feature	References for City of Ottawa
Significant wetlands	Province's Mapping (boundary may need to be fine-tuned in field using the province's *Ontario Wetland Evaluation System, Southern Manual 3.3* (2014)
Significant habitat of Endangered and Threatened Species (SAR)	Site-specific basis as per province's guidelines
Significant woodlands	OP Schedule C11; Evaluated using *Significant Woodlands: Guidelines for Identification, Evaluation, and Impact Assessment* (no date)
Significant Valleylands	OP Schedule C11
Significant Wildlife Habitat	Site-specific basis; Evaluated using the province's *Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E* (January 2015)
Areas of Natural and Scientific Interest	OP Schedule C11; Province's mapping
Urban Natural Features	OP Schedule C11
Natural Environment Areas	OP Schedule C11
Natural Linkage Features and Corridors	OP Schedule C11
Groundwater Features	OP Schedule C11
Surface Water features / Fish Habitat	OP Schedule C11; Requires site investigations; can trigger *Fisheries Act* (Fisheries and Oceans Canada)
Landform Features	OP Schedule C11

Figure 1: Location of Property

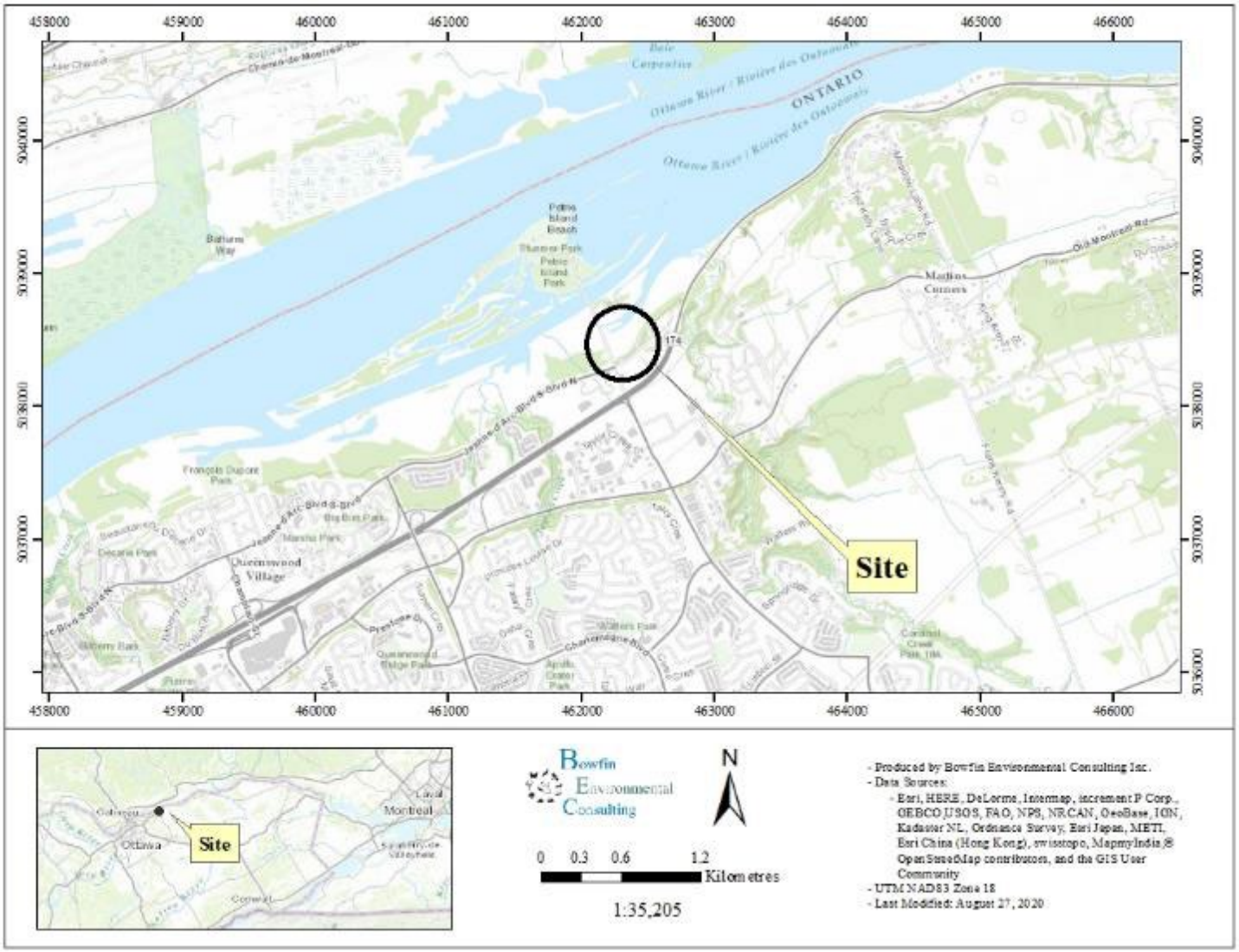
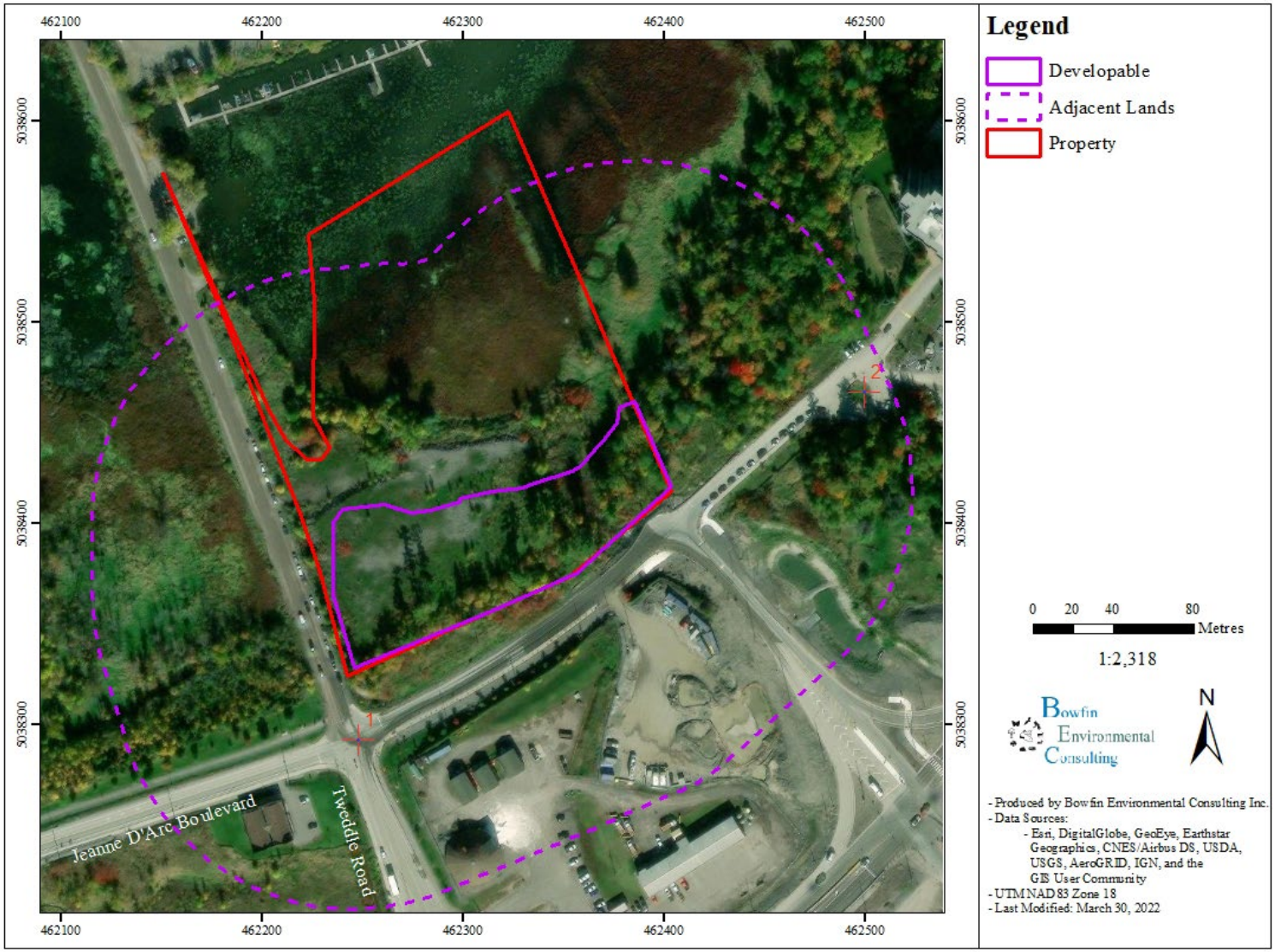


Figure 2: Location of Property and Developable Area



2.0 METHODOLOGY

Work undertaken for the completion of this project included a background review of existing information and field investigations. The study area consists of the areas to be disturbed, temporarily or permanently, within the developable area (Figure 2). Note that the developable area location was adjusted following studies completed in 2020 to purposedly avoid natural heritage features to the extent feasible. While the adjacent lands, typically referred to the 120 m surrounding area, it is noted, that the assessment of impacts sometimes included larger area as needed. The background review included a much larger terrestrial area (~5 km). The study area for each item is described in the methods below.

2.1 Background Review

Where the OP indicated that the features to be considered were those identified on their schedules, these took precedent. Other information collected from outside sources was used to help inform the functions of these features and to identify those not found on the schedules (i.e., Endangered and Threatened species habitat). Outside sources included: Natural Heritage Information Centre (NHIC) database, iNaturalist, Atlas of Breeding Birds of Ontario (ABBO), Make-a-Map Land Information Ontario (LIO), Fisheries and Oceans Canada (DFO) Aquatic Species at Risk mapping, and LIO databases. Information from personal knowledge has also been included as appropriate. The desktop review included a larger area (~5 km).

2.2 Field Studies

2.2.1 Habitat Descriptions and Flora Observations

Habitat mapping was completed through the use of satellite imaging and ground truthed during the field visits. The field studies were completed by systematically cruising the study area. Specific habitat types within the study area, identified during the preliminary mapping exercise were also targeted for community description. Habitat descriptions were based on the appropriate methodologies such as: *Ontario Wetland Evaluation System, Southern Manual* (OWES) for wetland habitats and the *Ecological Land Classification for Southern Ontario* (ELC) for terrestrial habitats. The determination of the presence/absence of wetland habitat was based on the OWES definition of wetland habitat:

> *"Lands that are seasonally or permanently flooded by shallow water as well as lands where the water table is close to the surface; in either case the presence of abundant water has caused the formation of hydric soils and has favoured the dominance of either hydrophytic or water tolerant plants".*

OWES defines the wetland boundary as the location where over 50% of the plant community consists of upland species with the woody vegetation layer (trees and shrubs) taking precedence over the herbaceous layer (OMNR 2014). Furthermore, the presence of large numbers of obligate upland species requires an upland classification. Unless they contain a special feature or function wetlands smaller than 0.5 ha are not delineated.

Specific attention was paid to locating species at risk (SAR) or species of conservation value[2] listed as potentially occurring within the study area. If these species were observed, they would be photographed, and their coordinates recorded on a hand-held GPS using NAD83. Plants that could not be identified in the field were collected for a more detailed examination in the laboratory. Nomenclature used in this report follows the Southern Ontario Plant List (Bradley, 2007) for both common and scientific names which are based on Newmaster *et al.* (1998). Authorities for scientific names are given in Newmaster *et al.* (1998).

2.2.2 Butternut Inventory

This Butternut inventory was completed under the Butternut Health Assessment guidelines by a certified Butternut Health Assessor (BHA) (#723) on June 24, 2020. The inventory consisted of searching the entire site and the adjacent 50 m to the east of the site. Any individuals noted would be marked with white spray paint and flagging tape and numbered sequentially. Their UTMs, using a GPS unit set at NAD83, would be recorded and the individual would be assessed according to the BHA protocol. No butternuts were found. It is acknowledged that the shelf-life for butternut assessments is 2-years and that the Ministry of Environment, Conservation and Parks (MECP) has recently updated the protocol. It is the intent that a new survey would be completed prior to removal of the trees, to meet new guidelines and the shelf-life.

2.2.3 Bats (Species at Risk and Significant Wildlife Habitat)

Currently, there are four bat species listed as SAR in Ontario. The potential to impact these species depends on the presence/absence of critical habitat: hibernation or maternity sites. There were no potential hibernacula sites present as such, no hibernacula surveys were completed. The need to conduct maternity site surveys was determined based on the *Significant Wildlife Habitat Criteria Schedules Draft 6E*. This guideline indicates that consideration for maternity sites should be made when the vegetation community consists of a mature deciduous or mixed forest with >10 large trees/ha [large trees are defined as having a diameter-at-breast-height (dbh) ≥25 cm]. The subject and adjacent lands included deciduous forest which could potentially meet this criterion. As such, the MNRF's bat maternity protocol was followed and is outlined below:

[2] "Species of conservation value" are those species listed as S1-S3 or as Special Concern (provincially or federally) or endangered or threatened federal species that are not listed as endangered or threatened provincially.

- Survey was completed during leaf-off period, to facilitate locating cavities.
- Information collected consisted of: tree species, dbh, presence/absence of cavity, description of cavity and snag class.

While typically, plots are established, this site was too small as such transects were walked and cavities noted throughout the area surveyed (Figure 3). The cavity survey was completed on April 9, 2020.

Exit surveys were completed based on the *Bats and Bat Habitats: Guidelines for Wind Power Projects* (OMNR, 2011). The guidelines were followed to conduct the exit survey and are outlined below:

- Exit surveys were conducted in June (June 4 and 5, 2020).
- Cavity openings on suitable trees were monitored from 30 minutes before dusk until 60 minutes after dusk.

2.2.4 Reptile Surveys

Initially, only Blanding's turtle surveys were proposed however, given the nature of the fill, the surveys were expanded to capture the presence/absence of these and snakes. The Blanding's turtle surveys included basking, road mortality (snakes would also have been noted), and nesting surveys.

Blanding's Turtle Surveys

Discussions with NHIC and MECP indicated that there were 3 occurrences of Blanding's Turtle within 1.5 km of the site, with the most recent being from 2008. The provinces *Occurrence Survey Protocol for Blanding's Turtle (Emydoidea blandingii) in Ontario* (OMNR, 2013b) was followed. This protocol requires a minimum of five basking surveys in suitable habitat using Blanding's turtle general habitat description by the province. For this site, the surveys were supplemented with the use of a spotting scope from the edge of the fill which provided a good vantage for spotting turtles in the cattails and on the Ottawa River. The survey period begins following ice-melt and ends on June 15th. The spacing of surveys should be such that a minimum period of 3 weeks is covered. The basking surveys are to be completed between 8 am and 5 pm during sunny periods and when air temperature is at least 10°C (partially cloudy is accepted if air temperature is above 15°C and is warmer than the water temperature) (OMNR, 2013b). When possible, surveys should target days immediately following inclement weather, when turtles would be more prone to basking. Information to be collected included: names of observers, date of survey, start and stop time, weather conditions, number and species of turtles observed, and their location would be noted using a hand-held GPS.

Road mortality surveys were completed from the intersection of Trim Road and Jeanne d'Arc Boulevard North along Tweddle Road (to the marina) and east along Jeanne d'Arc to the turn around. Any live, injured, or dead reptiles would have been photographs, and their location recorded.

Because of the presence of fill, nesting surveys were added to the scope. The procedure for nesting surveys was discussed with MECP and their advice was informed the methods. The surveys included: daytime surveys looking for predated nests, evening surveys (between 7-10pm) looking for nesting individuals and the placement of a trail camera. Surveys could take place in any weather condition. When possible, surveys targeted the period following rain events. Multiple visits were recommended. The site would be searched carefully, quietly, and slowly looking for turtles from afar. Once it was determined that no turtles were present, then the searchers surveyed the substrate carefully with flashlights for signs of nesting by any turtle species. Note that potential nesting sites were also identified along Tweddle Road where gravel access to the river is provided. These were also searched.

Snake Surveys

The entire fill area was searched for snakes, including during the road mortality surveys described above. Visual encounter surveys were conducted based on the *Survey Protocol for Ontario's Species at Risk Snakes* (OMNRF, 2016) to assess the presence of significant wildlife habitat for snakes. This protocol calls for a minimum of ten surveys during the active season, with at least five surveys prior to July 1st, during appropriate weather conditions (when temperatures were between 10-25 °C under sunny conditions and between 15-30 °C under overcast conditions). Each survey consisted of a minimum search effort of 1-2 hours per hectare. The habitat was searched walked slowly looking for basking or foraging snakes, or sheds by searching under suitable cover objects (e.g., logs, rocks). The location of snakes would be recorded with a hand-held GPS.

2.2.5 Bird Surveys

Information on bird use of the area was collected through a raptor nest survey and daytime breeding bird surveys. There was no suitable habitat for eastern whip-poor-will as such no nighttime surveys were completed. The potential for eastern whip-poor-will is discussed further in the SAR analysis section of this report.

The raptor nest survey consisted of looking for evidence of nesting (such as stick nests, food caches, whitewashing of branches and foliage, accumulation of feathers/fur or prey remains on the ground or in shrubs as per the *Significant Wildlife Habitat Technical Guide* (SWHTG) Appendix O) as well as the raptors themselves. The search for raptor nests took place on April 9,

2020. The breeding bird surveys included daytime breeding bird surveys on May 27 and June 17, 2020. The daytime breeding bird surveys methods were as follows:

- Two visits were completed for the forest and field habitats and these two visits were a minimum of 15 days apart.
- Surveys began no earlier than 30 minutes after dawn and completed by midday.
- Visits were conducted on days with no rain, little to no wind and good visibility.
- The survey type was point counts.
    - Consisted of 5-min point count stations spaced 300 m apart (or as near as 100 m if needed to obtain information from all habitat types)
    - Point counts consisted of listening and observing over the specified time period and recording the number of birds heard/seen, their sex, location, behaviour, and interactions with others; and
    - While walking between points, any additional observations were recorded.
- Birds were identified by sound and/or sight.

Survey points are depicted on Figure 3

2.2.6 Amphibian Surveys

Nighttime amphibian calling surveys were completed as per the *Environment Canada Marsh Monitoring Program* (MMP) guide (2008). The protocol is summarized below:

- The surveys were completed 3 times during the spring and early summer (once during each of the three survey periods in order to collect data on all species)
- Observations began 30 minutes after sunset and ended before midnight;
- Each station was surveyed for 3 minutes during which time the species, the calling code and the location of the heard calls were recorded. The calling codes were recorded as one of the following:
    - Code 1: Calls not simultaneous, number of individuals can be accurately counted
    - Code 2: Some calls simultaneous, number of individuals can be reliably estimated
    - Code 3: Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated
- Surveys were only conducted if the wind strength was Code 0, 1, 2 or 3 on the Beaufort Wind Scale.
- Amphibian survey stations were separated by at least 500 m.

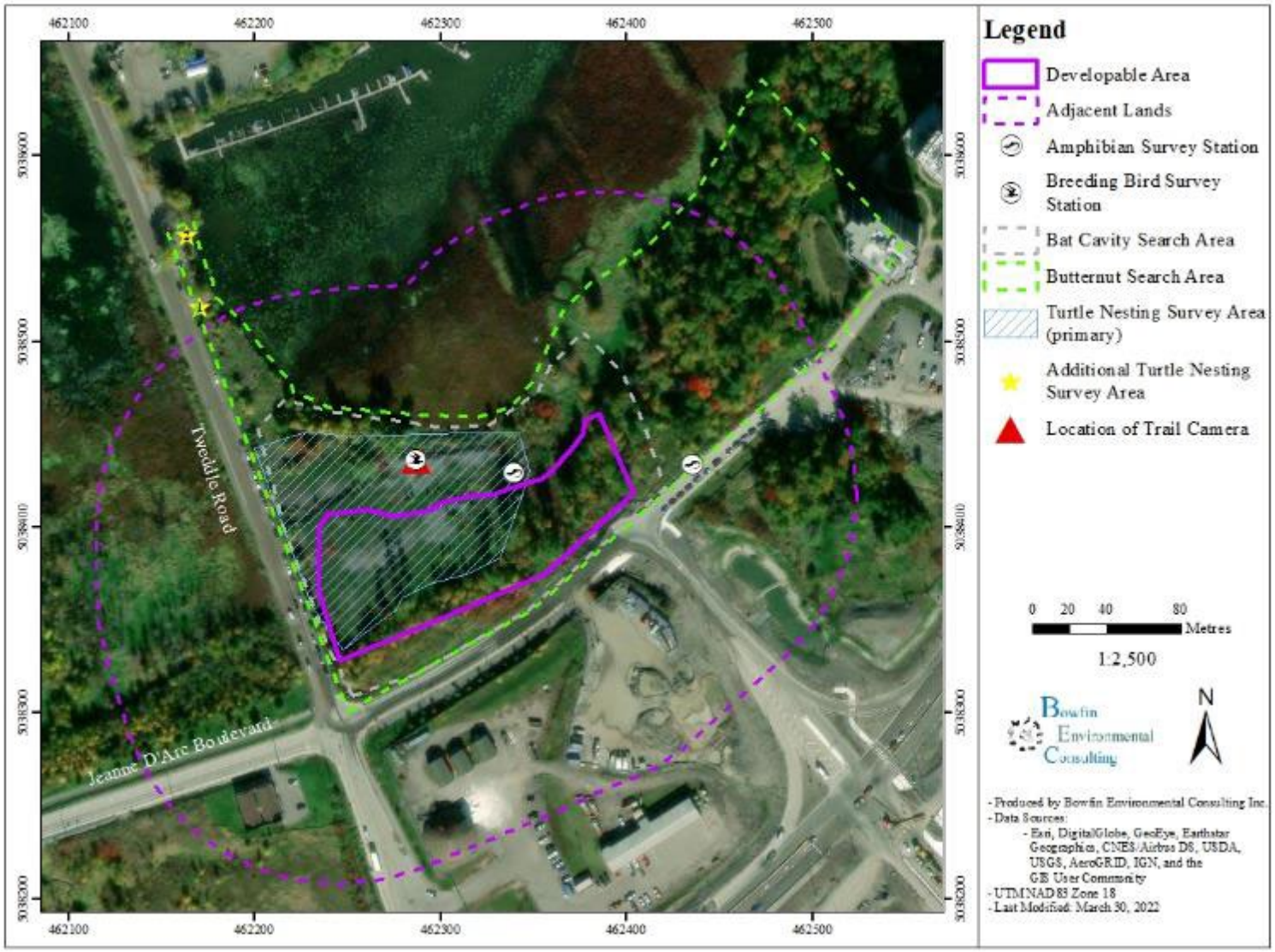
All surveys included the recording of the following information:

- Date
- Name of observer(s) conducting field work
- Time (start and end time, duration)
- Weather conditions (temperature, % cloud cover, wind)
- GPS location
- Species presence and abundance information

2.2.7 Incidental Fauna Observations

During the site visit any wildlife observations were recorded. Incidental observations included observations of an individual, its tracks, burrows, feces and/or kill sights.

Figure 3: Survey Locations



3.0 Background Information

3.1 Location

The study area is situated at 1009 Tweddle Road, in part of Lot 30, Concession 1 in the Cumberland Ward of the City of Ottawa. It is bordered by Tweddle Road to the west, Jeanne d'Arc Boulevard North to the south and the Ottawa River to the north.

3.2 Natural Heritage Features

The known natural features identified on the developable lands, or within 120 m of these, are a PSW, an ANSI, and fish habitat. The PSW and ANSI are one and the same and consist of the Petrie Island Provincially Significant Wetland. It is identified on Schedule C of the OP, and the formal LIO database layer.

Previous OP also considered Urban Natural Areas (UNAs). The UNA Petrie Island and Mainland Urban Natural Area was identified as forming part of the site. The UNA was a large area that includes the entire property. The November 2021 OP indicates that UNAs are primarily lands owned and managed publicly (City or Conservation Authorities). The new OP Schedule C-11 shows this UNA to include a portion of the property but to be outside of the developable lands.

The property is situated within the Urban Area and City staff meet on site with Bowfin and indicated that a portion of the woodland to the east of the property was to be considered an Urban Woodland but that the trees along Jeanne d'Arc Boulevard N were not.

Table 2: Summary of Available Background Information on the Identified Natural Features

Natural Heritage Feature	Present within Developable Lands	Present within 120 m of Developable Lands	Additional Notes
Provincially Significant Wetlands (PSW)	No (on the property but outside of the developable lands)	Schedule C11 identify the Petrie Island Wetland 30 m of the site	None
Habitats or species designated by ESA (Provincial)	Potential for endangered or threatened species needs to be determined following assessment of the suitable habitats in or near the site. See section 5 of this report for more information.		Blanding's Turtle sightings within 1.5 km

Natural Heritage Feature	Present within Developable Lands	Present within 120 m of Developable Lands	Additional Notes
Significant Woodlands	Potential based on cursory review of satellite images and discussions with City staff		None
Significant Valleylands	None identified on OP.		None
Significant Wildlife Habitat (SWH)	No known; to be determine during site investigations		None
Areas of Natural and Scientific Interest (ANSIs)	LIO identifies the Petrie Island Wetland (Candidate Life Science) on property but outside of the developable lands	Yes	None
Urban Natural Features	None (Schedule C11)		Schedule B2 identifies Urban Natural Features on site (Appendix D)
Natural Environment Areas	None	Core Area shown surrounding Site on C11	Schedule L1 identifies Natural Heritage Features on Site (Appendix F)
Natural Linkage Features and corridors	Ottawa River	Ottawa River	None
Groundwater Features	None		
Surface Water Features/ Fish Habitat	None	The Ottawa River is within 20 m of the site	
Landform Features	None		

Figure 4: Official Plan Schedule C11-C

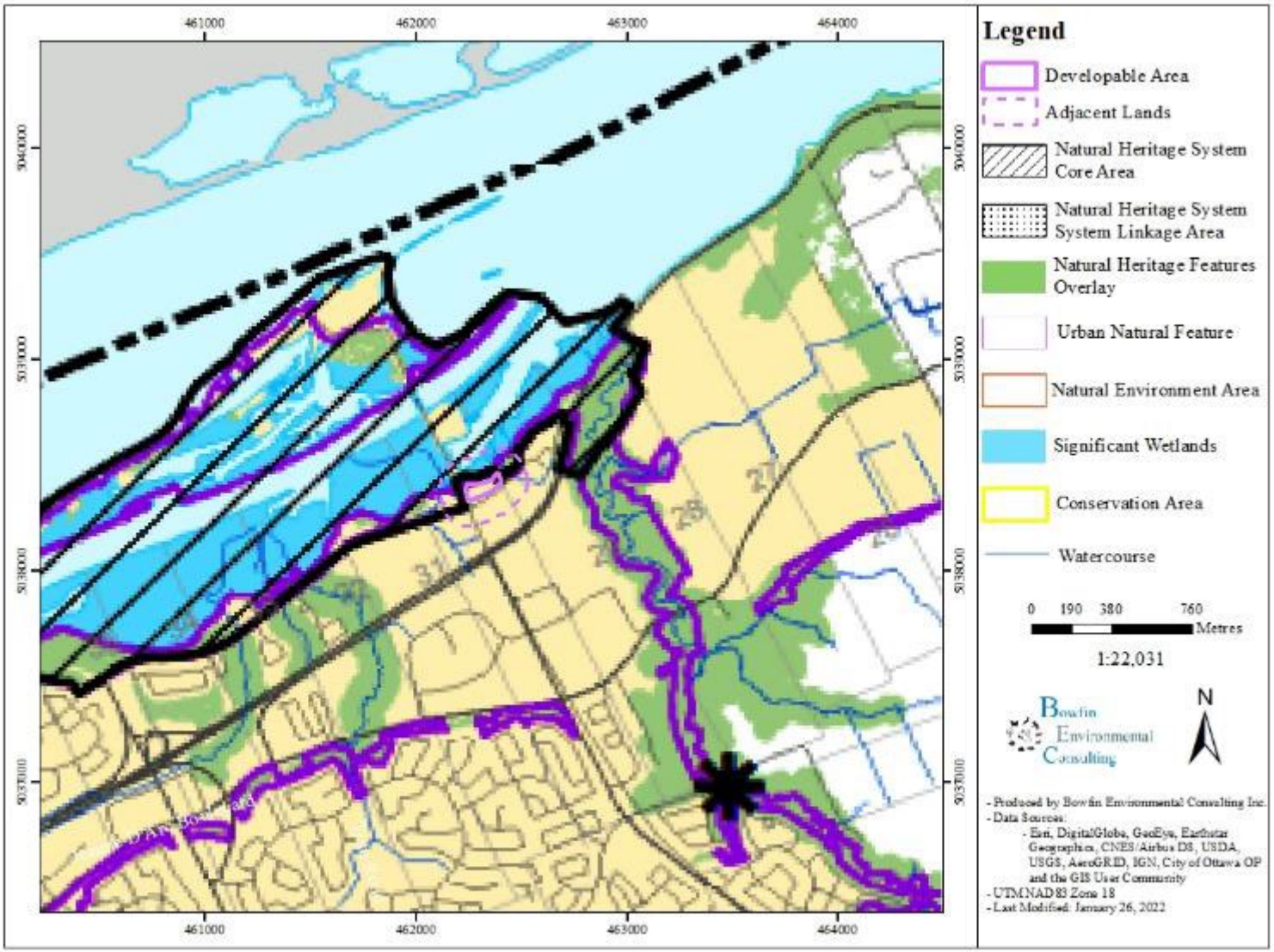
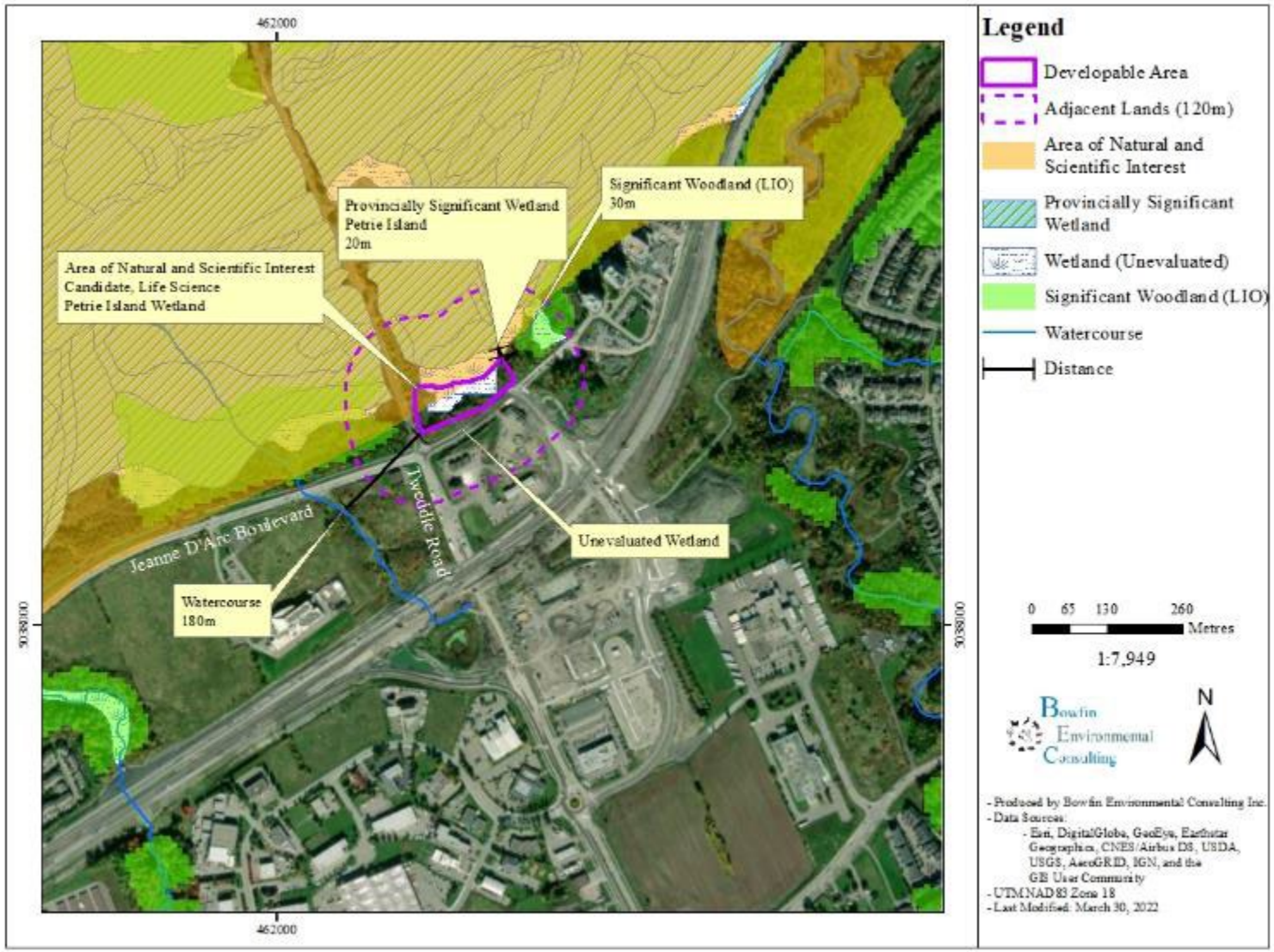


Figure 5: Background Information on Known Natural Heritage Features from LIO



3.3 Soil Conditions

The site is tiered, flat (fill) with an abrupt drop to the Ottawa River and to the east. The lands to the east, where the Urban Woodland were, was fill with garbage poking out of the earth.

Wetland habitat found at the base of the slope included robust emergent marsh wetland communities. The nearest surface water feature was the Ottawa River (minimum distance of 30 m to the north of the developable lands).

The area is identified as Ottawa Valley Plains in the mapping from the *Characterization of Ottawa's Watershed: An Environment Foundation Document with Supporting Information Base* (March 2011). A summary of the information from the above-mentioned report and maps is provided in Table 3. The soils map of the area shows the site as having the Rideau soil association (which tends to have gray neutral heavy clay marine material) (*Soils of Regional Municipality of Ottawa-Carleton*).

The Paterson Group report (May 14, 2020) indicates that the site is fill (silty sand mixed with clay and/or crushed stone and gravel) over very stiff to stiff clay.

Table 3: Summary of Soil and Geology Information Available from the Characterization of Ottawa's Watershed Maps

Map	Classification
Bedrock	Limestone and dolomite, interbedded
Surficial Geology	Glaciomarine, clay silt
Physiography Unit	Clay Plains
Permeability	Low to High
Overburden Depth	Shallow
Hydrological Soil Group	D

4.0 SITE INVESTIGATION RESULTS

4.1 Site Investigation Dates and Purpose

As mentioned above, several site visits were undertaken. A summary of the dates, times, ambient conditions, and purpose for the visits are provided in Table 4. The vegetation communities are described in the section below, followed by the results from the species-specific surveys.

Table 4: Summary of Dates and Times of Site Investigations

Date	Time (h)	Staff	Air Temperature (Min-Max) °C	Cloud Cover (5) Beaufort Wind Scale [Descriptor (scale)]	Purpose
April 9, 2020	1045-1245	C. Fontaine S. Lafrance	3 (-0.4-12.4)	Overcast with light rain, light air (1) changing to snow with light breeze (2)	- Bat Cavity
April 29, 2020	1845-2115	M. Lavictoire	14 (1.9-16.8)	Overcast, gentle breeze (3) changing to overcast, light rain, light air to light breeze (1-2)	- Wetland -Amphibian Survey
May 19, 2020	1915-1930	C. Fontaine A. Yates	16 (7.9-19.5)	20% cloud cover, gentle breeze (2)	- Turtle Nesting
May 21, 2020	1330-1500	M. Lavictoire	24 (8.1-24.8)	Clear skies, gentle breeze (3)	-Turtle Basking -Turtle Nesting Predation -Snake survey
May 27, 2020	0830-1130	M. Lavictoire	26.0 (18.3-35.0)	Clear skies, light air (1)	-Breeding Bird Survey -Turtle Basking -Turtle Nesting Predation -Snake survey
May 29, 2020	1600-1645	M. Lavictoire	30.0 (12.9-29.0)	Overcast, light to gentle breeze (2-3)	-Turtle Basking -Snake survey
May 29, 2020	1915-1945	S. Lafrance	23.0 (12.9-29.0)	Overcast with light rain, gentle (3) to moderate breeze (4) changing to no rain, light breeze (2)	- Turtle Nesting -Amphibian Survey
May 30, 2020	1915-2000	S. Lafrance	11.0 (6.2-20.1)	Overcast, gentle (3) to moderate breeze (4)	- Turtle Nesting -Amphibian Survey

Date	Time (h)	Staff	Air Temperature (Min-Max) °C	Cloud Cover (5) Beaufort Wind Scale [Descriptor (scale)]	Purpose
June 3, 2020	1930-2000	S. Lafrance	18.0 (12.3-19.4)	20% cloud cover, light air (1)	- Turtle Nesting
June 4, 2020	2015-2145	M. Lavictoire	21.0 (9.5-25.4)	25% cloud cover, calm (0) to light air (1) changing to 100% cloud cover with light air (1)	-Ecological Land Classification -Bat Exit (visual)
June 4, 2020	1930-2200	S. Lafrance	27.0 (9.5-25.4)	25% cloud cover, calm (0) to light air (1) changing to 100% cloud cover with light air (1)	- Turtle Nesting -Bat Exit (visual)
June 5, 2020	1545-1645 1945-2145	S. Lafrance	29.0 (12.9-28.7)	10% cloud cover, light (2) to fresh breeze (3) changing to 90% cloud cover with light air (1) to light breeze (2)	- Turtle Nesting -Turtle Basking -Snake survey -Bat Exit (visual)
June 8, 2020	1115-1200	S. Lafrance	17.0 (9.6-21.3)	5% cloud cover, light air (1) to light breeze (2)	- Turtle Basking -Snake survey
June 9, 2020	1600-1645 1900-1930	S. Lafrance	22.0 (12.8-21.3)	75% cloud cover, light air (1) changing to 90% cloud cover	- Turtle Basking -Turtle Nesting -Snake survey
June 12, 2020	1915-1945	S. Lafrance	12.0 (6.5-17.2)	Overcast, gentle breeze (3) to moderate breeze (4)	- Turtle Nesting
June 16, 2020	2015-2130	S. Lafrance A. Yates	22.0 (8.7-27.3)	Clear skies, calm (0)	- Turtle Nesting - Amphibian Survey
June 17, 2020	0715-0830	M. Lavictoire	15.0 (10.5-30.0)	Clear skies, light air (1)	-Wetland Delineation -Breeding Bird Survey -Snake survey
June 21, 2020	2030-2100	S. Lafrance	30.0 (17.9-31.8)	Clear skies, light breeze (2)	- Turtle Nesting
June 24, 2020	1515-1645	C. Fontaine	22.0 (15.2-21.7)	Overcast, moderate breeze (4)	- Butternut Survey -Snake survey
	1845-1930			50% cloud cover, gentle breeze (3)	- Turtle Nesting
July 2, 2020	2015-2045	S. Lafrance	24.0 (20.6-30.4)	Overcast, light air (1)	- Turtle Nesting
July 27, 2020	0915-1315	C. Fontaine	20.0-30.0 (23.2-31.6)	20% cloud cover, light air (1) changing to 30% cloud cover, light breeze (2)	-Tree Inventory -Snake survey
July 28, 2020	0715-0900	M. Lavictoire	21.0 (18.0-30.5)	Clear skies, light breeze (2)	-Vegetation Survey

Date	Time (h)	Staff	Air Temperature (Min-Max) °C	Cloud Cover (5) Beaufort Wind Scale [Descriptor (scale)]	Purpose
					-Snake survey
July 30, 2020	0730-1300	C. Fontaine	19.0-25.0 (14.9-28.0)	Clear skies, calm (0) changing to 25% cloud cover, light air (1)	-Tree Inventory -Snake survey
September 21, 2020	1230-1300	S. Sinon	16.0 (0.1-17.8)	Partially Cloudy Wind: light air (1)	-Turtle Nest Hatching Survey
February 25, 2022	1130	M. Lavictoire	-13.0	Overcast; Snowing	-Visit of the Phase 1 Rehabilitation Works.

M. Lavictoire – Michelle (Nunas) Lavictoire – B. Sc. Wildlife Resources and M.Sc. Natural Resources
S. Lafrance – Sophie Lafrance – B.Sc. Biology and Graduate Certificate in Ecological Restoration
C. Fontaine - Cody Fontaine - Fisheries and Wildlife Technologist
S. Sinon – Sarah Sinon – B. Sc. Environmental Science (double minor Biology and Physical Geography)
A. Yates – Abby Yates – B.Sc. Env. Ecology

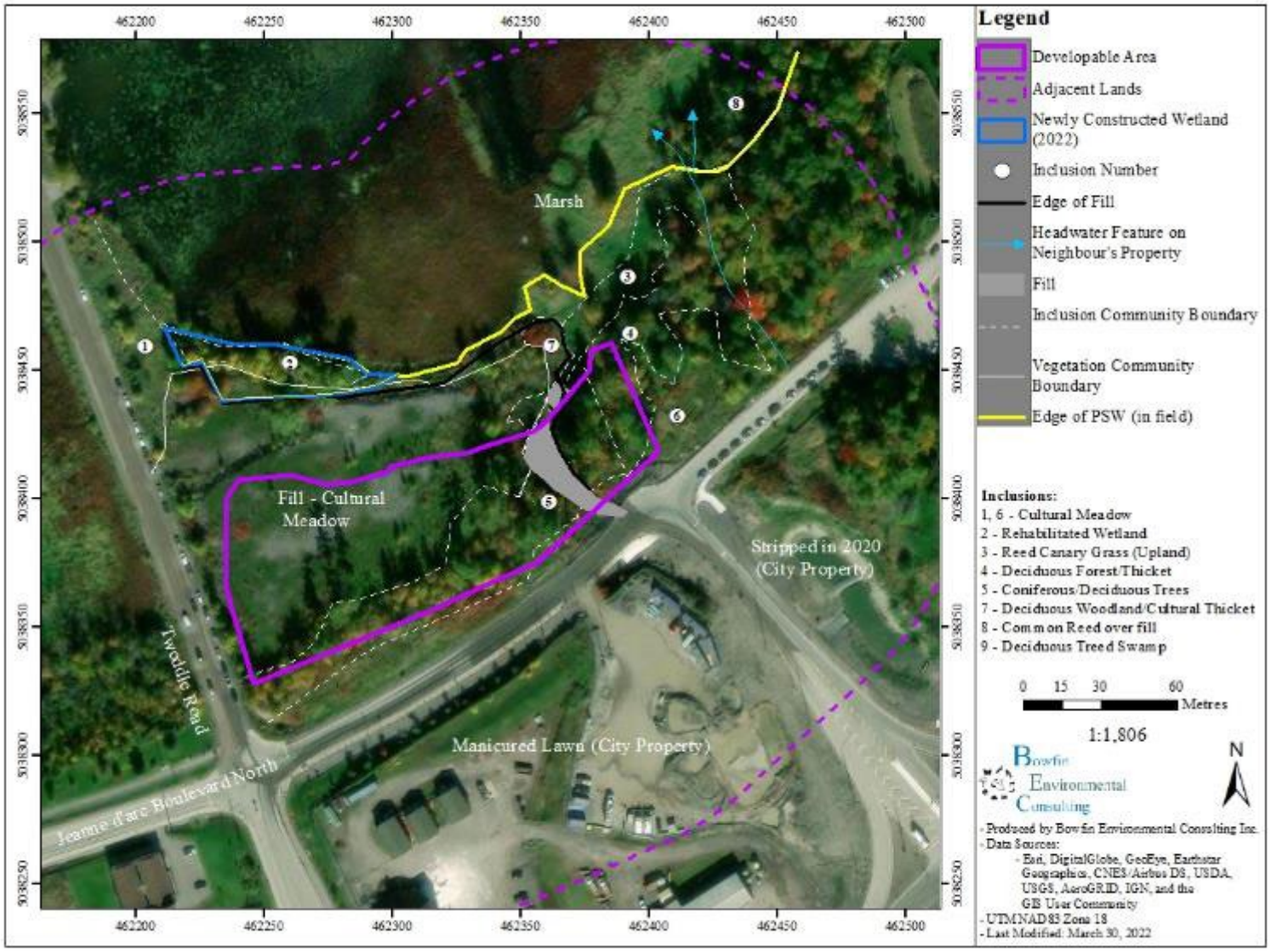
*Min-Max Temp Taken From: Environment Canada. National Climate Data and Information Archive. Ottawa International Airport. Available http://climate.weatheroffice.gc.ca/ [March 11, 2022]

4.2. Vegetation Description and Butternut Survey Results

The only natural habitats were in the eastern side of the site and in the adjacent lands. All treed communities were smaller than the minimum of 0.5 ha and considered inclusions for the purposes of this EIS. No special feature communities were encountered. The inclusions represent edge habitat (they were roughly 25 m wide) and as such do not fit with the ELC codes. It is noted that portions of inclusion 4 would not meet the definition of a forest because it had <60% cover by tree species. Instead, was strongly dominated by shrub species (i.e., Staghorn Sumac). The Thicket habitats were mostly next to the meadow adjacent to Jeanne d'Arc Boulevard North and the two access roads to the river. It is also note that these findings are very similar to those of WSP (2017).

Note that preliminary investigations on this property were completed in 2020 and information was provided to MECP, the City and RVCA. This information was used to form the decision of what should be developable lands, and which habitats should be rehabilitated. Phase 1 of the Rehabilitation works began in February 2022 with the removal of fill from the shoreline and placement of rip rap below the outlet from Jeanne D'Arc Boulevard N.

Figure 6: Vegetation Mapping



Disturbed Area – Cultural Meadow

The largest part of the developable area consisted of heavily compacted rocky fill vegetated with broad leaf herbaceous species such as bird's foot trefoil, common sow thistle, white sweet clover, wild carrot, cow vetch, burdock, viper's bugloss, field bindweed, smooth brome, coltsfoot, and common mullein. There were also a few scattered, young, eastern cottonwoods. These were less than 2 m tall and provided very little in terms of cover.

Photo 1: Looking across towards Trim Road (July 28, 2020)

Inclusion 1 – Cultural Meadow

This area also consisted of a cultural meadow but contained wetland species as well as upland. This area is the embankment of Tweddle Road and some of the area has been disturbed by the fill activities. The area is classed as upland because of the significant presence of upland species (bird's foot trefoil, wild carrot, and cow vetch) (Photo 2).

Photo 2: Cultural Meadow along Trim Road (July 28, 2020)

Inclusion 2 – Rehabilitated Wetland

A portion of the shoreline fill was removed to the same elevation as the adjacent PSW. This area is anticipated to quickly become re-established with marsh habitat.

Photo 3: Wetland habitat being created (February 25, 2022)

Inclusion 3 – Reed Canary Grass - Upland

This community was almost exclusively vegetated with reed canary grass. The area does not to flood (based on satellite imaging from 2017 during historically high flooding). The community sat on tablelands and is distinct from the PSW. The same community is found along the steep edge of the fill nearer to the property (Photo 4 and Photo 5) and also up the steep slope along an access road (Photo 6). This suggests that it was also historically filled and is not representative of true wetland habitat at this location. No surface water or iron staining noted in this community. Note that the portion of the reed canary grass that was at a lower elevation was included in the Marsh community (described further below).

Photo 4: Reed canary grass dominated slope (April 29, 2020)

Photo 5: Reed canary grass dominated slope with narrow treed area along Jeanne d'Arc Boulevard in background (April 29, 2020)

Photo 6: Reed canary grass dominated slope (April 29, 2020)

Photo 7: Reed Canary Grass on the east side of the adjacent lands (July 28, 2020)

Inclusion 4 – Deciduous Forest/Thicket

This community was edge habitat between the deciduous and coniferous trees along the roadway (inclusion 5) and the mixed forest situated further offsite to the east. The vegetation includes the area identified as woodland by the City. It is narrow and did not have any interior habitat. It is also disturbed with two access roads travelling through it down to the water along with evidence of fill (cement) and garbage. The portion within the adjacent lands included patches of Staghorn Sumac along with young (2-4 m tall; 50% cover) trees. The tree species included: white ash, bur oak, freeman's maple, silver maple, black cherry, white birch, and balsam fir. other shrub species (in addition to the staghorn sumac) were common buckthorn and Tartarian honeysuckle which are both invasive. The ground layer included Virginia creeper, sarsaparilla, alternative-leaved dogwood, dwarf raspberry and purple-flower raspberry.

Photo 8: Deciduous Forest/Thicket (July 28, 2020)

Photo 9: Inclusion 4 - near the north edge looking south (April 12, 2021)

Photo 10: Metal Garbage becoming exposed in the middle of the slope (April 12, 2021)

Photo 11: A few metres uphill from previous photo, large amount of garbage is seen near the surface (April 12, 2021)

Inclusion 5 – Coniferous and Deciduous Trees

This inclusion included both the vegetation along the roadway and a part of the Candidate Woodland. There were various patches of treed areas with deciduous thickets. The Candidate Woodland portion on the east side of the property. The woody vegetation was dominated by

eastern white cedar, white ash, green ash, along with black cherry, trembling aspen, basswood, and bur oak. The ground layer included poison ivy, wood fern and red baneberry.

Photo 12: Inclusion 5 – looking east from near the base of the slope (April 12, 2021)

Photo 13: Inclusion 5 – looking north from the edge (April 12, 2021)

Photo 14: Looking along the edge of Jeanne d'Arc Boulevard N at the Coniferous and Deciduous Trees (July 28, 2020)

Inclusion 6 – Cultural Meadow

This area was situated between the trees and Jeanne d'Arc Boulevard. It was dominated by meadow habitat with pockets of sumac thicket. The woody layer also included young (up to 3 m tall) green ash. The primary species encountered were late goldenrod, grass, cow vetch, wild carrot, reed canary grass, buttercup, common sow thistle, burdock, Virginia creeper, strawberry and Canada thistle.

Photo 15: Cultural Meadow along Jeanne d'Arc Boulevard (July 28, 2020)

Inclusion 7 – Deciduous Woodland/Cultural Thicket

Situated on the northeast corner of the fill was a small area of regenerating deciduous trees and of shrubs growing on fill. The upper layer was 1-6 m tall (50% cover) and included eastern cottonwood, staghorn sumac, Manitoba maple and green ash. The ground layer (90% cover) contained reed canary grass, Canada goldenrod, cow vetch, wild carrot, bird's-foot trefoil, common ragweed, and grasses.

Photo 16: Deciduous Forest/Thicket on NE corner of fill (July 28, 2020)

Wetland – Marsh and Community 8

The PSW Petrie Island Wetland is situated to the northwest. At the base of the fill, this community was dominated by the marsh consisting of robust emergents (cattails). In the adjacent lands further east, the wetland consisted of a narrow deciduous treed swamp (silver maple, green ash, and black ash) with a tall shrub layer (speckled alder, green ash, and red osier).

Photo 17: Looking east from edge of headwater feature on neighbour's property at the narrow swamp (to left of line) (April 29, 2020)

Plant Species Discussion (including results from Butternut Inventory)

The plants observed were analysed for: provincial rank (SRank), species at risk (Endangered or Threatened provincially). The site itself is has been heavily disturbed.

There were no endangered or threatened species, including butternuts.

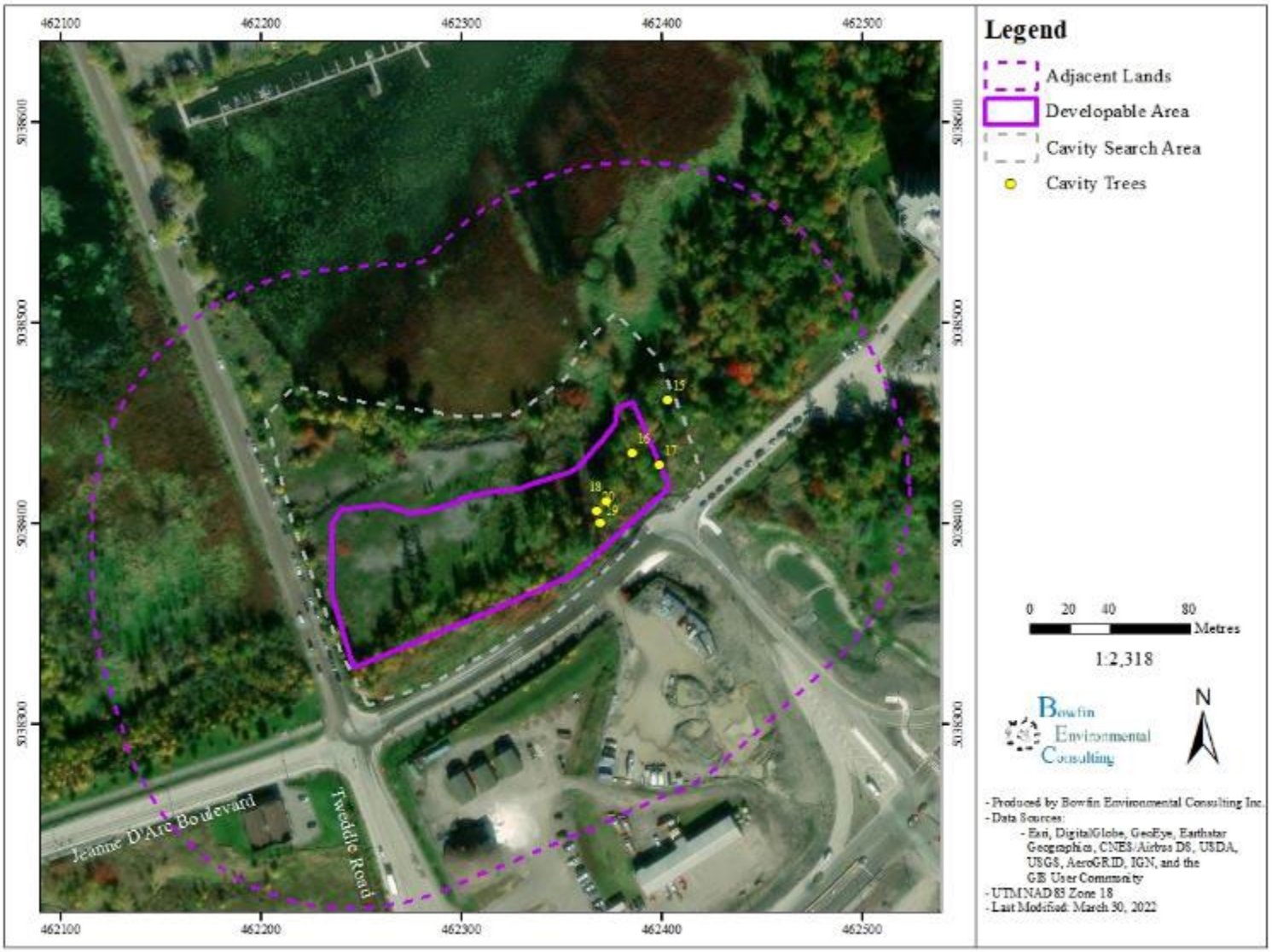
There were no species of conservation value (provincial SRank of S1-S3 or listed as special concern). All plants had a provincial Srank of S4, S5 or SNA signifying that the species recorded are apparently secure, uncommon but not rare (S4), secure, widespread and abundant in the nation or province (S5) or not applicable because the species is not a suitable target for conservation activities (i.e., non-native species) (SNA).

There were invasive species such as common reed, buckthorn, and purple loosestrife.

4.3 Bats

A search of appropriately sized trees and those with cavities was made. Five individuals were noted in the survey area, on the eastern side of the developable area (Figure 7). The tree species were white ash, eastern white cedar, red maple, white pine, and an unknown species (tree was dead). The dbh varied from 28-98 cm. Two evenings were spent looking for bats exiting this area. One bat was observed flying over the Ottawa River, but none exited these trees. No maternity sites were found.

Figure 7: Cavity Tree Results



4.4 Reptile Results

4.4.1 Turtles

Six basking surveys were completed on days with suitable weather conditions during the turtle basking survey period and twelve evening nesting surveys were undertaken. Road mortality surveys were undertaken on most visits.

Three painted turtles were observed during the basking survey on May 21, 2020, using the spotting scope. These were all situated in the PSW to the northeast of the developable area (Figure 8).

One painted turtle was observed trying to nest and another six abandoned nesting attempts were noted in the fill north of the developable area (Figure 8). However, a review of the sites during the day found that the fill material below the depth where the turtles stopped trying to dig was more compacted indicating that the site was too difficult for the turtles to dig to a sufficient depth, this area is not suitable for nesting. No turtles were observed with the trail camera which was in place until July 13, 2020. A fall visit in 2020 was undertaken to look for successful hatching, to further confirm these results.

No Blanding's turtles were observed.

4.4.2 Snakes

Eleven surveys were undertaken on days and during conditions suitable for snake surveys. Despite the large amount of fill, few snakes were observed. The only species noted were eastern garter snakes. These were observed on two occasions and never more than 2 individuals during a visit. They tended to be noted on the edge of the fill of the lands to be developed. Snake skin was also noted in this same area (Figure 8).

4.5 Bird Survey

The results from all the field visits found a total of 20 species were observed during the breeding bird survey period. Most were heard calling from the shoreline or in the wetland. The observations were typically males calling (red-winged blackbirds, swamp sparrow, song sparrow, common yellowthroat, yellow warbler, black-capped chickadee, northern cardinal, American goldfinch, sora, red-eyed vireo, and eastern wood-pewee), foraging individuals (great blue heron, tree swallow, barn swallow and spotted sandpiper), or perched birds (mourning doves). Female mallard with young were also observed during one visit. Pairs of Canada goose and many paired red-winged blackbirds were noted. A sora was suspected as nesting within the cattail marsh. A confirmed killdeer nest was noted on the property.

The only endangered or threatened species was the barn swallow and these were foraging over the Ottawa River. No nesting habitat was present on or near the property.

Once species of conservation value was heard on the June 17 visit only. This was the eastern wood-pewee which was calling from the other side of the river. The *Endangered Species Act* (ESA) does not provide protection to SC species.

No concentrations of colonial nesters were noted during the surveys.

No raptor nests were present within the study area.

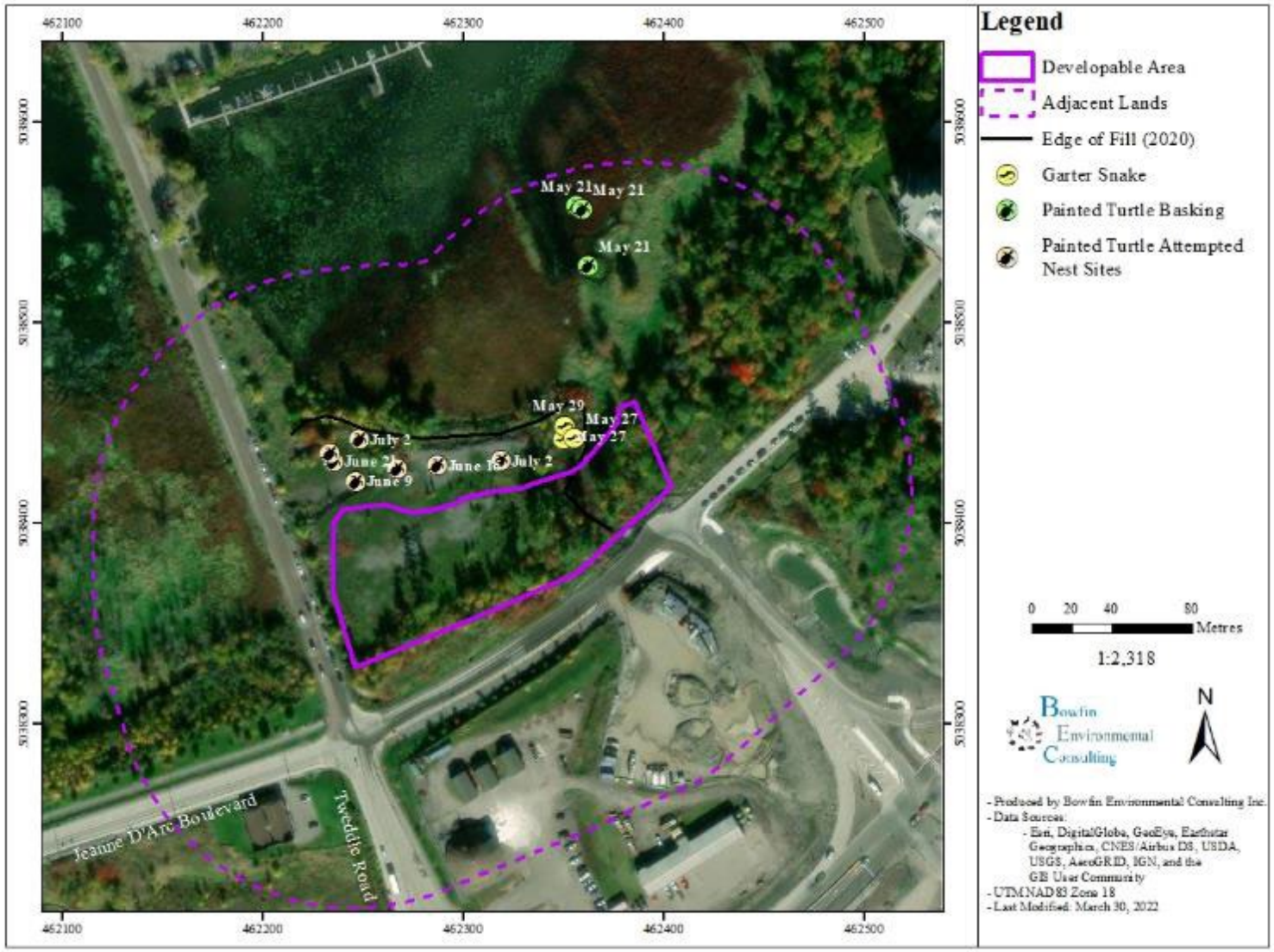
4.6 Amphibians Survey Results

Three amphibian breeding surveys were completed as per the MMP, on nights with appropriate weather conditions and covering each of the three survey periods. No frogs were heard or observed in the developable lands or their adjacent lands apart from those observed/heard in the Ottawa River (northern leopard grog, spring peppers and tree frogs).

4.7 Incidental Wildlife Observation

In addition to the species noted during species-specific surveys, the following were observed while conducting other work outside of the protocol period: skunk, red squirrel, ground hog, coyote, nuthatch, green heron, wild turkey, and eastern cottontail.

Figure 8: Location of Turtle and Snake Observations (2020)



5.0 EIS – Analysis of Potential to Impact the Natural Features

The development will require the removal of the vegetation in an area that is approximately 1.0 ha. This area consisted mostly of the cultural meadow over fill with some trees along Jeanne d'Arc Boulevard North, and an urban woodland on the east side. The stormwater management plan consists of discharge to the river after being processed through water quality management equipment.

The November 2021 OP indicates that the area surrounding the developable lands form part of the Natural Heritage System – Core Area. This core area is shown to include:

- Provincially Significant Wetlands
- Significant Woodlands
- Urban Natural Feature
- Fish Habitat

In addition, the provincial mapping identifies the area as including an ANSI. All of these habitats are shown to be outside of the developable lands, but immediately to the north, and east and on the west side of Tweddle Road. There are no candidate significant features to the south. Below, the potential impacts to the NHS – Core Area is discussed in each of the categories (wetland, woodland, and fish habitat) and the overlapping UNF. The potential for habitat of Endangered or Threatened Species and considerations for Significant Wildlife Habitat is discussed for the entire property. It is important to remember that the avoidance and mitigation section must be read in its entirety.

5.1 Impact Assessment Methods

The assessment of the potential impacts is completed by analyzing the impact of various activities associated with the development which would include the following activities:

- Clearing of terrestrial vegetation
- Excavation, Grading and backfilling of upland habitat
- Construction of buildings and infrastructure
- Revegetation and naturalization of offset area

The significance of the potential impacts is measured using four different criteria:

1. Area affected may be:
    a. local in extent signifying that the impacts will be localized within the project area
    b. regional signifying that the impacts may extend beyond the immediate project area.

2. Nature of Impact:
    a. negative or positive
    b. direct or indirect

3. Duration of the impact may be rated as:
    a. short term (construction phase, 1-2 years per tower)
    b. medium term (3-4 years)
    c. long term (>4 years).
    d. permanent

4. Magnitude of the impact may be:
    a. negligible signifying that the impact is not noticeable
    b. minor signifying that the project's impacts are perceivable and require mitigation
    c. moderate signifying that the project's impacts are perceivable and require mitigation as well as monitoring and/or compensation
    d. major signifying that the project's impacts would destroy the environmental component within the project area.

The PPS states that a negative impact signifies:

> *"a) in regard to policy 2.2, degradation to the quality and quantity of water, sensitive surface water features and sensitive ground water features, and their related hydrologic functions, due to single, multiple or successive development or site alteration activities;*
> *c) in regard to other natural heritage features and areas, degradation that threatens the health and integrity of the natural features or ecological functions for which an area is identified due to single, multiple or successive development or site alteration activities."*

5.2 Evaluation of Potential Impacts

Again, the natural heritage features brought forward for assessment, both in and outside of the developable area, are:

- Provincially Significant Wetland/ANSI
- Habitat of Endangered and Threatened Species
- Significant Woodlands
- Significant Wildlife Habitat
- Urban Natural Feature
- Fish Habitat

By avoiding, minimizing, and as needed, offsetting, impacts to the above, impacts to the NHS – Core Area in the adjacent lands will also be protected.

5.2.1 Wetlands/ANSI

Provincially Significant Wetland/ANSI

The Petrie Island PSW is situated to the north of the developable lands (Figure 9). This portion of the PSW was found to be a robust emergent marsh (cattail).

- This type of habitat provides wildlife habitat and water supply and purification (surface water treatment and groundwater discharge and maintenance of flow regime).
- They can also provide flood control however this is likely limited at this site due to its location (small upstream catchment and position on the Ottawa River which is regulated by waterpower facilities).
- The open water, found outside of the study area, can provide habitat for waterfowl breeding, rearing, and moulting.
- The Petrie Island area is well known as an important recreation, tourism, and education site however these activities primarily occur on the island, west of Tweddle Road and to the northwest of the site. The interpretative and walking trails are also found to the west of Tweddle Road and north of the North Service Road. The portion of the wetland located near the site is not used for these purposes and is on private lands.
- The PSW at this location is restricted to marsh habitat. That within the property is robust emergent marsh that is 40-100 m wide and mostly cattails with few openings. By May 21, 2020, the portion of the marsh immediately north of the areas proposed for development was dry or nearly so. Further north is the submergent marsh (125-155 m wide) but portions of this includes the marina and docks. The dense vegetation in the

PSW that is to be considered for this evaluation is distinctly different from that on the west side of Tweddle Road.

- The portion of the PSW that abuts this property is hydrologically disconnected from the PSW west of the causeway. This can be seen on satellite images that show the distinct water colour differences between the two area (turbid water from Cardinal Creek backflows into this study area but not past the causeway). Causing sedimentation of this portion of the PSW.

- A small portion of the PSW on site has been infilled by others. But this was remedied with the February 2022 rehabilitation works. Further, those works created more wetland than will now form part of the PSW.
- The more ecologically significant areas [alluvial island complex, Petrie Island swamps and aquatics and the Queenswood Forest (including a Hackberry Shrub community)] are all found to the west of Trim Road and north of the North Service Road. They are not found in the vicinity of the site.
    - These significant areas are described as such due to the low rate of disturbance, greater level of ecological integrity and much higher diversity as compared to the habitat found northwest of Petrie's Landing complex.
    - They also were identified as providing habitat for species such as northern map turtle, Blanding's turtle, Cooper's hawk as well as many significant plant species including the swamp and mixed forest habitat with the Provincially-significant *Carex typhina* and *Polygonum arifolium* (Brunton 1999).
    - Brunton (1999) also listed the least bittern but concluded that 'the limited quantity of suitable breeding habitat in the vicinity of the Petrie Islands complex suggests

that the likelihood of breeding by this species is very low in the Petrie Island study area'.
    - This concurred with the studies completed by Bowfin in 2020 at which time none of the wildlife inventories found any significant wildlife use of the site.

Conclusion:

- The Petrie Island Wetland is a Provincially Significant Wetland however the portion of the wetland with the highest significance is not located in the area to be disturbed for the developable area.
- The field check by an OWES evaluator following the provincial protocol found that the PSW line was fairly accurate.
- The areas of higher significance are situated to the west of Tweddle Road and north of the North Service Road.
- The nearest wetland community is marsh communities which has a lower sensitivity to disturbances than other types of wetland communities.

Unevaluated Wetland

The unevaluated wetland within the developable lands is not present. Instead, these areas were found to be filled and to consist of cultural meadows.

Avoidance Measures

The PSW was delineated in the field and found to be fairly accurate with the provincial layer with the small aberration of the fill. In February 2022, some fill was removed from the site, and, in addition, new wetland created (roughly ±0.13 ha). It was excavated to the depth of the adjacent cattails and is anticipated to quickly become re-vegetated with marsh species. A setback of roughly 30 m from the original PSW boundary has been extended to include 30 m from much of the new PSW boundary. Further, this buffer is scheduled to be enhanced with native vegetation.

Potential Impacts and Mitigation Measures for wetlands (PSW/ANSI):

- No direct impacts to any wetlands will occur.
- A ± minimum buffer of approximately 30 m between the developable lands and all wetlands.
- The buffer will be delineated on-site.
- Grading should be timed to avoid periods of high runoff volumes (such as the spring and fall periods).
- A permit from the City will be required prior to removing trees greater than 10 cm in diameter.
- Indirect impacts could occur as a result of change in water supply or quality, sediment/erosion of the wetland.

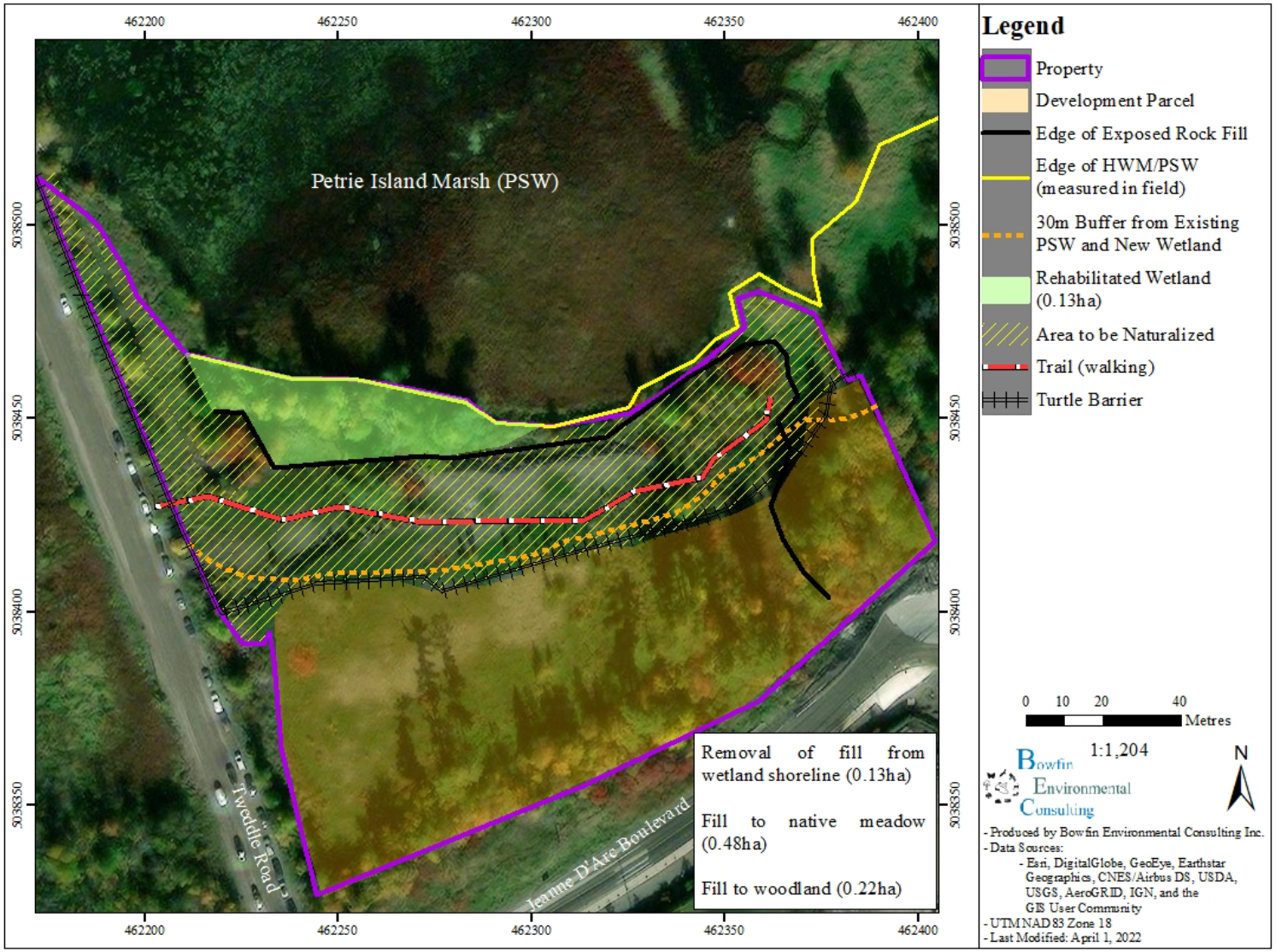
  - The stormwater management facilities will outlet to the river, following treatment. They will be designed and constructed to not impact the water quality within the wetland. They will also be designed to prevent erosion.
  - Water quantity will not be impacted as the water levels are controlled by waterpower on the Ottawa River.
  - Appropriate measures will be implemented along the slopes to ensure that no slope failure occurs (slope failure could result in the transportation of soil down into the wetland).
  - During construction, an appropriate erosion and sediment control strategy will be developed, installed, monitored, and maintained. This will include, at a minimum, the installation of sediment fence (countersunk) along the edge of the limit of disturbance.
- Any stockpiles of soil or fill material would be stored at least 30 m from the slope and protected by silt fencing.
- Additional materials (*i.e.,* rip rap, filter cloth and silt fencing) should be readily available in case they are needed promptly for erosion and/or sediment control.
- Erosion and sediment control measures need to be maintained and will require daily inspection to ensure that they are working as intended. Additional inspections will be required after rainfall or storm events.
- The sediment fencing would not be removed until the site is stable (<20% bare soil).
- Any outlet or drains will be constructed to ensure that no erosion of the soil occurs (to prevent slope failure and the transportation of sediments into the wetland).
- The wetland marsh is used by breeding birds and turtles. No additional access to the wetland will be created (no trails into wetland).
- No changes in light or noise impacts are anticipated above the background of other existing sources. No removal of vegetation in or over the wetland will occur. The noise from Regional Road 174, newly aligned Trim Road and the marina will likely generate more noise than that from this development. The addition of wooded vegetation in the offset area will improve the noise conditions.
- As mentioned above, the habitat adjacent to the wetlands is being considered for rehabilitation. Any plantings within that area would be with a seed mixture that contains native species that are locally appropriate or transplanting native vegetation. This will represent an improvement over the existing conditions.

Area	Nature	Duration	Magnitude
Local	POSITIVE Indirect	Permanent	Rehabilitation Works (Phase 1) have been completed and resulted in an increase of wetland habitat by 0.13 ha.

Rehabilitation Phase 2 would include naturalization of the buffer. This buffer can improve wildlife use of the wetland, and with the shrubs and trees in portions of the buffer, it will help improve the already existing noise and visual impacts.

Figure 9: Provincially Significant Wetland and Rehabilitation Phase 1 Works

Figure 10: General Rehabilitation Concept



5.2.2 Endangered and Threatened Species

Endangered and Threatened Species at Risk (SAR) are protected under provincial *Endangered Species Act*. The federal *Species at Risk Act* (SARA) applies to only fish[3] species on private land. Together, provincially, and federally protected species are referred to as SAR, herein. There is a potential for 18 Endangered or Threatened species to occur within the general area based on the available background information. These are: hickorynut, lake sturgeon, American eel, cutlip minnow, channel darter, Blanding's turtle, least bittern, eastern whip-poor-will, chimney swift, bank swallow, barn swallow, bobolink, eastern meadowlark, little brown myotis (bat), northern myotis (bat), eastern small-footed myotis (bat), tri-colored bat and butternut. As is discussed in the table below, the habitat requirements for most of these species was not present. Those that were present, potentially present or that should be highlighted for avoidance have been discussed further in the paragraphs below.

[3] In this part of Canada, Fish as defined under the *Fisheries Act* includes all parts (including eggs, larvae, spat etc.) of fish and shellfish (mussels)

Table 5: Summary of Potential Endangered and Threatened Species

Common Name	Scientific Name	SRank	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status	Preferred Habitat	Reference	MECP Guidelines/Triggers for Review	Brought Forward (Yes/No)
MOLLUSCS								
Hickorynut	*Obovaria olivaria*	S1?	END	END	Found in large, wide and deep (2-3 m) rivers with moderate to strong water velocities and sandy bottom. Host species in Ontario is Lake Sturgeon	COSEWIC 2011	No waterbodies in the developable area, setbacks will prevent work from affecting the Ottawa River.	No
FISH								
Lake Sturgeon	*Acipenser fulvescens*		THR	No Status	Bottoms of lakes and large rivers. Adults are typically found in highly productive shoal areas of large rivers and large lakes.	COSEWIC 2017	No waterbodies in the developable area, setbacks will prevent work from affecting the Ottawa River.	No
American Eel	*Anguilla rostrata*	S1?	END	No Status	Near cover over muddy bottoms in lakes, ponds, rivers and creeks at depths <15 m.	COSEWIC 2012	No waterbodies in the developable area, setbacks will prevent work from affecting the Ottawa River.	No
Cutlip Minnow	*Exoglossum maxillingua*	S1S2	THR	SC	Requires areas with rocky substrate, free of silt and with clear water. Found in clear waters with gravel substrate.	COSEWIC 2013	No waterbodies in the developable area, setbacks will prevent work from affecting the Ottawa River.	No
Channel Darter	*Percina copelandi*	S2	SC	SC	Pools and the edges of riffles of small to medium rivers over sand and gravel substrate. Prefers sand or gravel beach habitat within lakes and pool or riffle areas within creeks.	COSEWIC 2016	Only record from Ottawa River are 80 km downstream and the setbacks will prevent work from affecting the Ottawa River.	No
REPTILES								
Blanding's Turtle	*Emydoidea blandingii*	SNR	THR	THR	Shallow water, large marshes, shallow lakes or similar such water bodies.	COSEWIC 2005	Suitable habitat adjacent to site. Species-specific surveys were	Yes

Common Name	Scientific Name	SRank	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status	Preferred Habitat	Reference	MECP Guidelines/Triggers for Review	Brought Forward (Yes/No)
							completed, and advice was sought from MECP during the study design and following results. While none were found, the species is being treated as present in the wetland and Ottawa River.	
BIRDS								
Least Bittern	*Ixobrychus exilis*	S4B	THR	THR	Freshwater marshes, ditches, creeks, rivers and lakes with tall emergent vegetation.	COSEWIC 2009	There is suitable habitat adjacent to the site. But was not heard calling or observed during the field investigations.	Yes
Eastern Whip-poor-will	*Antrostomus vociferus*	S4B	THR	THR	Rock or sand barrens with scattered trees, savannahs, old burns or other disturbed sites in a state of early to mid-forest succession, or open conifer plantations.	COSEWIC 2009	Forest on site unlikely to be suitable for this species	No
Chimney Swift	*Chaetura pelagica*	S4B, S4N	THR	THR	Cities, towns, villages, rural, and wooded areas. When selecting trees, they prefer those that are >50 cm in diameter and that are within 1 km of waterbodies.	COSEWIC 2018	No man-made structures on site but large trees are present, MECP timing windows for clearing	Yes
Bank Swallow	*Riparia riparia*	S4B	THR	THR	This species nests within vertical banks, with a preference for sand-silt substrate. Nesting sites may be near open upland habitats.	COSEWIC 2013	No suitable banks on site or in adjacent lands and none observed.	No
Barn Swallow	*Hirundo rustica*	S4B	SC	THR	Open or semi-open lands: farms, field, marshes.	Peterson 1980, COSEWIC 2011	No suitable structures on site, present in general area. Observed	Yes

Common Name	Scientific Name	SRank	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status	Preferred Habitat	Reference	MECP Guidelines/Triggers for Review	Brought Forward (Yes/No)
							foraging over Ottawa River/PSW during site visits.	
Bobolink	*Dolichonyx oryzivorus*	S4B	THR	THR	Primarily in forage crops, and grassland habitat.	COSEWIC 2010	No grassland habitat on site or in adjacent lands. Daytime breeding bird surveys completed and none seen or heard.	No
Eastern Meadowlark	*Sturnella magna*	S4B	THR	THR	Fields, meadows and prairies.	COSEWIC 2011; Peterson 1980	No grassland habitat on site or in adjacent lands. Daytime breeding bird surveys completed and none seen or heard.	No
MAMMALS								
Little Brown Myotis	*Myotis lucifugus*	S4	END	END	Buildings, attics, roof crevices and loose bark on trees or under bridges. Always roost near waterbodies.	Eder 2002	Large cavity trees present on site, MECP timing windows for clearing	Yes
Northern Myotis	*Myotis septentrionalis*	S3	END	END	Older (late successional or primary forests) with large interior habitat.	COSEWIC, 2013; Menzel et al., 2002; Broders et al., 2006; OMNRF, 2015		
Eastern Small-footed Myotis	*Myotis leibii*	S2S3	END		Found within deciduous or coniferous forests in hilly areas.	Eder 2002		
Tri-colored Bat	*Perimyotis subflavus*	S3?	END	END	Prefers shrub habitat or open woodland near water.	Eder 2002		
VASCULAR PLANTS								
Butternut	*Juglans cinerea*	S2?	END	END	Variety of sites, grows best on well-drained fertile soils in shallow valleys and on gradual slopes	COSEWIC 2017	Butternut surveys conducted, none found.	No

Status Updated: March 25, 2021

SRANK DEFINITIONS

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.
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).
? Inexact Numeric Rank—Denotes inexact numeric rank
S#B Breeding
S#N Non-Breeding

SARO STATUS DEFINITIONS
END Endangered: A species facing imminent extinction or extirpation in Ontario which is a candidate for regulation under Ontario's ESA.
THR Threatened: A species that is at risk of becoming endangered in Ontario if limiting factors are not reversed.
SC Special Concern: A species with characteristics that make it sensitive to human activities or natural events.

SARA STATUS DEFINITIONS
END Endangered, a wildlife species facing imminent extirpation or extinction.
THR Threatened, a wildlife 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 wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats.

Blanding's Turtle

Blanding's turtle is associated with a variety of shallow slow aquatic habitats with submergent and emergent plants and soft substrate (COSEWIC, 2016). Their preferred aquatic habitat is less than <2 m deep (ECCA, 2018). To err on the side of caution, depths up to 4.5 m are considered habitat for this species (ECCA, 2018). These turtles require basking sites located near the water such as exposed rocks or partially submerged logs. The nesting sites are located within areas of loose substrates varying from sand to cobblestone and may occur along roadways as far as 400 m away. Marsh habitat is important for the juveniles for protection from predators. The species overwinters within permanent water bodies (COSEWIC, 2016). This species can migrate far distances of up to 6 km (OMNR, 2013b). Migration routes can include overland movement. However, some habitats such as: active agricultural croplands, sand pits, large waterbodies, fast-flowing systems and high use highways are not considered suitable habitat (ECCA, 2018). They also note that heavily developed urban areas without aquatic or wetland habitats are considered unsuitable (ECCA, 2018).

The habitat guidelines for Blanding's turtle provide protection to the areas surrounding a nest, or perceived nest area. The level of protection varies with the distance from the nest and has been categorized by MNRF into three categories. These, along with their protection level are:

Category 1	Nest and the area within 30 m or Overwintering sites and the area within 30 m
Category 2	The wetland complex (i.e., all suitable wetlands or waterbodies within 500 m of each other) that extends up to 2 km from an occurrence, and the area within 30 m around those suitable wetlands or waterbodies
Category 3	Area between 30 m and 250 m around suitable wetlands/waterbodies identified in Category 2, within 2 km of an occurrence

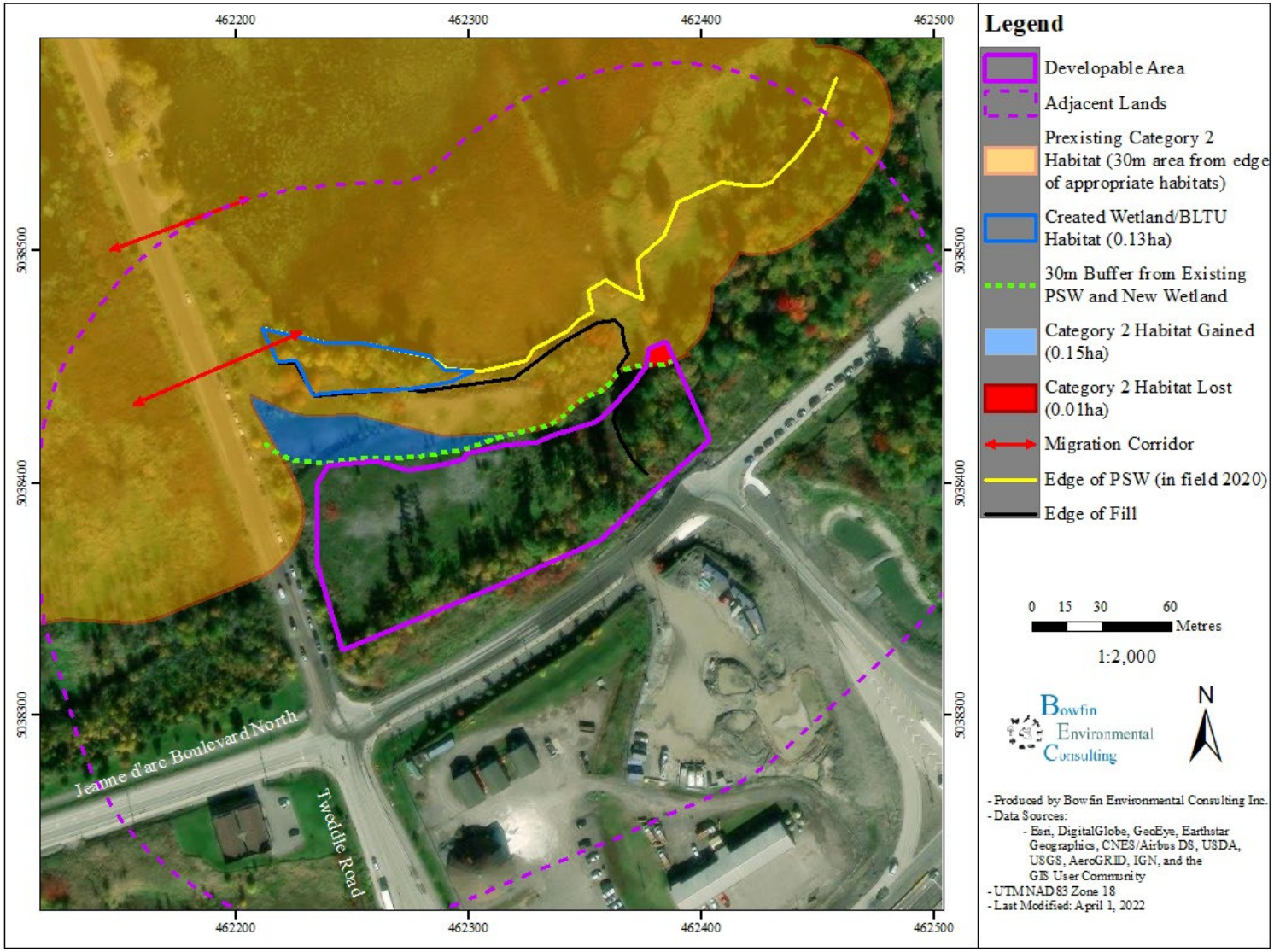
There is a potential for Blanding's turtle to utilize the aquatic habitat (Ottawa River and associated wetland habitat). Some of that habitat could provide overwintering habitat. The fill area was also considered as potential nesting habitat. Additional surveys (as described earlier in this report) were added and reviewed by MECP. The results were also shared with MECP. It was agreed that the fill did not provide nesting habitat and that the buffer offered by the proponent was suitable along with the mitigation measures. The greatest potential impact was from the rehabilitation works; however, these are considered as benefit. At this time, it is anticipated that the rehabilitation will have the following goals:

1. Remove some of the fill in the area not currently designated as a PSW and create new wetland habitat.

2. Remove fill from within the existing PSW boundary.
3. Rehabilitate the land next to Trim Road (currently heavily disturbed) to a natural meadow or other type of upland habitat and provide access to pedestrians (look out).
4. Create a naturalized 30 m buffer between the new edge of the wetland habitats and the development.

The result from the discussions with MECP was that the habitat protected to the north/east of the proposed location of the permanent turtle fencing would be sufficient to protect the Category 2 habitat and that there remaining lands did not provide suitable Category 3 habitat. The purpose of the Category 3 Habitat is to provide a migration corridor. To be suitable habitat, it should link wetland habitats or nesting habitats or overwintering areas. It has been established, that the developable lands do not provide overwintering or nesting habitat. The surrounding areas to the east and south of Jeanne d'Arc Boulevard North are mostly developed. The one section to the south that is not, was stripped of vegetation (exposed bare soil) by the City in spring of 2020. And the new alignment of Trim Road is now built. No overwintering, wetland or nesting areas are noted in these directions. The more natural migration route would be across Tweddle Road for turtles moving between wetlands and the gravel road shoulders or along the Ottawa River corridor to the east. The development lands would not affect the existing migration routes. The mitigation measures submitted for approval to MECP are included below under the SAR Turtle section.

Figure 11: Category 2 and 3 Blanding's Turtle Habitat



Birds

Two breeding bird visits were undertaken. During these visits, the only Endangered or Threatened species identified was barn swallows (THR, provincially and federally). The barn swallows were observed flying overhead foraging.

Barn Swallows

Barn swallows require structures for nesting. No structures were present within the area. The nesting habitat is considered absent.

Bats

The federal potential SAR bats within the general area are: little brown myotis, northern myotis, and tri-coloured. The eastern small-footed myotis is only protected provincially. Their habitat requirements vary for different life stages: hibernacula (winter hibernation sites), bat maternity sites and day-roots. The recovery strategy for the three federally listed species considered critical habitat to only include hibernacula.

These species prefer to hibernate in caves or mines or buildings. No known hibernation sites were present in the study area, and none were identified during the site investigations.

The northern myotis tends to prefer larger expanses of older forests (late successional or primary forests) and chose maternity sites in snags that are in the mid-stage of decay. They prefer habitat with intact interior habitat and is shown to be negatively correlated with edge habitat (Menzel et al., 2002; Broders et al., 2006; Yates et al., 2006; OMNRF, 2015). The preferred habitat was not present and as such, this species is considered unlikely to have maternity sites here.

The Atlas of Mammals of Ontario (Dobbyn, 1994) suggests that the tri-colored bat is not present within this part of Ontario however, the NatureServe mapping in the COSSARO (2015) includes all of southeastern Ontario. The City of Ottawa summary of Species at Risk in Ottawa (May 2021) indicates that only historical records of this species are available, there are no recent sightings. Based on this information, this species is considered to have a very low potential of occurring.

This leaves only the little brown myotis as potentially using the study area for maternity sites. The location of potential maternity trees was inventoried, and bat exit surveys were conducted. The results demonstrated that these cavities were not in use.

There also remains the potential for various species to utilise the trees on-site for day-roosts. Again, neither the maternity sites, nor the day-roosts are considered critical habitat in this portion of Ontario by MECP (personal communications) or by Environment Canada (ECCC, 2018c).

However, MECP only considers impacts to this species to be avoided if all of their recommended mitigation measures are followed. These measures are included below.

Plants

Butternut is listed as an endangered species federally signifying that it is at risk of becoming Extinct or Extirpated in Ontario and in Canada. Butternut is a shade intolerant species that is often found along edge habitats on rich, moist, well-drained loams or well-drained gravels (COESWIC, 2003). The butternut is threatened by a canker for which there is no known control (COESWIC, 2003).

There is suitable habitat for the butternut within the study area. As discussed in the methodology, a butternut inventory was undertaken (BHA #723 on June 14, 2020). No butternuts were identified. This species is considered absent from the study area. But is noted here as the inventories are, currently, only valid for 2-year period.

Mitigation Measures:

General:

- Endangered and threatened species are protected and cannot be harmed, harassed, or killed and in some cases their habitats are also protected. These individuals will only be handled by qualified person and only if the individual is in imminent threat of harm. An authorization under the ESA 2007 would be required to handle individuals that are not in imminent threat of harm.
- If a SAR enters the work area during the construction period, any work that may harm the individual is to stop immediately and the supervisor will be contacted. No work will continue until the individual has left the area.
- Should an individual be harmed or killed then work will stop, and the Ministry of Environment, Conservation and Parks (MECP) will be contacted immediately.
- Educate staff and contractors on the potential for SAR to be in the area and their significance.
- Mitigation measures listed elsewhere in this report are also applicable to this section.
- If a SAR is encountered, this information will be provided to the Natural Heritage Information Centre (Report rare species (animals and plants) | Ontario.ca)

Turtles

- Minimize the temporary and permanent works within Category 2 lands.
- Implement a strict speed limit of <15 km/h.
- Clearing of vegetation should take place during the turtle inactive season when they are hibernating which typically occurs between October 15-April 16 (weather dependent).

Otherwise, additional surveys (sweeps for turtles by fish and wildlife technician or biologist familiar with the species are needed). **Note that the timing constraint for tree removal is more restrictive as it follows the bat window (no clearing between April 1 and September 30, inclusive).**

- Sediment fencing along the banks can be used for temporary exclusion fencing. These will be properly countersunk and maintained to ensure that any turtles cannot get into the site. This sediment fencing is, at a minimum, to include the three sides of the project area closest to the PSW. Reptile and Amphibian Exclusion Fencing: Best Practices (OMNR, 2013d) should be followed for exclusion fence design.
- Stockpiles that might provide suitable nesting substrate (i.e., gravel, soil) will be provided with additional sediment fencing to prevent turtles from nesting in the work area. Note that should Blanding's Turtle nest on-site, then all work would be stopped until the hatchlings leave in the fall and MECP would need to be contacted.
- Contractor is to perform daily sweeps during the active season (approximately April 15 to October 16, subject to weather conditions).
- If an individual is found, work that puts the individual in danger will cease (i.e., moving machinery), and the individual will be watched from far to document where and when it leaves the site for a minimum of 2 hours. If it does not leave, them it may need to be relocated. Contact a biologist experienced with this species to relocate the individual.
- During clearing of vegetation, contractors are to be informed that they should keep a look out for wildlife and if any are observed, they should be given the opportunity to leave the area.
- Recommend clearing from west to east direction to allow wildlife the opportunity to leave the site into the natural areas that are to remain.
- The final design of the development will include a permanent barrier to turtle access. To be designed in consultation with MECP.

Area	Nature	Duration	Magnitude
Local	Negative Direct	Permanent	Positive (Creation of new wetland habitat)

SAR Birds: Other than the foraging Barn Swallow, no other SAR birds were identified as occurring or likely to occur.

- No impacts to federal SAR bird nests, or their eggs is permitted under the federal *Species at Risk Act*. If a federally listed bird species at risk nest is encountered, then work must stop until the young have fledged. If the nest/young have been harmed, then Environment Canada must be notified immediately for guidance.
- No impacts to provincial SAR bird nests or their eggs is permitted under the provincial *Endangered Species Act*. If a provincially listed bird species at risk is encountered, then work must stop and MECP contacted (sarontario@ontario.ca).
- Should a nest be discovered, stop all work that may disturb the birds (i.e. that cause the adults to fly off the nest) and contact a biologist or MECP or Environment Canada, as appropriate for the species.
- Note that timing windows for bird species in general are included further below as are those for bats (both of these are more restrictive).

Area	**Nature**	**Duration**	**Magnitude**
Local	Negative Direct	Permanent (removal of vegetation)	Unlikely to occur do to existing land practices. Timing constraint for general birds to be followed (see below and also cautioned that the bat timing window is more restrictive)

Bats: It is understood that most vegetation will be removed from the site. The potential to impact SAR bats would be restricted to day-roosts with the most likely species to be little brown myotis. Recent discussions with MECP on these species indicate that they do not need to be approached if the timing window below can be adhered to.

- Educate contractors by informing them that most bats in Ontario are protected.
- **Remove all trees that are 10 cm in diameter at breast height or larger (in the fencerows or forest) between October 1 and March 31 (Bat active season is currently assumed to be April 1 to September 30).** If this is not possible, conduct exit survey prior to cutting them down. If the exit survey identifies bats, contact MECP or biologist for additional guidance.

Area	Nature	Duration	Magnitude
Local	Negative Direct	Permanent (removal of trees)	Low potential (since no hibernacula are present and it is anticipated that all trees > 10 cm will be removed during the timing window and as bat exit surveys did not identify bats using the trees to be removed)

Plants: No SAR (Endangered or threatened) were present in or within 50 m from the site. However, the butternut inventory is only valid until June 14, 2022. After that date, a new survey would need to be undertaken. Also, note that if a butternut was missed, then it would need to be assessed prior to working within 50 m of that individual.

Avoidance/Mitigation Measures for Butternuts:

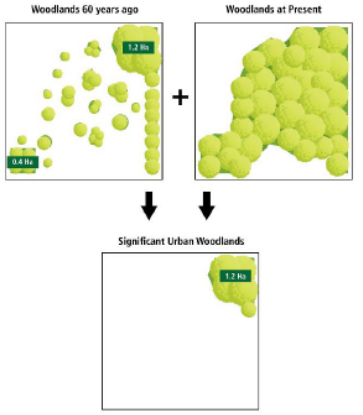
- Should butternuts be identified then these will need to be assessed and the appropriate actions taken.
- Repeat the inventory during the green-leaf period (usually mid-May to end of August) prior to clearing of vegetation. Follow guidance on clearing of trees from bats and birds and wildlife in general sections.

5.2.3 Woodlands

This report makes use of the City of Ottawa's recently released Significant Woodlands Guidelines that notes that in the Urban Area an Urban Woodland must meet:

1. 0.8 ha in size (or larger)
2. Support woodland that is at least 60 years old at the time of evaluation. This threshold on age exceptions is depicted in Figure 2 of the Guidelines (included below).

Figure 2. Application of the Size Threshold and Age Exemption in the Identification of Significant Urban Woodlands



(from *Significant Woodlands: Guidelines for Identification, Evaluation, and Impact Assessment* (City of Ottawa, 2019))

The City of Ottawa identified the Candidate Woodlands on site based on the presence of wooded area in the general area on air photography in 1945 (Figure 12). It is agreed that that image depicts vegetation in the general area. It is also agreed that the small inclusions noted on Site form part of a larger community that continues to the east resulting in the overall woodland stand being >0.8 ha (Figure 13). However, it is noted that the area may have been cleared, at some point. This is evidence by the exposure of some garbage along the slope of the bank (see Photo 10 and Photo 11). In addition, this woodland:

- Is not accessed by the public (is on private lands, no evidence of trails noted in the forest itself);
- Is on a very steep slope and contained a high number of downed trees which limits the accessibility by public;
- The two bullets above prevent it from use for public events, gatherings etc.;
- Had a high percentage of unhealthy or dead trees (55%) (these trees are not providing any value in terms of air pollution or shading, and limited water absorption). Note that canopy cover by the live trees (any size) was not reassessed in 2021 (since it is too early to do so). Depending on what has grown in the openings (shrubs versus tree regeneration) some of the inclusions may no longer meets the 60% canopy rule;
- The slope is mostly bare and has erosion suggesting that it is not providing functions in the way of decreasing runoff during heavy rain events;
- Did not provide habitat for significant habitat for flora or fauna;
- Contained invasive woody species (Common Buckthorn, Tartarian Honeysuckle);
- WSP (2017) indicated that the average diameter of the woodland to the east (within their surveyed area) was also young with the same average diameter of 15 cm. As such, this entire woodland (estimated to be 7.2 ha (Figure 13)) may not meet the age category; and

- The woodland stand, as a whole, is small, and does not have any interior habitat, and is on a steep slope with poor access for the public.

Regardless, as requested by the City, this area is being treated as an Urban Woodland and its removal will require compensation. The compensation area will be situated between the wetland and the development. This will allow for a net gain of wooded area and an area that will be much better suited to provide urban woodland functions. A review of the City's discussion hierarchy is provided in Table 6.

Figure 12: Urban Woodland within the Developable Area

Figure 13: Woodland Stand

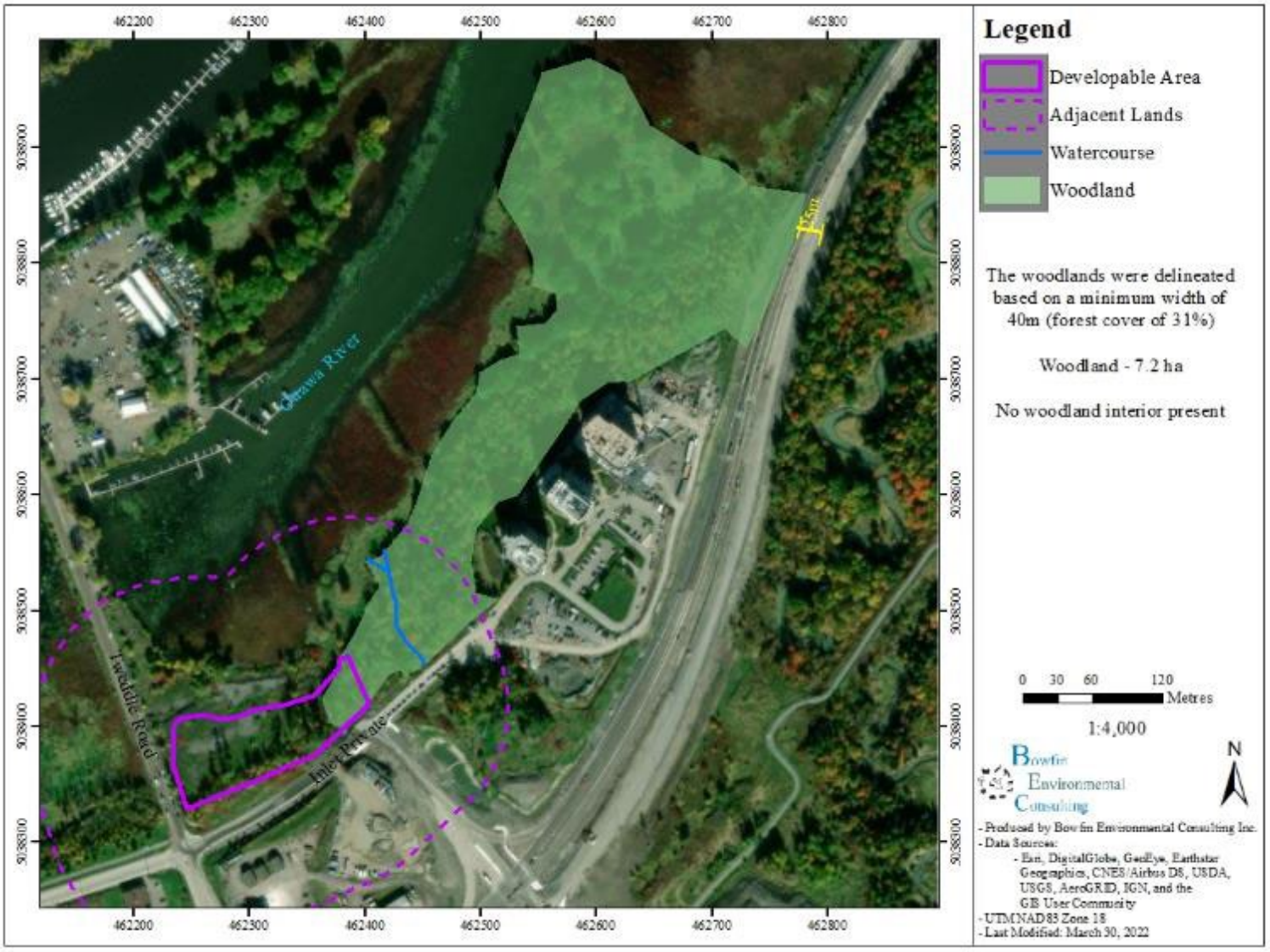


Table 6: Discussion of Mitigation Hierarchy

Mitigation Hierarchy	Comments	Fully Mitigated?
Avoidance	The full development of the site cannot avoid the removal of this small portion of the woodland (0.11 ha).	Not feasible to avoid. Lands identified as having environmental value are focused along the north side of 1009 Tweddle property (i.e., PSW/ANSI/Fish Habitat). The New OP includes the entire south side of 1009 Trim along Jean D'Arc within the Protected Major Transit Station Area (PMTSA) around the new Trim LRT Station. The PMTSA overlay supports the compact high-density mixed-use development for the southern part of the site. Such development would also advance the key objectives of the new OP to have streets within the PMTSA animated and activated to contribute to creating strong pedestrian linkages to the LRT station especially where the new Trim realignment intersects with Jean D'Arc. Additional measures required see next row.
Minimization	During the detailed design phase, the architect will be asked to try to minimize the removal of healthy trees. However, for this Site, the Ottawa River and the PSW are considered of higher value than this wooded area. As such, it is more desirable to keep the development south (towards Jeanne D'Arc Boulevard North) and in the fill areas as opposed to avoiding trees in	Not feasible to minimize. Additional measures required see next row.

Mitigation Hierarchy	Comments	Fully Mitigated?
	this previously disturbed wooded area.	
Mitigation	Should it be determined that some trees can be retained during the design phase, then they will be protected with physical barriers during construction. But there will still be a negative impact to the wooded area.	Not feasible to mitigate. Additional measures required see next row.
Compensation	The development of the entirety of this Site could result in the loss of up to 0.11 ha of wooded area identified as significant by the City. However, the property includes a large area of fill some of which was in the shoreline and into the wetland. Portion of the fill on the shoreline was removed as part of Phase 1 of the Rehabilitation Works at which time 0.13 ha of new wetland habitat was created. The next step (Phase 2) would be to rehabilitate the remaining area (total area is 0.83 ha). The Guidelines recommend an offset of greater than 1:1 for the removal of wooded areas in the Urban Area. The overall benefit will far exceed this ratio as it will include a mixture of native vegetation (wetland, meadow, wooded). The goal for the wooded area is 0.22 ha of treed area within the habitat enhancement plan.	Fully compensated with an aim to provide 0.22 ha of wooded area. Plus another 0.61 ha of enhancements (total enhanced habitats ±0.83 ha).

Mitigation Measures:

- No signs, notices or posters should be attached to any trees.
- The removal of trees greater than 10 cm in diameter would require a permit from the City.
- Any trees to be retained will be protected through the installation of study snow fencing outside of their critical root zone (10x their diameter at breast height) to minimize harm to the root systems of trees adjacent to the proposed works will be implemented to protect them from indirect harm. These include:
- Sturdy fencing (i.e. snow fencing) will be installed on the edge of the area to be protected and the CRZ will be delineated with stakes. This sturdy fence will remain in place until final grading and seeding takes place.
- Monitoring of the fencing listed above will be completed by the proponent or their consultants during construction.
- Monitoring of the clearing of any vegetation within the CRZ will be monitored by the proponent or their consultants.
- Only clear trees where it is needed.
- No grading or activities that may cause soil compaction (such as heavy machinery and stockpiling of materials) will be allowed in the CRZ.
- Ensure that the grades are matched at the limit of the natural feature or to the edge of any buffer.
- Furthermore, no machinery maintenance or refueling or stockpiling is permitted within 5 m of the outer edge of this fencing.
- Exhaust fumes from all equipment will be directed away from the canopy of the trees to be retained.
- If roots of trees to be retained become exposed during site alterations, they will be buried immediately with soil or covered with filter cloth or woodchips and kept moist until the roots can be buried permanently.
- Any roots that must be cut will be cut cleanly to allow for healing.

Area	Nature	Duration	Magnitude
Local	Negative Direct	Permanent (removal of trees)	Because of the removal of Urban Woodland, the Mitigation Measures do not suffice, and Offset is Required.

Urban Woodland Offset (Draft)

Please note that the details of the habitat enhancement area are pending this discussion as well as discussions with other agencies. At this time, the following is anticipated:

- The overall area available for enhancements is calculated at ±0.83 ha of which 0.13 ha has already been dedicated and constructed as wetland (Figure 10).
- The existing conditions in the enhancement area consists of:
    - heavily compacted rocky fill vegetated with broad leaf herbaceous species such as bird's foot trefoil, common sow thistle, white sweet clover, wild carrot, cow vetch, burdock, viper's bugloss, field bindweed, smooth brome, coltsfoot, and common mullein. There were also a few scattered, young, eastern cottonwoods. These were less than 2 m tall and provided very little in terms of cover.
    - The area removed for the creation of the wetland habitat consisted of fill. The species here were eastern cottonwood, black willow, Freeman's maple, green ash, red maple, and Manitoba maple with staghorn sumac (both 1-2 m tall and regeneration) and the ground layer included white sweet clover, bird's foot trefoil and tall goldenrod. On the east, it consisted of clay with reed canary grass (likely the invasive species).
- The intent is to create habitat that consists of a mosaic of native meadow, marsh/tall shrub swamp, shrub and treed habitats.
- The portion of wetland habitat created was restricted to 30 m from the edge of the permanent footprint of this development.
- The option to transplant some of the woody vegetation from the proposed development lands to the enhancement area will be evaluated by the landscaper.
- The proponent will consider using potted stock for at least a portion of the wooded species. This would improve the speed at which the site becomes functional.
- The treed areas also need to allow for viewing from terraces, Tweddle Road and the walking trail. There will be a goal of reaching 0.22 ha with details determined as the information on how the site will be developed and where the public viewing could take place is gathered. For instance, the denser areas could be situated in front of parking areas while strategic plantings (groupings, tall shrubs) could be placed where viewing is desirable. It is expected that details for tree planting to ensure key views are provided for with tree planting framing and enhancing significant views would be informed through a view analysis to confirm key views to and from the development and for viewing areas.

Other important factors are:

- Timing
    - The intent is to complete the habitat enhancement works concurrently with the excavation activities - if possible, in its entirety. However it is noted that access to native vegetation may be problematic. If issues arise, then an annual cover crop would be sown, and the plantings completed as soon as possible.

- Public Access
    - A public viewing area would be created along the edge of Tweddle Road.

Table 7: Discussion of Urban Criteria

Criteria	Comments
Air, Water Cycle and Climate	**Existing trees** are: -Young (average diameter 3-12 cm) and covers over an area of 0.11 ha. But because >50% are dead or dying its total canopy cover is poor. Further many species are those susceptible to disease (ash, elm) its total canopy at maturity may never reach its full capacity. -Within 250m of high-rise towers. -Are not accessible to the public. -High percentage of dead/dying trees which do not provide any benefits in terms of air, water cycle or climate. -The lack of herbaceous ground cover and presence of bare soil on slope indicates that it is not assisting in run-off storage. **Proposed will**: -provide more total canopy cover (goal of reaching 0.22 ha in the enhancement) and will be planted with species other than ashes and elms in an effort to avoid those species that are presently susceptible to disease. This will create more total canopy cover at maturity, equating to more of the benefits (removal of pollutants, reduction of urban heat, and carbon storage. This does not consider the remainder of the enhancement area that will also include individual trees and shrubs and native meadows/wetlands.

Criteria	Comments
	-Have an enhancement area that is graded to minimize erosion and improve run-off storage. -will include potted stock plantings and possibly transplanting from the site to reduce the lag time of the new area in providing the benefits. -will remain within 250 m of high-rise towers (already built by others) -will become readily accessible.
Green Infrastructure	**Existing trees**: -are on bare slope (little herbaceous cover) and signs of erosion. -do not offer high run-off capturing capabilities. -Much of the proposed development area and the enhancement area is currently rock fill or clay fill with little run-off capabilities. **Proponent is considering**: -Development is considering reflective (white) roof for the towers and vegetated terraces for lower roof levels for outdoor amenity areas . -plantings, strategically placed, within the development to reduce heat and stormwater runoff. -landscape architect will review opportunities for tree retention. -The enhancement area is currently rock fill with little run-off capture capabilities. Enhancement area (0.83 ha) will see a large improvement. A portion of the enhancements have already been completed, allowing their benefit to begin sooner. -is an opportunity to provide community access to a wooded green space.
Disease Regulation	While woodlands can create an area where disease can be communicated, this will be minimized at this location by/because: -Low population of deer in the area (lower number of ticks) -Walking trail [1.5-2.0 m wide (wood chips)] will be built -Signage to ask people to stay on the trail will be posted

Criteria	Comments
	-Native meadows and vegetation will be planted to reduce the amount of wild parsnip and other invasive species that impact human health. -Education panels are being considered to provide walkers information on dangerous plants and on ticks.
Pollination	Proposal includes an increase in area of native plants (including trees). Vast improvement over current rock fill.
Socio-cultural	**The existing:**
Recreation, heritage, tourism	-has **no public access** (is entirely on private land), -has **no opportunities** for recreational, educational, or cultural interactions. **Proposed enhancement area:** -will allow public access on privately-owned land. -will provide a new viewing point of the river and PSW not currently available. -will create ±0.83 ha of accessible greenspace. -will provide an opportunity to create educational panels for the public. -new area to offer relief from extreme heat events, to view nature and relax/spiritual contemplation. -the viewing platforms will offer opportunities for bird-watching in the PSW and the remainder of the enhancement area for bird-watching of more common terrestrial breeders. -the viewing platform will be named after the Grandmaître family (previous owners of the site).
Habitat	Surveys did not identify any unusual characteristics, or significant wildlife habitat. New area will provide a better buffer to the PSW (naturalized instead of the existing rock fill). The existing wooded area is over 30 m from the PSW and most of it is more than 50 m from the PSW. The new area will be within 30 m-50 m of the PSW. New area will be vegetated with native species.

5.2.4 Fish Habitat

The only aquatic habitats were the Ottawa River and the marsh habitat adjacent to the fill. The Ottawa River is approximately 1130 km long and has a watershed of 146300 km^2. Its headwaters are in Québec at the Grand Lac Victoria and Reservoir Dozois and its outlets into the St. Lawrence River near Montreal (Haxton and Chubbuck 2002). It supports coolwater and warmwater fisheries. The river is divided into several reaches by hydroelectric facilities and natural features. Chaudière Falls/Ring Dam represents the division between the Lac Deschênes, and Lac Dollard des Ormeaux reaches. The site falls in the Lac Dollard des Ormeaux reach. Lac Dollard des Ormeaux begins at Carillon Dam and ends at Chaudière Falls; a length of roughly 113 km (Haxton and Chubbuck 2002). The average depth in this section is 6-8 m. Information on the species was obtained from the Aquatic Resource Area (ARA) data on LIO, from Haxton and Chubbuck (2002), and from the DFO Aquatic Species at Risk Map (Appendix M). The combined list consists of a total of 78 species. This included a variety of cold, cool, and warm water species. It also included sportfish such as longnose gar, brown trout, northern pike, muskellunge, burbot, smallmouth bass, largemouth bass, yellow perch, sauger, walleye. The list also included pan fish, such as rock bass, pumpkinseed, bluegill, northern sunfish, white crappie, and black crappie.

That marsh consisted of a very dense emergent marsh (cattails). While there was some was wet, especially along the edge of the fill, during the first visit (April 29, 2020), it was never more than 10-30 cm. It was dry by the next visit which was on May 21, 2020. This part of the cattail marsh was thick with no channels through the root matt making fish use of this portion of the wetland limited. Based on a review of the available satellite imagery, it would seem that there is no culvert in the causeway linking land to Petrie Island. This is causing a backwater effect and limits the flow through the area. The images also demonstrate that, while all of the emergent marsh became inundated, the fill area did not even during the historically high waters of May 2017.

Potential to Impact Fish and Fish Habitat and Avoidance/Mitigation Measures:

Planning

- There is no work planed for below the high-water mark. Should this change, then DFO will need to be consulted.
- The only work within 30 m of the high-water mark are for rehabilitation and avoidance measures (i.e. turtle fencing).
- Site instruction will be provided to contractor to highlight that the Ottawa River provides permanent fish habitat.
- Erosion and sediment control measures will be installed prior to the clearing of vegetation within 30 m of a watercourse.
- Suspend activities that cause muddy environments during periods of heavy rains.

Erosion and Sediment Control

- An erosion and sediment control plan will be developed by contractor and implemented prior to any work within 30 m of the watercourse.
    - Provide regular maintenance to the erosion and sediment control measures during construction. Contractor shall be responsible for ensuring that the erosion and sediment control measures are maintained and will monitor the water clarity downstream of the work site throughout the day and during rain events. Water quality is to meet the *Canadian Water Quality Guidelines for the Protection of Aquatic Life*. Monitoring for visible plumes outside of the work area is to be undertaken.
    - At a minimum, the erosion and sediment control plan will include the installation of sediment fencing along in the marsh, near the edge of the area to be rehabilitated.
    - This fence must be removed before spring freshet.
    - Additional materials (*i.e.* rip rap, filter cloth and silt fencing) will be readily available in case they are needed promptly for erosion and/or sediment control.
- Any stockpiles of soil or fill material will be stored as far as possible from the channel and protected by silt fencing (minimum 30 m).
- The sediment fencing will not be removed until the bank is stabilized (<20% bare soil).
- All equipment working within 30 m of the water will be well maintained, clean and free of leaks.
- Where banks/riparian area (area within 30 m of channel) have been stabilized by seeding and/or planting, monitor the revegetation to ensure that the vegetation becomes fully established.

Contaminant and Spill Management

- All equipment working in or near the water should be well maintained, clean and free of leaks. Maintenance on construction equipment such as refueling, oil changes or lubrication would only be permitted in designated area located at a minimum of 30 m from the shoreline in an area where sediment erosion control measures and all precautions have been made to prevent oil, grease, antifreeze or other materials from inadvertently entering the ground or the surface water flow.
- Emergency spill kits will be located on site. The crew will be fully trained on the use of clean-up materials to minimize impacts of any accidental spills. The area would be monitored for leakage and in the unlikely event of a minor spillage the project manager would halt the activity and corrective measures would be implemented.
- If a spill occurs:
    - Stop all work

  - Spills are to be immediately reported to the MECP Spills Action Centre (1800 268-6060). Note that under the *Fisheries Act* deleterious substance includes sediments.
  - Clean-up measures are to be appropriate and are not to result in further harm to fish/fish habitat.
  - Sediment-laden water will be removed and disposed of appropriately.
- No construction debris will be allowed to enter the watercourse.
- Following the completion of construction, all construction materials will be removed from site.

5.2.5 Significant Wildlife Habitat

The potential for significant wildlife habitat was considered and many species-specific inventories were completed for this project. The *Significant Wildlife Habitat Ecoregion Criteria Schedule for 6E* was used and a table summarizing the conclusions is found in Appendix C. While no significant wildlife habitat was identified, a few items deserve to be highlighted:

- An eastern wood-pewee (Special Concern) was heard on a single occasion during the breeding bird surveys in 2020. It was noted as being on the island. This area is far outside of the area to be disturbed.
- While the turtle surveys did not confirm the use of the area as overwintering by more than 5 individuals (despite being carried out as per the provinces protocols and using spotting scope from the plateau); nesting turtles are present but again far from the site. They are nesting on the east side of Tweddle Road.
- Almost all birds in Ontario are protected by either MBCA or FWCA.
- Most reptiles are protected by the FWCA.
- Killdeer nests were found and protected and should be expected to be present annually.

Potential Impact and Mitigation Measures:

- Almost all breeding birds are protected under the MBCA and/or FWCA. The only species not protected are: American crow, brown-headed cowbird, common grackle, house sparrow, red-winged blackbird, and starling. It is prohibited to destroy or disturb an active nest of other birds, or to take or handle nests, eggs, or nestlings. In this part of Ontario, the current standard nesting period is between **April 5 to August 28**. Outside of this timing window, it is considered unlikely that birds would be nesting. Note, there are some birds (birds of prey, herons etc.) that do begin nesting earlier in the year. It should also be noted, that if an active nest is present before or after the above dates that it is still protected.

- There is a high potential for ground nesting birds (i.e., killdeer) to be present. These prefer to nest on bare soil or gravel areas. Perform regular walks of the cleared areas looking for ground nesters. If any are present, the contact a biologist for guidance.
- Work during the daytime hours to prevent light disturbances.
- Ensure that all equipment have the appropriate mufflers to reduce noise disturbances.
- If a turtle nest is suspected, then flag a 10 m buffer to protect the nest. Contact MECP (for SAR) and MNRF (all other species).
- Do not flag bird nests as it attracts predators.

5.2.6 Urban Natural Feature

Note that the new Schedule C-11 does not include the developable lands within the Natural Heritage System Core Area. This has been interpreted to mean that the Urban Natural Area #92's boundary has been amended. This would better match what was observed on site. As such, there is no potential for direct impacts to the UNA. The need for indirect impacts depends on the function of the UNA.

The Petrie Island Wetland also forms part of the Urban Natural Area #92: Petrie Islands and Mainland. This area has been described as a 288.2 ha parcel of alluvial islands, riparian deciduous swamp forests and mainland deciduous and mixed upland forests. This feature also includes the habitat where the Eastern Wood-pewee was heard calling from.

UNA assessment of the area assigned high ranking for the UNA's:

- Connectivity
    - Connected to the Ottawa River and is adjacent to UNA 188 (Petrie West), UNA 93 (Taylor Creek Valley)
- Size and shape
    - Contains approximately 160 ha of interior habitat (primarily wetland habitat)
- Natural communities
    - High native flora [co-efficient of conservation (cc) 4.61 with 63 high-rate cc species]
    - Moderate to severe impacts from invasive species (including glossy buckthorn, common buckthorn, and reed-canary grass all of which were found within the adjacent lands of this development proposal)
- Representative flora
    - Young to sub mature Green Ash Deciduous Swamp Forest
    - Sub mature United Maple, Silver Maple, Red Maple Deciduous Swamp Forest (dominant vegetation on alluvial islands)

  - Sub-mature to mature Hackberry Deciduous Swamp Forest (small areas on all islands – not near the site)
  - Deciduous Thicket Swamp (not near the site)
  - Reed canary grass Marsh (found in adjacent lands)
  - Cattail Marsh (found in adjacent lands)
  - Shallow water aquatic associates
  - Young to sub-mature upland forest (Green Ash, White Birch and Red Maple – common in lower slopes and backshore) (not near the site)
  - Mature upland Mixed Forest (Eastern Hemlock and Sugar Maple – small area of original Ottawa shore forest in Queenswood Forest) (not near the site)
  - Sand barren (dune-like area on West Island)
- Significant flora and fauna
  - High level of native biodiversity
  - Faunal representation of both common urban breeding birds, herptiles and mammals
- Significant Wildlife Habitat
  - Large population of map turtles and Blanding's turtles in wetlands and adjacent swamp forest, respectively (all Blanding's turtle occurrences are >1.5 km from the site).
  - Provincially significant least bittern and black tern, at least former breeding species, in open marsh habitat (not near the site)
  - Breeding habitat for Regionally significant raptor Cooper's hawk in Queenswood Forest (not near the site)
  - The eastern wood-pewee (Special Concern) was heard on a single occasion during the breeding bird surveys in 2020. It was noted as being on the island. This area is far outside of the area to be disturbed.

Potential Impact and Mitigation Measures:
As mentioned above, there are no direct impacts to this UNA. Early in the design, the location of the developable lands was adjusted to minimize impacts to the natural heritage features. Indirect impacts have been avoided through the measures outlined above for wetlands, woodlands and fish habitat. No additional measures are required.

5.2.7 Accidents and malfunctions

The potential impacts associated with this proposed development largely stem from accidents or malfunctions. Although the likelihood of accidents and malfunctions occurring would be minimized by following the mitigation measures outlined below, should accidents and/or malfunctions occur they have the possibility of presenting serious impacts and require consideration.

Maintenance on construction equipment such as refueling, oil changes or lubrication would only be permitted in designated area located at a minimum of 30 m from the PSW. And in an area where erosion and sediment control measures and all precautions have been made to prevent oil, grease, antifreeze or other materials from inadvertently entering the ground or the surface water flow.

Machinery should be cleaned prior to arriving on-site to prevent the potential spread of invasive species.

Emergency spill kits would be located on site. The crew would be fully trained on the use of clean-up materials in order to minimize impacts of any accidental spills. The area would be monitored for leakage and in the unlikely event of a minor spillage the project manager would halt the activity and corrective measures would be implemented. Any spills would be immediately reported to the Ministry of Environment, Conservation and Parks (MECP) Spills Action Centre (1800 268-6060).

Figure 14: Constraints

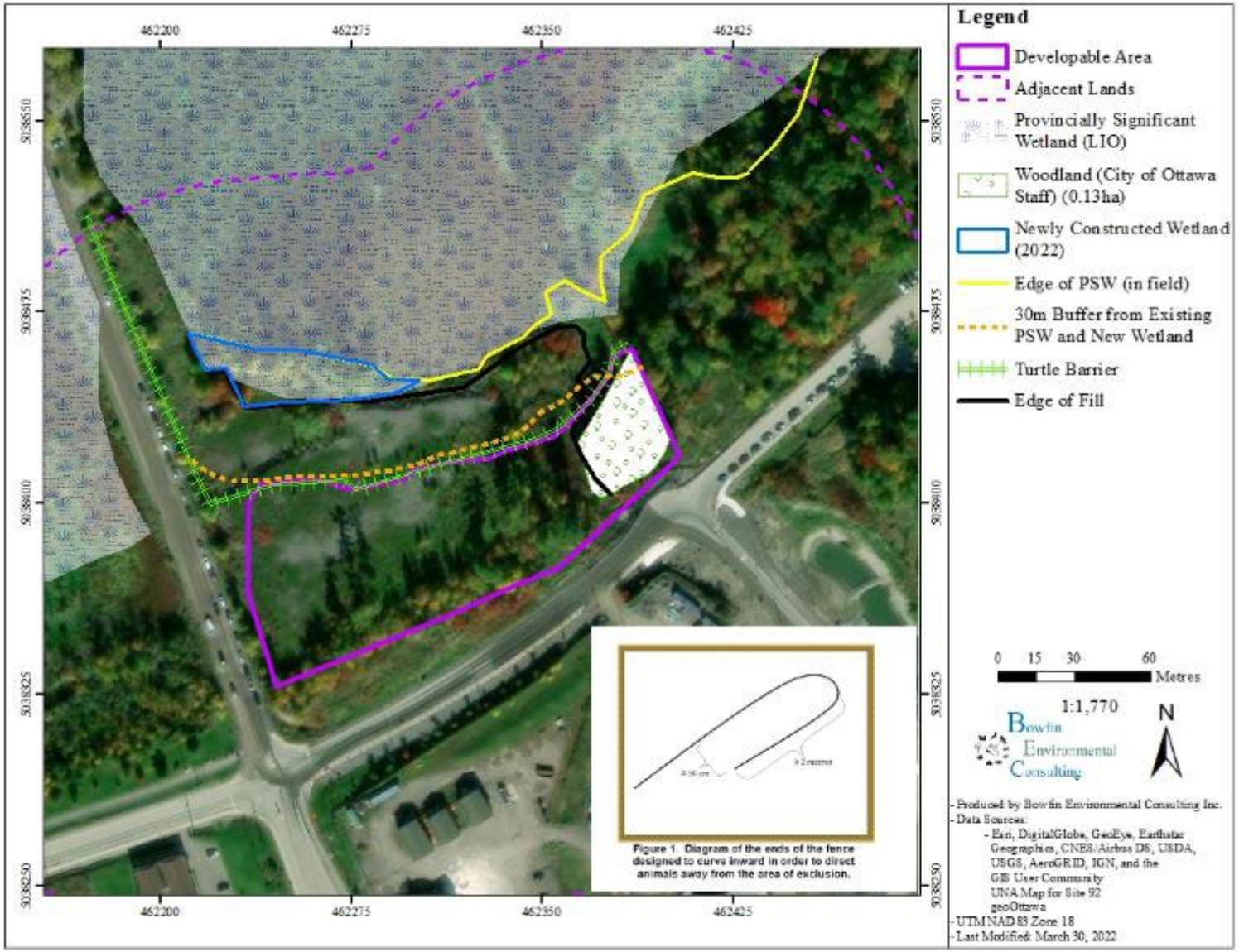


Table 8 Summary of Impacts, Mitigation Measures and Residual Effects – Note that the full list is provided above. Any discrepancies between that and this table, the lists above are to take precedence.

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
Construction				
Vegetation Clearing in preparation development	Small section of Category 2 Habitat Blanding's Turtle Bird nests protected by MBCA Urban Woodlot Working near PSW, ANSI and NHS	With respect to Category 2 habitat for Blanding's Turtle, the loss of this small area is not anticipated to contravene ESA Removal of vegetation would destroy (temporarily or permanently) breeding habitat.	Developable lands were altered to minimize impacts and provide ±30m buffer from natural features except for the Urban Woodland. Any trees to be retained in the adjacent habitats will be protected with sturdy fencing erected outside of the CRZ. A permit from the City will be required prior to removing trees greater than 10 cm DBH. No signs, notices or posters should be attached to any trees;	Loss of small portion of Urban Woodlot (0.11 ha) to be offset with roughly 0.22 ha of new woodland along the shoreline. The total enhancement area included 0.83ha of which 0.13 ha has already been constructed as wetland.

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
			Any landscape plans should include native species as much as possible. Various species could be used including: red maple, sugar maple, hickory, bur oak or nannyberry. Where possible the woody vegetation should be planted in groupings to maximize wildlife benefit. All vegetation clearing should occur outside of breeding bird season and the day-roost period for bats (**no clearing between April 1 and September 3**0). If this is not possible, then have a biologist complete a bird nest surveys a maximum of 2 days prior to clearing between April 1 and	

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
			August 15. Take precautions for bats between April 1 and September 30. Precaution for bats can include bat exit survey prior to cutting them down. The bat timing window applies to trees that are 10 cm or larger. Sediment fencing shall be installed on three sides of the work area and this will include the enhancement area during its rehabilitation. The fence will be designed to serve for erosion and sediment control and for temporary turtle exclusion. The developable lands are a minimum of 30 m from the PSW.	

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
			The proponent or its representatives will provide monitoring during the installation of the snow fence (to protect trees to be retained), the staking/sediment fence of the CRZ and during clearing of vegetation between these two areas. Contractors will be encouraged to minimize clearing of vegetation in this area. Workers will be educated on the potential for SAR. If a SAR enters the work area during the construction period, any work that may harm the individual is to stop immediately and the	

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
			supervisor will be contacted. No work will continue until the individual has left the area. These sightings will be reported to MECP and NHIC. Should an individual be harmed or killed then work will stop and MECP will be contacted immediately. Avoid clearing of vegetation during the sensitive times of the year for local wildlife (i.e. spring to early summer) when animals are bearing and nursing their young. Contractor is to refer to the City of Ottawa Protocol for Wildlife Protection during	

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
			Construction (August 2015).	
Construction of infrastructure, buildings and Grading	Indirect impacts to wetland, fish habitat, and UNA should erosion or sediment control measures fail.	Negative impacts to: quality of wetland habitat or its functions (wildlife and fish habitat), because of erosion or sedimentation of wetlands or aquatic habitats. Noise from machinery may also cause a disturbance to wildlife in the UNA and/or wetland. Permanent structure could cause slope instability.	Install sediment erosion protection measures prior to the removal of vegetation. Sediment erosion protection measures will include at a minimum properly keyed in sediment fencing (the heavy duty geotextile fabric needs to be buried to prevent water from traveling under the fence). Fencing will also extend along the two sides (east and west) of the project area. (Note refer to measures above for protection of wetlands and turtles). Maintain sediment fencing as needed.	None provided that mitigation measures are properly implemented and maintained.

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
			Daily inspections, especially following rain or storm events, of the sediment control measures will be required. Leave erosion control measures in place until slope is fully stabilized (<20% bare soil). Monitor erosion and sediment control measures to ensure that they are sufficient during and following rain events. Only work outside of limit of developable lands is for the rehabilitation. No storage of stockpiles within 30m of top of	

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
			slope of the Ottawa River. Work during the daytime hours to prevent light disturbances. Ensure that all equipment have the appropriate mufflers to reduce noise disturbances. Any slope stability measures provided by geotechnical experts will be adhered to. Construction staff will be informed of the SAR in the area (Appendix C).	
Accidents or Malfunctions	Indirect impacts to wetland, and UNA should erosion or	Spills or accidents during construction could impact the quality of wetland habitat or its	All equipment should be well maintained, clean and free of leaks.	Unlikely

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
	sediment control measures fail.	functions (wildlife and fish habitat), could cause slope failure of the banks of the Ottawa River or impact the habitat of the UNA (wetland).	Maintenance of construction equipment should occur at a minimum of 30m from the PSW and where possible from the edge of any trees to be retained. It is to be in an area where all precautions have been made to prevent oil, grease, antifreeze or other materials from inadvertently entering the ground or surface water. Any machine coming from offsite should be cleaned and free of mud (to prevent the transfer of non-native vegetation). Emergency spill kits should be located on site	

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
			and the crew trained on their use. Any spills will be reported immediately to MECP Spills Action Centre (1.800.268.6060).	

6.0 CONCLUSIONS AND RECOMMENDATIONS

The lands to be developed are bordered by Tweddle Road and Jeanne d'Arc Boulevard North. They consisted of fill with cultural meadows and a small urban woodland. The total area is small (±1 ha).

The north side consists of a wetland which form part of the identified NHS (PSW, ANSI, and UNA). The new NHS mapping (Schedule C-11) does not include the developable lands.

The PSW will not be directly impacted, and the site has been altered to adhere to a 30 m setback from the current PSW boundary. The removal of the Urban Woodlot will be compensated for in the lands between the river and the development. Further, rehabilitation of the wetland has already begun with Phase 1 Rehabilitation Works in 2022. The wetland was expanded by 0.13 ha.

No Endangered or Threatened habitat or species were documented in the study area. But the Ottawa River is known to contain Blanding's turtles. As such, the site has also been altered to be outside of any possible Category 2 habitat for this species. MECP has supported the developable lands shown in this report provided that temporary and permanent turtle exclusion fencing be constructed and that the mitigation measures outlined here in are followed. Once this project moves sufficiently through the planning process, the final design will be provided to MECP.

A Tree Conservation Report has been prepared as a separate report.

Most impacts can be avoided and mitigated through the use of common mitigation measures without residual negative impact. The only exception is the loss of the urban woodland for which offset has been provided. With this offset, there will be a net gain to the natural environment. It is noted that a portion of the gain has already been constructed (0.13 ha of wetland).

The timing windows are summarized here. Any deviation requires additional measures listed in this report.

Clearing of Trees that are 10 cm in diameter at breast height (dbh) or larger

- **Preferred** timing October 1 to March 31 (no additional surveys).
    - Turtle exclusion fence required when clearing between October 1-16
    - Erosion and sediment control when clearing within 30 m of fish habitat (any time of year).

- New Butternut inventory needs to be completed during the green-leaf period in advance (Mid-May to end of August)
- City of Ottawa Tree Cutting Permit required.

Clearing of Meadows, Shrubs and Small Trees (<10 cm in dbh)

- **Preferred** timing September 1 to April 4 (no additional surveys).
  - Turtle exclusion fence required when clearing between October 1-16
  - Erosion and sediment control when clearing within 30 m of fish habitat (any time of year)

This proposed development can be accepted as planned.

I trust that this report will meet your requirements. Should you have any questions or comments, please contact the undersigned.

Sincerely,

Bowfin Environmental Consulting Inc.

Michelle Lavictoire,
Biologist / Principal

7.0 REFERENCES

Bradley, David. 2007. Southern Ontario Vascular Plant Species List. Prepared by Southern Science and Information Section, Ontario Ministry of Natural Resources, Peterborough, Ontario. 57pp.

Brunton, D.F. 1999. Natural environment inventory and interpretative concepts: Petrie Island study area, Cumberland, Ontario. 105 pp.

City of Ottawa (2015). City of Ottawa Protocol for Wildlife Protection during Construction. 17pp.

COSEWIC. (2000). COSEWC assessment and update status report on the Lake Sturgeon *Acipenser fulvescens* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa xi +107pp.

COSEWIC. (2003). COSEWIC assessment and status report on the Butternut *Juglans cinerea* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 32 pp.

COSEWIC. (2005). COSEWIC assessment and update status report on the Blanding's Turtle *Emydoidea blandingii* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. viii + 40 pp.

COSEWIC. (2006). COSEWIC assessment and status report on the American Eel *Anguilla rostrata* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 71 pp.

COSEWIC. (2007). COSEWIC assessment and update status report on the Chimney Swift *Chaetura pelagica* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 49 pp.

COSEWIC. (2009). COSEWIC assessment and status report on the Whip-poor-will *Caprimulgus vociferus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 28 pp.

COSEWIC. (2010). COSEWIC assessment and status report on the Bobolink *Dolichonyx oryzivorus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 42 pp.

COSEWIC. (2013). COSEWIC assessment and status report on the Bank Swallow *Riparia riparia* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 48 pp.

Environment Canada. (2010). Amended Recovery Strategy for the Henslow's Sparrow (*Ammodramus henslowii*) in Canada. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. vi + 23 pp.

Fischer, L. (2002). COSEWIC status report on the Milksnake *Lampropeltis triangulum* in Canada in COSEWIC assessment and status report on the Milksnake *Lampropeltis triangulum* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. 1-29 pp.

IFS (2005) *Petrie's Landing (North Service Road, Cumberland) – Impact on the adjacent forest.* Letter prepared by *Urban Forestry and Forest Management Consulting* (IFS November 2005).

Menzel. M, S. Owen, W. Edwards, P. Wood, B. Chapman & Miller, K. (2002). Roost tree selection by northern long-eared bat (*Myotis septentrionalis*) maternity colonies in an industrial forest of the central Appalachian Mountains. *Forest Ecology and Management* 155:107-114.

Muncaster (2005). *Wetland Impact Study for Lots 28 and 29 Concession 1, Cumberland Ward, City of Ottawa.* Prepared by Muncaster Environmental Consulting Inc.

Muncaster (2012) *Petrie's Landing Tower 'E' (Phase 5) – Cumberland Ward, Ottawa, ON. Tree Conservation Report.* Prepared by Muncaster Environmental Planning Inc.

Muncaster (20112b) *Petrie's Landing Phase 2 Tree Conservation Report and Environmental Impact Statement Update.* Prepared by Muncaster Environmental Planning Inc. for Brigil. 14pp.

OMNR (2010). Natural Heritage Reference Manual for policy 2.3 of the Provincial Policy Statement.

OMNR (2001). Ecological land Classification for Southern Ontario: Training Manual SCSS TM 01, March 2001.

Ontario Provincial Policy Statement. (2005).

OMNR. (2014). Ontario Wetland Evaluation System 3rd. Edition Version 3.3. viii + 296pp.

Peterson, R.T. (1980). *A field guide to the birds: A completely new guide to all the birds of eastern and central North America*. Houghton Mifflin Company, Boston.

Appendix A: Atlas of the Breeding Birds of Ontario

Squares: 18VR63, 18VR64, 18VR53

Common Name	Scientific Name	ABBO Category	SRANK	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status
Canada Goose	*Branta canadensis*	Confirmed	S5	no status	no status
Wood Duck	*Aix sponsa*	Confirmed	S5	no status	no status
American Black Duck	*Anas rubripes*	Confirmed	S4	no status	no status
Mallard	*Anas platyrhynchos*	Confirmed	S5	no status	no status
Northern Shoveler	*Anas clypeata*	Probable	S4	no status	no status
Northern Pintail	*Anas acuta*	Possible	S5	no status	no status
Green-winged Teal	*Anas crecca*	Probable	S4	no status	no status
Blue-winged Teal	*Anas discors*	Probable	S4	no status	no status
Ring-necked Duck	*Aythya collaris*	Possible	S5	no status	no status
Lesser Scaup	*Aythya affinis*	Probable	S4	no status	no status
Common Merganser	*Mergus merganser*	Probable	S5B,S5N	no status	no status
Gray Partridge	*Perdix perdix*	Possible	SNA	no status	no status
Ruffed Grouse	*Bonasa umbellus*	Confirmed	S4	no status	no status
Wild Turkey	*Meleagris gallopava*	Probable	S5	no status	no status
Pied-billed Grebe	*Podilymbus podiceps*	Confirmed	S4B, S4N	no status	no status
American Bittern	*Botaurus lentiginosus*	Probable	S4B	no status	no status
Great Blue Heron	*Ardea herodias*	Confirmed	S4	no status	no status
Green Heron	*Butorides virescens*	Probable	S4B	no status	no status
Turkey Vulture	*Cathartes aura*	Possible	S5B	no status	no status
Osprey	*Pandion haliaetus*	Confirmed	S5B	no status	no status
Northern Harrier	*Circus cyaneus*	Confirmed	S4B	no status	no status
Cooper's Hawk	*Accipiter cooperii*	Confirmed	S4	no status	no status
Broad-winged Hawk	*Buteo platypterus*	Possible	S5B	no status	no status
Red-tailed Hawk	*Buteo jamaicensis*	Probable	S5	no status	no status
American Kestrel	*Falco sparverius*	Probable	S4	no status	no status
Merlin	*Falco columbarius*	Confirmed	S5B	no status	no status
Virginia Rail	*Rallus limicola*	Probable	S5B	no status	no status
Sora	*Porzana carolina*	Confirmed	S4B	no status	no status
American Coot	*Fulica americana*	Possible	S4B	no status	no status
Killdeer	*Charadrius vociferus*	Confirmed	S5B, S5N	no status	no status
Spotted Sandpiper	*Actitis macularia*	Confirmed	S5	no status	no status
Upland Sandpiper	*Bartramia longicauda*	Possible	S4B	no status	no status
Common Snipe	*Gallinago delicata*	Probable	S5B	no status	no status
American Woodcock	*Scolopax minor*	Probable	S4B	no status	no status
Black Tern	*Chlidonias niger*	Confirmed	S3B	SC	no status
Rock Pigeon	*Columba livia*	Confirmed	SNA	no status	no status
Mourning Dove	*Zenaida macroura*	Confirmed	S5	no status	no status
Black-billed Cuckoo	*Coccyzus erythropthalmus*	Confirmed	S5B	no status	no status

Common Name	Scientific Name	ABBO Category	SRANK	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status
Eastern Screech-Owl	*Megascops asio*	Possible	S4	no status	no status
Great Horned Owl	*Bubo virginianus*	Confirmed	S4	no status	no status
Short-eared Owl	*Asio flammeus*	Confirmed	S2N, S4B	SC	SC
Chimney Swift	*Chaetura pelagica*	Probable	S4B, S4N	THR	THR
Ruby-throated Hummingbird	*Archilochus colubris*	Probable	S5B	no status	no status
Belted Kingfisher	*Ceryle alcyon*	Confirmed	S4B	no status	no status
Yellow-bellied Sapsucker	*Sphyrapicus varius*	Confirmed	S5B	no status	no status
Downy Woodpecker	*Picoides pubescens*	Confirmed	S5	no status	no status
Hairy Woodpecker	*Picoides villosus*	Confirmed	S5	no status	no status
Northern Flicker	*Colaptes auratus*	Confirmed	S4B	no status	no status
Pileated Woodpecker	*Dryocopus pileatus*	Confirmed	S5	no status	no status
Eastern Wood-Pewee	*Contopus virens*	Confirmed	S4B	SC	SC
Alder Flycatcher	*Empidonax alnorum*	Probable	S5B	no status	no status
Willow Flycatcher	*Empidonax traillii*	Probable	S5B	no status	no status
Least Flycatcher	*Empidonax minimus*	Confirmed	S4B	no status	no status
Eastern Phoebe	*Sayornis phoebe*	Confirmed	S5B	no status	no status
Great Crested Flycatcher	*Myiarchus crinitus*	Confirmed	S4B	no status	no status
Eastern Kingbird	*Tyrannus tyrannus*	Confirmed	S4B	no status	no status
Blue-headed Vireo	*Vireo solitarius*	Possible	S5B	no status	no status
Blue-gray Gnatcatcher	*Polioptila caerulea*	Confirmed	S4B	no status	no status
Warbling Vireo	*Vireo gilvus*	Confirmed	S5B	no status	no status
Red-eyed Vireo	*Vireo olivaceus*	Confirmed	S5B	no status	no status
Blue Jay	*Cyanocitta cristata*	Confirmed	S5	no status	no status
American Crow	*Corvus brachyrhynchos*	Confirmed	S5B	no status	no status
Common Raven	*Corvus corax*	Confirmed	S5	no status	no status
Horned Lark	*Eremophila alpestris*	Probable	S5B	no status	no status
Purple Martin	*Progne subis*	Confirmed	S3S4B	no status	no status
Tree Swallow	*Tachycineta bicolor*	Confirmed	S4B	no status	no status
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*	Possible	S4B	no status	no status
Bank Swallow	*Riparia riparia*	Confirmed	S4B	THR	THR
Cliff Swallow	*Petrochelidon pyrrhonota*	Confirmed	S4B	no status	no status
Barn Swallow	*Hirundo rustica*	Confirmed	S4B	THR	THR
Black-capped Chickadee	*Poecile atricapilla*	Confirmed	S5	no status	no status
Red-breasted Nuthatch	*Sitta canadensis*	Probable	S5	no status	no status
White-breasted Nuthatch	*Sitta carolinensis*	Confirmed	S5	no status	no status
Brown Creeper	*Certhia familiaris*	Probable	S5B	no status	no status
Carolina Wren	*Thryothorus ludovicianus*	Possible	S4	no status	no status
House Wren	*Troglodytes aedon*	Confirmed	S5B	no status	no status
Winter Wren	*Troglodytes troglodytes*	Probable	S5B	no status	no status
Marsh Wren	*Cistothorus palustris*	Confirmed	S4B	no status	no status

Common Name	Scientific Name	ABBO Category	SRANK	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status
Golden-crowned Kinglet	*Regulus satrapa*	Possible	S5B	no status	no status
Eastern Bluebird	*Sialia sialis*	Confirmed	S5B	no status	no status
Veery	*Catharus fuscescens*	Probable	S4B	no status	no status
Hermit Thrush	*Catharus guttatus*	Possible	S5B	no status	no status
Wood Thrush	*Hylocichla mustelina*	Probable	S4B	SC	THR
American Robin	*Turdus migratorius*	Confirmed	S5B	no status	no status
Gray Catbird	*Dumetella carolinensis*	Confirmed	S4B	no status	no status
Brown Thrasher	*Toxostoma rufum*	Confirmed	S4B	no status	no status
European Starling	*Sturnus vulgaris*	Confirmed	SNA	no status	no status
Cedar Waxwing	*Bombycilla cedrorum*	Confirmed	S5B	no status	no status
Nashville Warbler	*Vermivora ruficapilla*	Confirmed	S5B	no status	no status
Yellow Warbler	*Dendroica petechia*	Confirmed	S5B	no status	no status
Chestnut-sided Warbler	*Dendroica pensylvanica*	Confirmed	S5B	no status	no status
Magnolia Warbler	*Dendroica magnolia*	Possible	S5B	no status	no status
Yellow-rumped Warbler	*Dendroica coronata*	Probable	S5B	no status	no status
Black-throated Green Warbler	*Dendroica virens*	Probable	S5B	no status	no status
Pine Warbler	*Dendroica pinus*	Probable	S5B	no status	no status
Black-and-white Warbler	*Mniotilta varia*	Probable	S5B	no status	no status
American Redstart	*Setophaga ruticilla*	Confirmed	S5B	no status	no status
Ovenbird	*Seiurus aurocapillus*	Probable	S4B	no status	no status
Northern Waterthrush	*Seiurus noveboracensis*	Possible	S5B	no status	no status
Mourning Warbler	*Oporornis philadelphia*	Confirmed	S4B	no status	no status
Common Yellowthroat	*Geothlypis trichas*	Confirmed	S5B	no status	no status
Canada Warbler	*Wilsonia canadensis*	Possible	S4B	SC	THR
Chipping Sparrow	*Spizella passerina*	Confirmed	S5B	no status	no status
Clay-colored Sparrow	*Spizella pallida*	Probable	S4B	no status	no status
Field Sparrow	*Spizella pusilla*	Possible	S4B	no status	no status
Vesper Sparrow	*Pooecetes gramineus*	Possible	S4B	no status	no status
Savannah Sparrow	*Passerculus sandwichensis*	Confirmed	S4B	no status	no status
Song Sparrow	*Melospiza melodia*	Confirmed	S5B	no status	no status
Swamp Sparrow	*Melospiza georgiana*	Confirmed	S5B	no status	no status
White-throated Sparrow	*Zonotrichia albicollis*	Confirmed	S5B	no status	no status
Dark-eyed Junco	*Junco hyemalis*	Possible	S5B	no status	no status
Scarlet Tanager	*Piranga olivacea*	Confirmed	S4B	no status	no status
Northern Cardinal	*Cardinalis cardinalis*	Confirmed	S5	no status	no status
Rose-breasted Grosbeak	*Pheucticus ludovicianus*	Confirmed	S4B	no status	no status
Indigo Bunting	*Passerina cyanea*	Probable	S4B	no status	no status
Bobolink	*Dolichonyx oryzivorus*	Confirmed	S4B	THR	THR
Red-winged Blackbird	*Agelaius phoeniceus*	Confirmed	S4	no status	no status
Eastern Meadowlark	*Sturnella magna*	Confirmed	S4B	THR	THR
Common Grackle	*Quiscalus quiscula*	Confirmed	S5B	no status	no status

Common Name	Scientific Name	ABBO Category	SRANK	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status
Brown-headed Cowbird	*Molothrus ater*	Confirmed	S4B	no status	no status
Baltimore Oriole	*Icterus galbula*	Confirmed	S4B	no status	no status
Purple Finch	*Carpodacus purpureus*	Probable	S4B	no status	no status
House Finch	*Carpodacus mexicanus*	Confirmed	SNA	no status	no status
Pine Siskin	*Carduelis pinus*	Possible	S4B	no status	no status
American Goldfinch	*Carduelis tristis*	Confirmed	S5B	no status	no status
House Sparrow	*Passer domesticus*	Confirmed	SNA	no status	no status

Status Updated March 25, 2021

SRANK DEFINITIONS

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.

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#B Breeding

S#N Non-Breeding

SARO STATUS DEFINITIONS

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

SC Special Concern: A species with characteristics that make it sensitive to human activities or natural events.

SARA STATUS DEFINITIONS

THR Threatened, a wildlife 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 wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats.

Appendix B: SAR Hand-Out

The following table provides photographs and general descriptions of potential species at risk that may occur within the project area and information on what actions to take should any of these species be observed.

Endangered and Threatened species are protected and cannot be harmed, harassed, or killed and in some cases their habitats are also protected. These individuals will only be handled by qualified person and only if the individual is in imminent threat of harm. An authorization under the ESA 2007 would be required to handle individuals that are not in imminent threat of harm.

For all Endangered or Threatened species found on-site any activity which may cause harm to the individual will be stopped and the site supervisor will be contact immediately for further instructions.

Photograph	Description	Action to be Taken
 http://birdweb.org/Birdweb	**Barn Swallow** • Swallow with a long tail which is deeply forked in adult males • An orange front (no white on the forehead) • Narrow pointed wings • Juveniles have a white band across the top of the tail. THREATENED	• Stop any activity that may cause harm to this specie and contact project Supervisor. • Individuals should only be encouraged to move if it is in immediate harm's way. These animals can only be handled by a qualified biologist when it is in imminent threat of harm, otherwise an ESA 2007 authorization will be required.

<table>
<tr>
<td> 

Photo: Royal Ontario Museum website
http://www.rom.on.ca/en/ontario/fieldguide</td>
<td> 
Photo: vt.audubon.org</td>
<td>Bobolink
• Medium-sized songbird
• Female is tan with black stripes and resembles a sparrow
• Male is black with a white patch on the back and yellow patch on the side of his head

THREATENED</td>
<td rowspan="2">• Stop any activity that may cause harm to this specie and contact project Supervisor.
• Individuals should only be encouraged to move if it is in immediate harm’s way. These animals can only be handled by a qualified biologist when it is in imminent threat of harm, otherwise an ESA 2007 authorization will be required.</td>
</tr>
<tr>
<td colspan="2"> 

Photo: Royal Ontario Museum website
http://www.rom.on.ca/en/ontario/fieldguide</td>
<td>Eastern Meadowlark
• Medium-sized songbird
• Bright yellow belly and throat
• Black “V” on its breast and white flanks with black streaks
• Their backs are mainly brown with black streaks

THREATENED</td>
</tr>
</table>

Photograph	Description	Action to be Taken
 Photo: audubon.org	**Chimney Swift** • Described as a cigar shaped bird with long wings and a short tail. THREATENED	• Stop any activity that may cause harm to this specie and contact project Supervisor. • Individuals should only be encouraged to move if it is in immediate harm's way. These animals can only be handled by a qualified biologist when it is in imminent threat of harm, otherwise an ESA 2007 authorization will be required.

Photograph	Description	Action to be Taken
 Photo: Royal Ontario Museum website http://www.rom.on.ca/ontario/risk.php	**Blanding's Turtle** • Medium sized turtle (12.5-28 cm) • Bright yellow on chin and throat • Shall is dark light-coloured sports or lines THREATENED	• Take a photograph and record the date observed, name of person who observed it • If turtle is located within the construction site, then construction activities that may impact it must STOP until the turtle is clear of the site. • Contact supervisor

Appendix C: Significant Wildlife Habitat Table

Significant Wildlife Habitat	Candidate SWH		Confirmed SWM		Comments
	ELC Codes	Additional Criteria Summary	In Site	In Adjacent Lands	
Seasonal Concentration Areas of Animals					
Waterfowl stopover and staging areas (terrestrial)	Certain cultural meadow or thicket Plus, evidence of annual spring flooding	Fields flooded from mid-March to May	No fields present		Not discussed further
Waterfowl stopover and staging areas (aquatic)	Specific aquatic habitat types (marsh, swamps)	Ponds, marshes, lakes, bays, coastal inlets, and watercourses used for migration. Stormwater and sewage management facilities are not included.	There is a potential however, however it has not been designated as such and is over 28 km from any of the Important Bird Areas of Canada on the Ottawa River. Early spring visits took place and one September visit, and no large congregations were observed.		Not Present; Not discussed further
Shorebird migratory stopover area	Beach/Bar Sand Dunes Meadow marsh	Shorelines used in May to mid-June and early July to October. Stormwater and sewage management facilities are not included.	No shorelines, beaches, bars, dunes, or meadow marshes		Not Present; Not discussed further
Raptor wintering area	Requires combination of forest (deciduous, mixed, or coniferous) and upland (cultural meadow, cultural thickets, cultural savannahs or cultural woodlands)	Combination of habitats must >20 ha and the field portion must be wind swept with little accumulation of snow. Where site is for eagles, open water and large trees and snags must be available.	The overall woodland stand is only 7 ha. Suitable habitat is not present		Not discussed further
Bat hibernacula	Crevices and caves	Active mines are not to be included. Buildings are not included.	No crevices or caves present		Not Present; Not discussed further

Significant Wildlife Habitat	Candidate SWH		Confirmed SWM		Comments
	ELC Codes	Additional Criteria Summary	In Site	In Adjacent Lands	
Bat maternity colonies	Deciduous, or mixed forests Deciduous or mixed Swamps (>5m tall)	>10/ha large diameter (>25 cm diameter at breast height) Snag trees in the decay classes 1-3 are preferred.	A bat cavity tree inventory was completed followed by bat exit surveys. No use of the cavities was found. Timing windows for SAR bats will protect for general bats.		Not Present; Not discussed further
Turtle wintering areas	Swamps, marshes, open water, shallow water, open fen, or open bog	Water that is deep enough not to freeze solid with soft bottoms. Must be permanent waterbody (or wetlands with adequate dissolved oxygen)	The Ottawa River can provide turtle overwintering habitat. Five basking turtle surveys were completed as per the province's protocols. While some Painted Turtles were observed, these were insufficient in numbers. However, in the fall, a Snapping Turtle nest was observed close to the Marina.		Not confirmed; overwintering habitat will not be impacted.
Reptile hibernaculum	Any habitat except very wetlands Talus, rock barren, cave and alvar	For snakes – needs to be below frost lines.	The provinces snake survey protocol was followed, and the site did not meet the minimum requirements.		Not Present; Not discussed further
Colonially – Nesting bird breeding habitat (Bank and Cliff Swallow)	Exposed sandy slopes of banks or piles. Cliff faces or structures (bridges, silos etc.…)	Does not include licensed aggregate areas. Does not include man-made structures or recently (within 2 years) disturbed soil	No exposed banks or cliffs present.		Not Present; Not discussed further
Colonially – Nesting bird breeding habitat (Trees/Shrubs)	Swamps – deciduous or mixed (trees >5m) Treed fen	Typically requires tall trees as nests are usually 11-15m from ground but shrubs and emergent vegetation could be used.	Breeding bird surveys were completed, and no colonial nesting species were observed.		Not Present; Not discussed further

Significant Wildlife Habitat	Candidate SWH		Confirmed SWM		Comments
	ELC Codes	Additional Criteria Summary	In Site	In Adjacent Lands	
Colonially – Nesting bird breeding habitat (Ground)	Any rocky island or peninsula on lake or large river. For Brewer's Blackbird – near watercourses in open fields, pastures		No rocky islands, or peninsulas were present. Breeding bird surveys were completed, and no colonial nesting species were observed.		Not Present; Not discussed further
Migratory butterfly stopover area	Not applicable to Ottawa Area – must be within 5 km of Lake Ontario				
Landbird migratory stopover area					
Deer yarding areas	Mixed or coniferous forests or swamps (>5m tall trees) Can include plantations, cultural thickets, or dry-fresh poplar-white birch deciduous forest	These are mapped by OMNRF	None mapped by OMNRF for this area		Not Present; Not discussed further
Deer winter congregation area	All forest and wetland habitats and small conifer plantations	These are mapped by OMNRF (typically, >100ha in size)			Not Present; Not discussed further
Rare Vegetation Communities or Specialized Habitat for Wildlife					
Cliffs and talus slopes	Near vertical face that is >3m in height (cliff or talus)	Typically, in Niagara Escarpment	Cliffs and talus slope habitat were not present		Not Present; Not discussed further
Sand barren	Sand barrens various types but tree cover is always ≤ 60%	Must be >0.5ha	Sand barrens not present		Not Present; Not discussed further

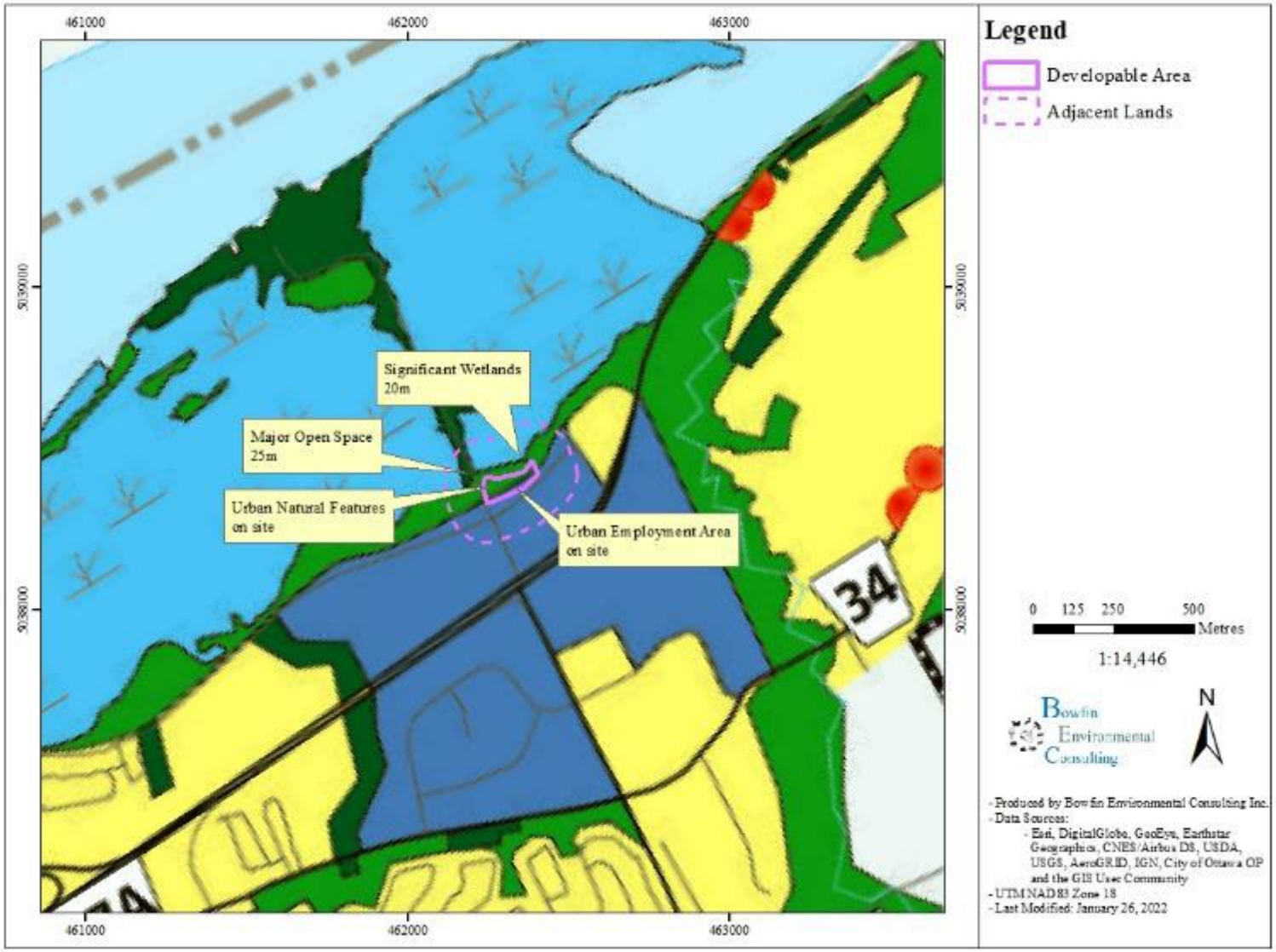
Significant Wildlife Habitat	Candidate SWH		Confirmed SWM		Comments
	ELC Codes	Additional Criteria Summary	In Site	In Adjacent Lands	
Alvar	Alvar, Coniferous forest, cultural meadow, cultural savannah, cultural thickets, and cultural woodlands	Must have at least 4 indicator species with substantial cover (must not have large amounts of exotic or introduced species) Must be >0.5ha	Alvar habitat is typically flat and mostly unfractured calcareous bedrock. Not present		Not Present; Not discussed further
Old growth forest	Any forest or treed (>5 m) swamp	Must be at least 30 ha with at least 10 ha of interior habitat (edge considered 100 m) Have specific characteristics (snags, mosaic of gaps, multi-layered canopy)	Urban Woodland did not meet the requirements for old growth.		Not Present; Not discussed further
Savannah	Tallgrass prairie savannah and cultural savannah	Must have indicator species	No savannah present		Not Present; Not discussed further
Tallgrass prairie	Tallgrass prairie (open prairie - <25% tree cover)	No minimum size	No tallgrass prairie was present.		Not Present; Not discussed further
Other rare vegetation communities	Provincially rare S1-S3 communities as described in Appendix M of the SWHTG		None of the communities listed for the Ottawa-Carleton Area in Appendix M were present.		Not Present; Not discussed further
Specialised Habitat for Wildlife					
Waterfowl nesting area	Shallow marsh, meadow marsh, thicket swamp or deciduous (treed >5 m tall) swamps	Wetland must be 0.5 ha or consist of up to 3 smaller wetlands within 120 m of each other if known nesting is occurring.	Between the dedicated breeding bird surveys and the incidental observations, the site did not meet the minimum requirements of 3 or more nesting pairs of species (American Black Duck, Northern Pintail, Northern Shoveler, Gadwall, Blue-winged Teal,		Not Present; Further wetland is being protected.

Significant Wildlife Habitat	Candidate SWH		Confirmed SWM		Comments
	ELC Codes	Additional Criteria Summary	In Site	In Adjacent Lands	
			Green-winged Teal, Wood Duck, Hooded Merganser) or 10 or more pairs of Mallards.		
Bald Eagle and Osprey nesting, foraging, and perching habitat	Any forest or swamp (trees >5m) type of habitat that is immediately next to rivers, lakes, ponds, or wetlands	Nests on man-made structures are not included.	None present		Not Present; Not discussed further
Woodland raptor nesting habitat	Any forest habitat or treed swamp (>5m tall) or coniferous plantation	Stand must be > 30 ha with >10 ha of interior habitat (edge is 200 m)	Minimum habitat requirements not present; no nesting raptors noted during surveys.		Not Present; Not discussed further
Turtle nesting areas	Shallow marsh, shallow water, open bog	Close to water but away from roads. It must provide sand and gravel that turtles can dig through and be in open sunny areas. Areas on the sides of municipal or provincial roads are not included.	Not present in the developable lands or in the fill. Surveys conducted and while Painted Turtles tried to nest, they abandoned their efforts due to heavily compacted fill. Snapping Turtles nested further north on Tweddle Road.		Not Present; Not discussed further
Seeps and springs	Any forested community could have a seep/spring	Forest area with <25% meadow/pasture in the headwaters of a stream.	Candidate habitat not present		Not Present; Not discussed further
Amphibian breeding habitat (woodland)	Any forest or treed swamp (>5m tall trees)	Wetland, pond, or vernal pool must be > 500 m^2 Those with water until mid-July (during most years) are better candidates	Woodland breeding habitat not present; MMP Amphibian Breeding surveys conducted, and none heard in developable lands		Not Present; Not discussed further

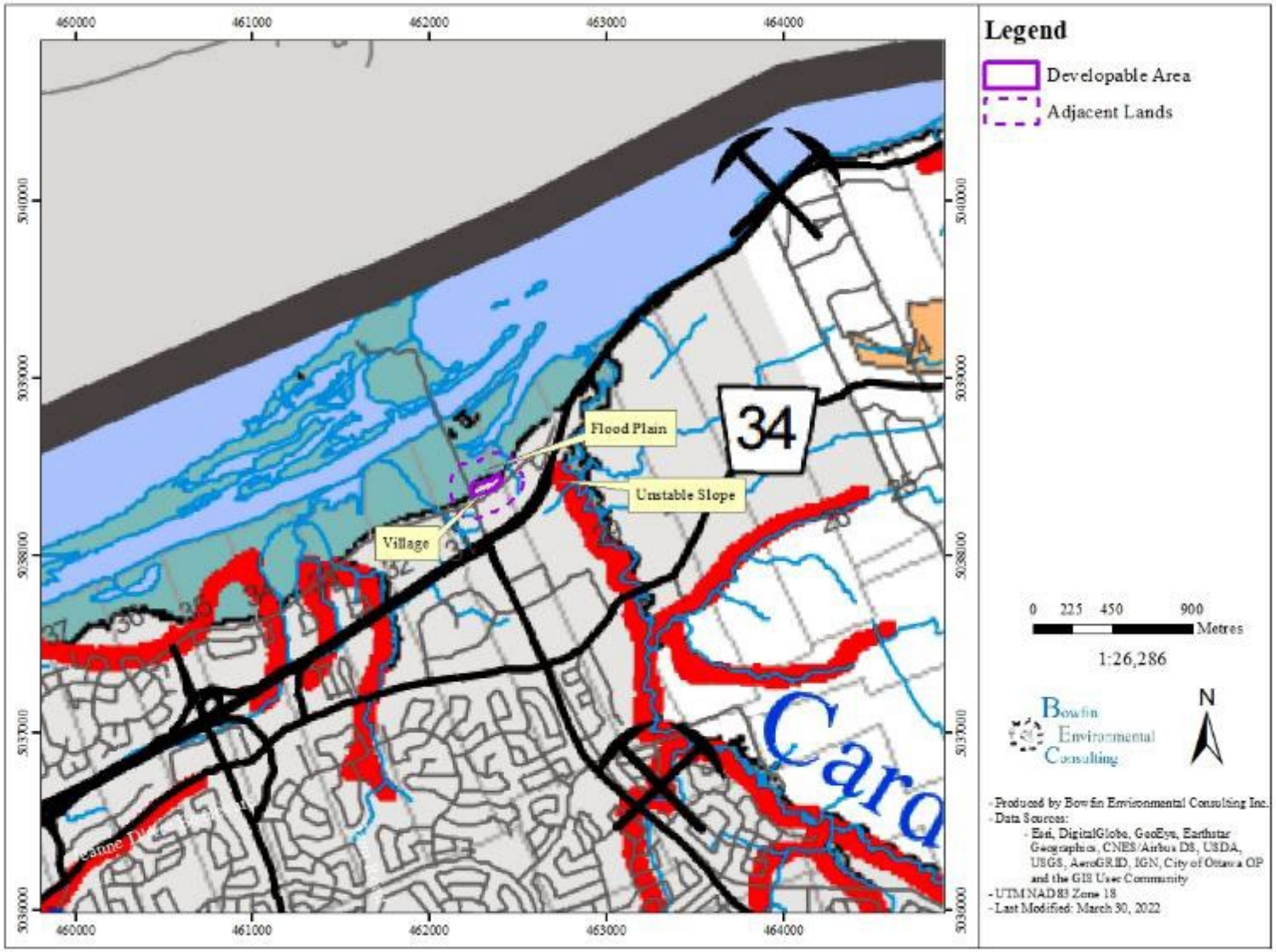
Significant Wildlife Habitat	Candidate SWH		Confirmed SWM		Comments
	ELC Codes	Additional Criteria Summary	In Site	In Adjacent Lands	
Amphibian breeding habitat (wetlands)	Swamps, marsh, fen, bog, open water, or shallow water	Unless it's a larger wetland, must be >120 m from woodlands Must be > 500 m^2	Only amphibian breeding found was in the Ottawa River away from the developable lands.		Not Present; Not discussed further
Woodland area-sensitive bird breeding habitat	Any forest or treed swamp (>5 m tall)	Interior habitat (200m edge used) in mature (>60 years) large (>30 ha) stand	Candidate habitat not present.		Not Present; Not discussed further
Habitat for Species of Conservation Concern (not including Endangered or Threatened Species)					
Marsh bird breeding habitat	Meadow marsh, shallow water, fen, or open bog		A single nesting Sora was identified in the wetland. Does not meet the minimum requirements.		Not Present; Not discussed further
Open country bird breeding habitat	Cultural meadows	Must be large grasslands (>30 ha) Agricultural class 1 and 2 are not included Agricultural lands planted in row crop or intensive hay, or pastures (within past 5 years) not included.	Candidate habitat not present.		Not Present; Not discussed further
Shrub/early successional bird breeding habitat	Cultural thickets or woodlands	Must be > 10 ha Agricultural class 1 and 2 are not included Agricultural lands planted in row crop or intensive hay, or pastures (within past 5 years) not included	Candidate habitat not present.		Not Present; Not discussed further

Significant Wildlife Habitat	Candidate SWH		Confirmed SWM		Comments
	ELC Codes	Additional Criteria Summary	In Site	In Adjacent Lands	
Terrestrial crayfish	Not present in Ottawa Area				
Special concern and rare wildlife species	All special concern or species ranked as S1-S3, SH (plants or animals)	Habitat depends on the species. Of those listed in SWHCS there is a potential for Snapping Turtle.	No S1-S3 or SH species found. But evidence of Snapping Turtles nesting far from the site was confirmed.		Discussed under SWH section.
Animal Movement Corridors					
Amphibian movement corridor	Any habitat but amphibian breeding wetland habitat must be identified		n/a		Not Present; Not discussed further
Deer movement corridor	All forests but project must be in Stratum II Deer Wintering Area and Deer Wintering Habitat must be confirmed.		Not applicable – no Deer Wintering Areas or Habitat identified by OMNRF for area.		Not Present; Not discussed further

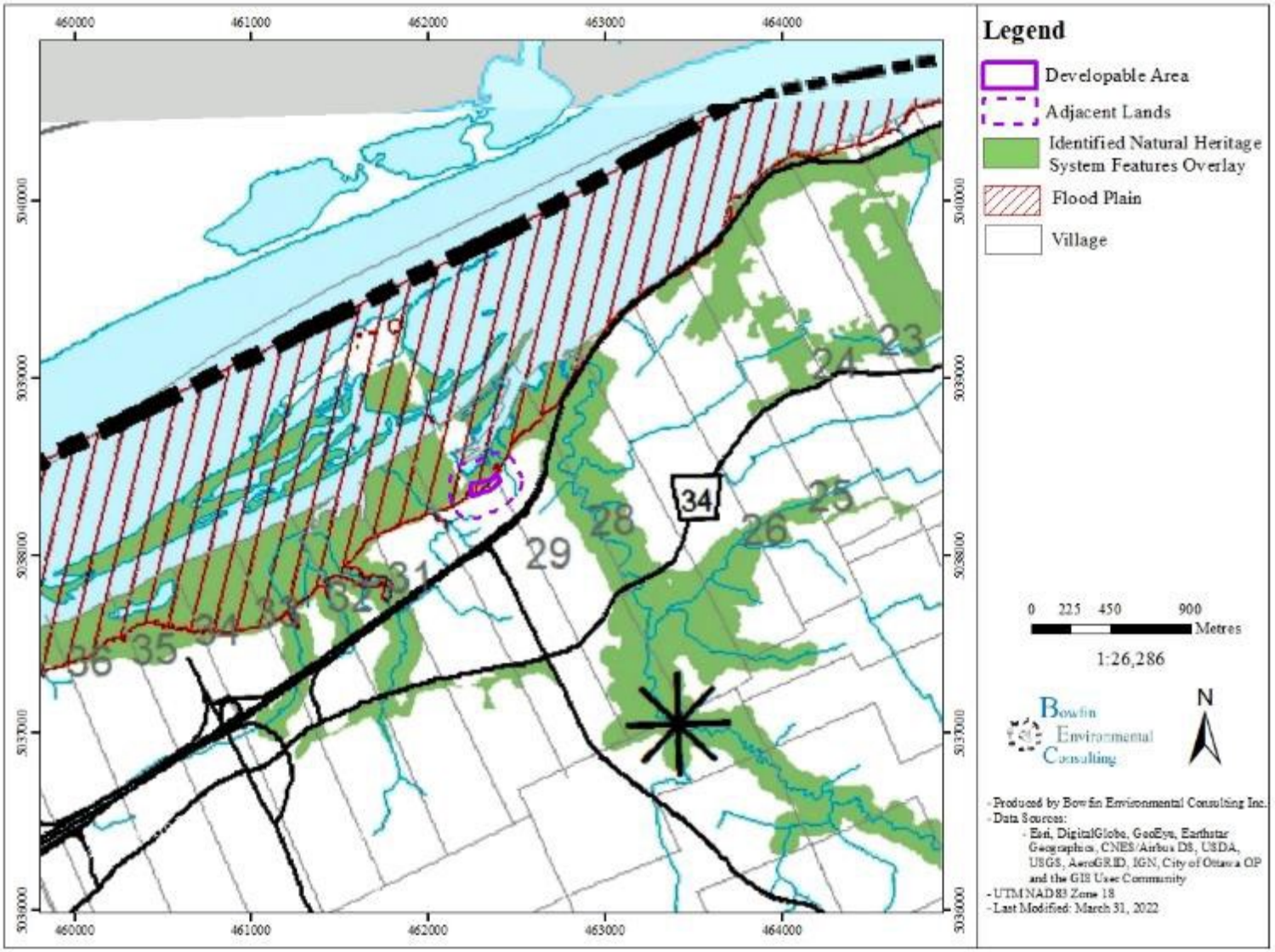
Appendix D: City of Ottawa Schedule B2



Appendix E: City of Ottawa Schedule K

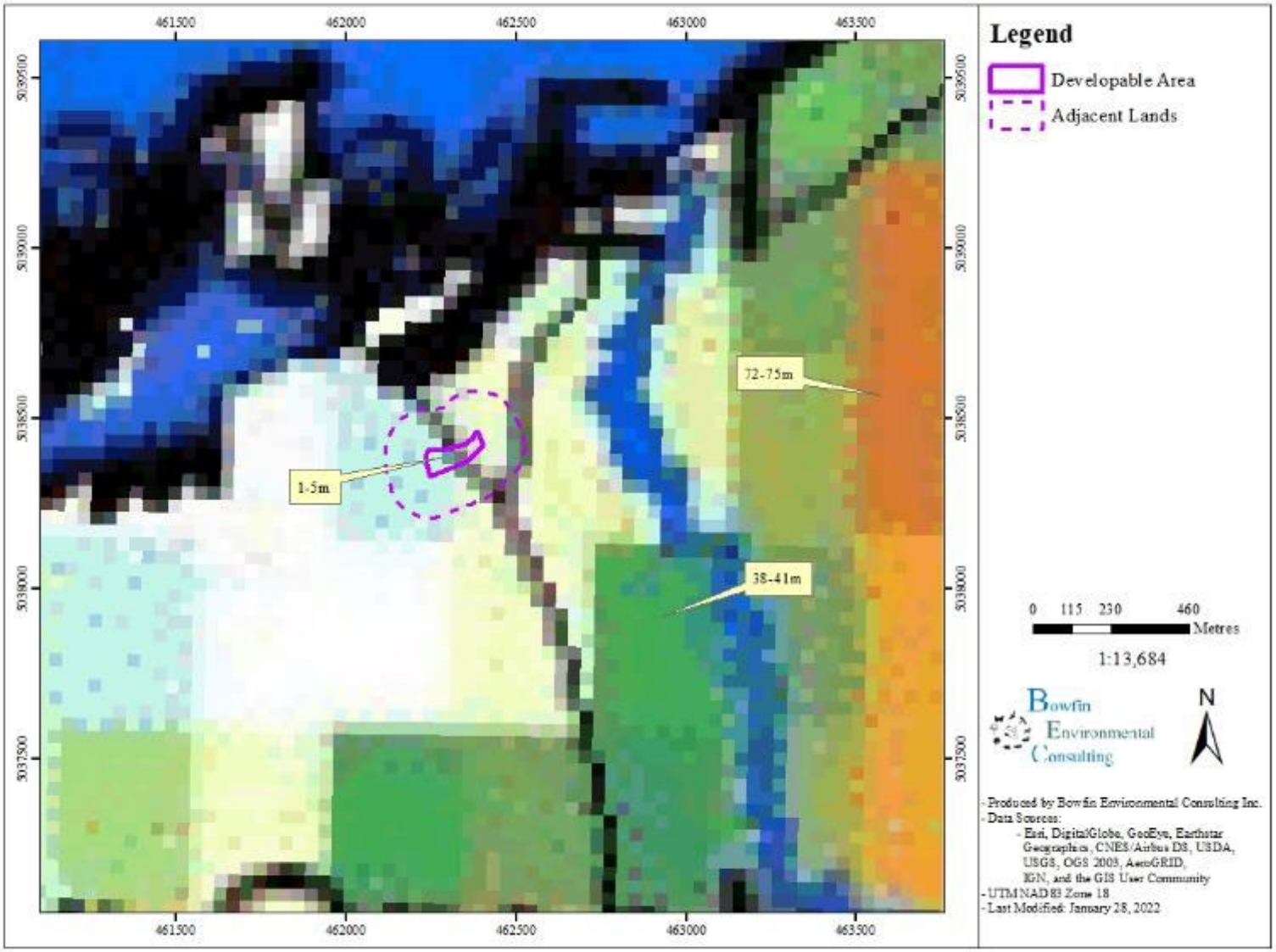


Appendix F: City of Ottawa Schedule L1

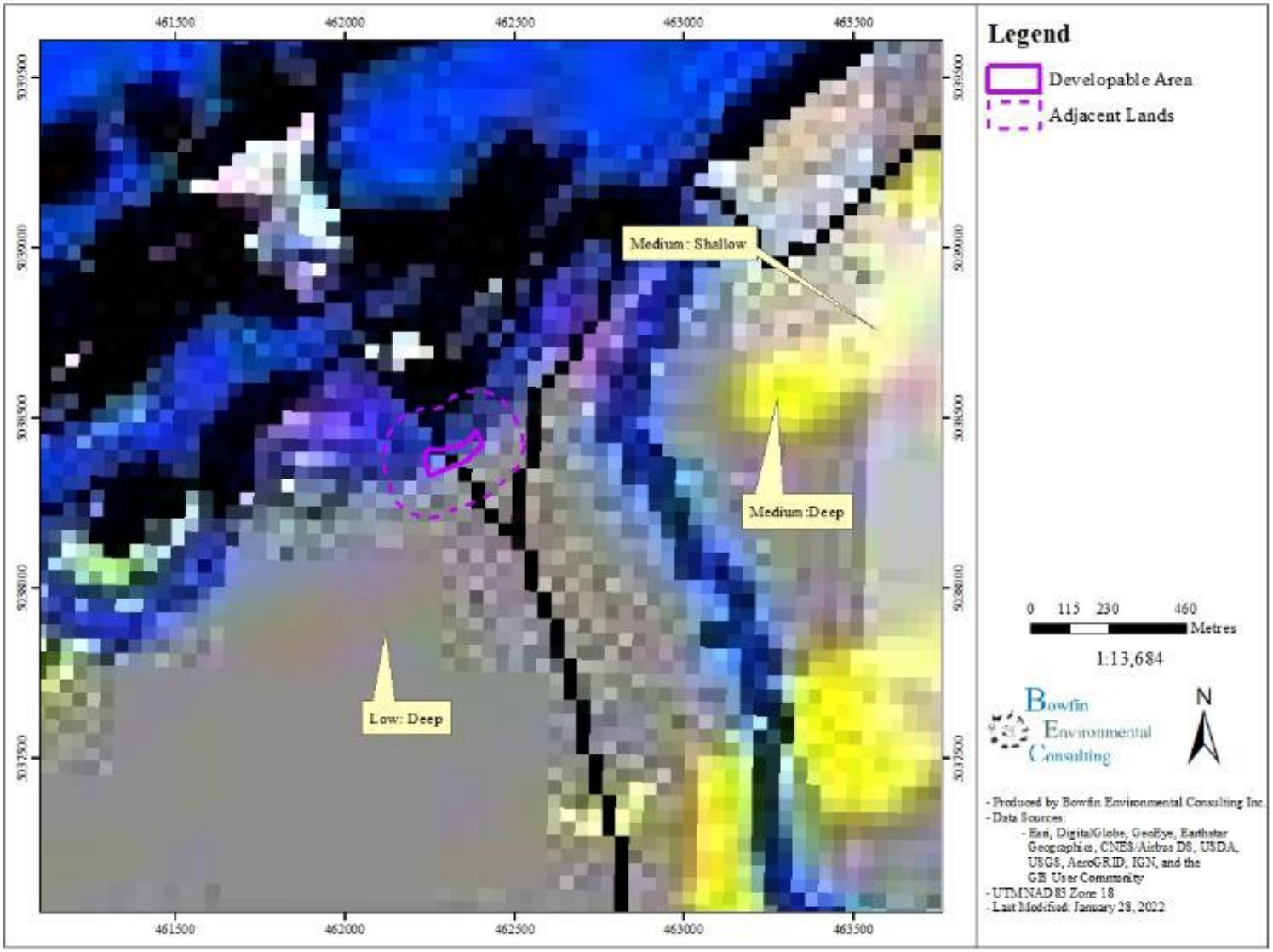


Appendix G: Site in Relation to the Old UNA Boundary (Boundary was adjusted on Schedule C11-C)

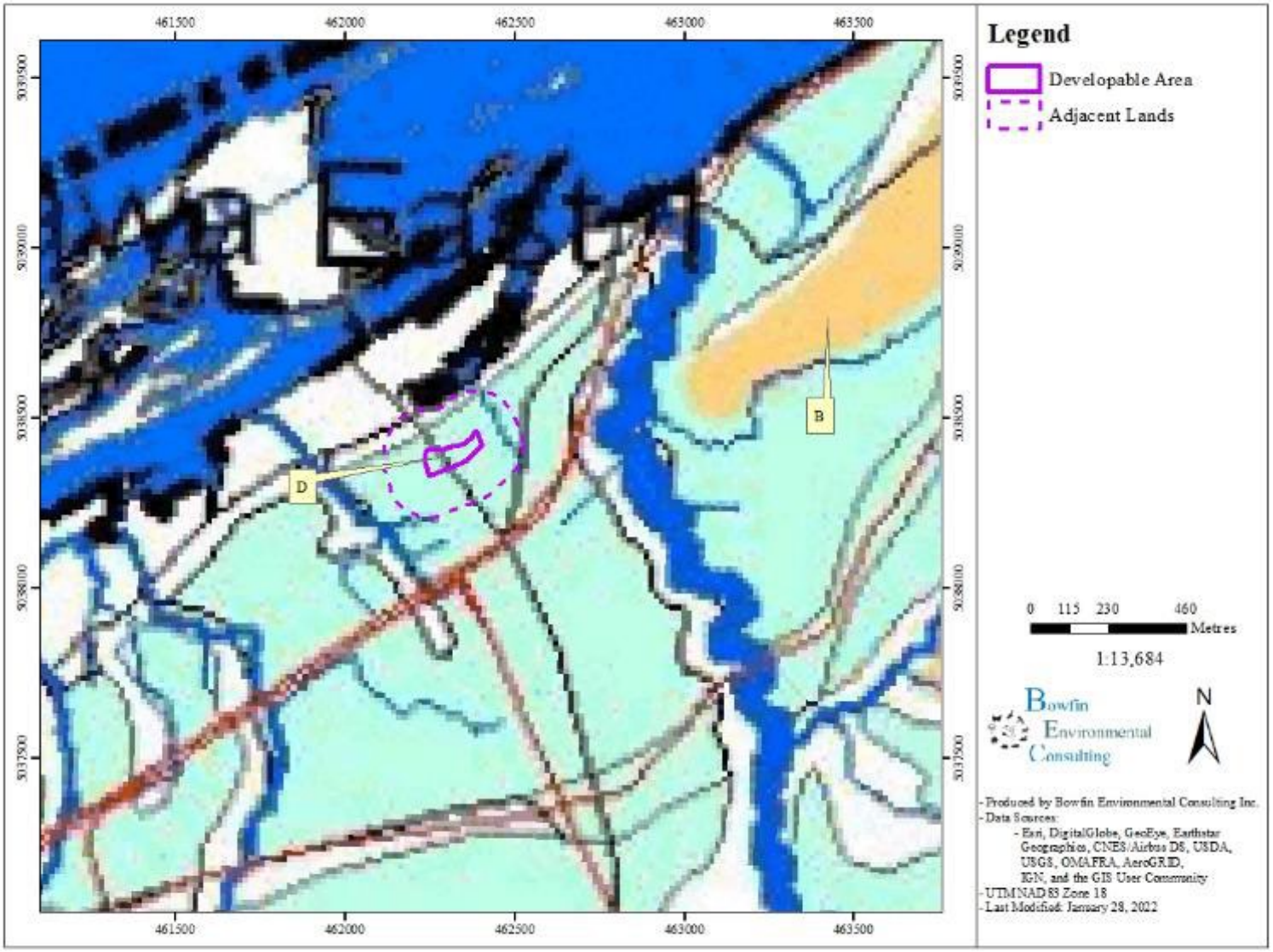
Appendix H: Bedrock Elevation



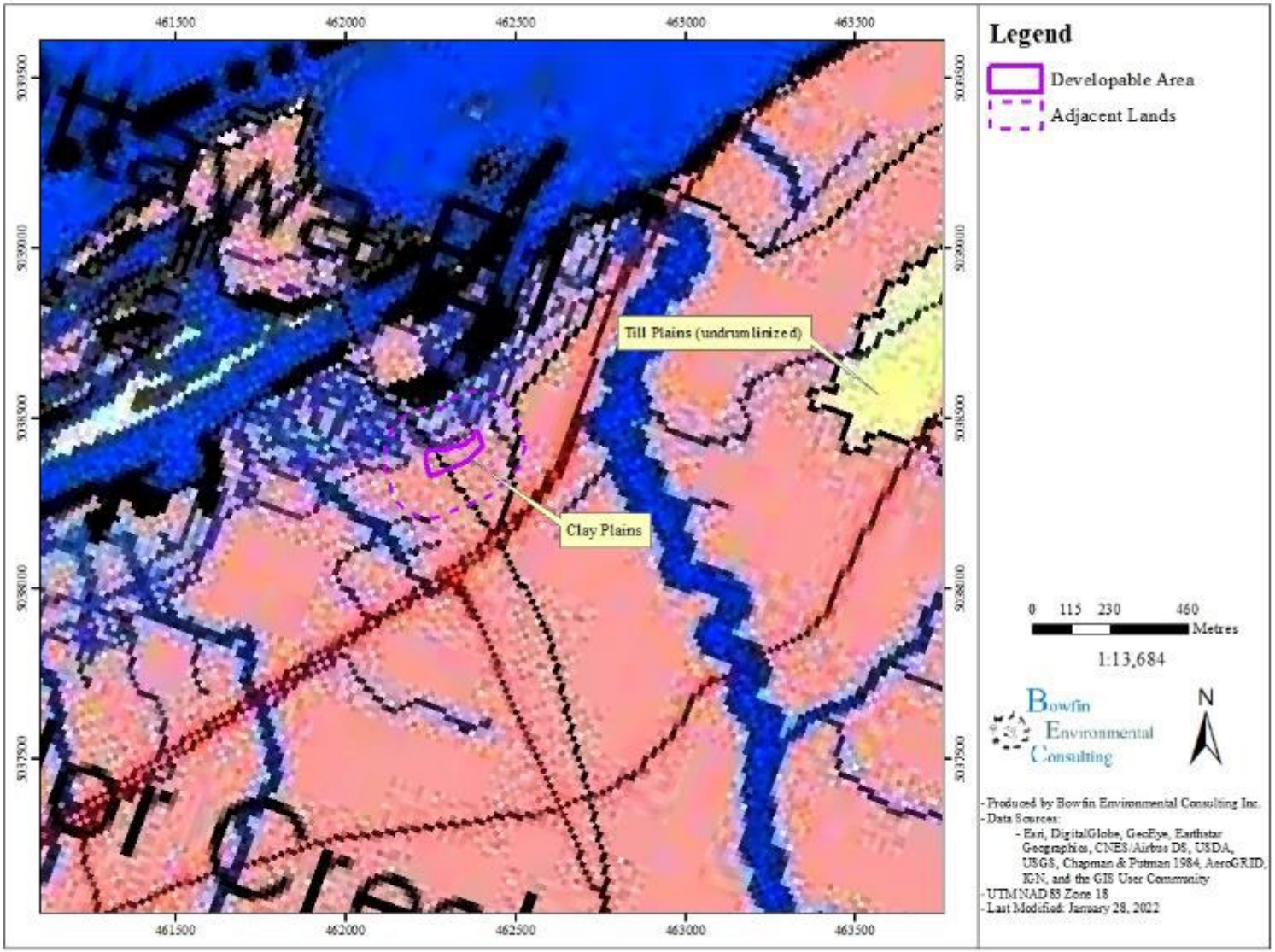
Appendix I: Depth of Overburden



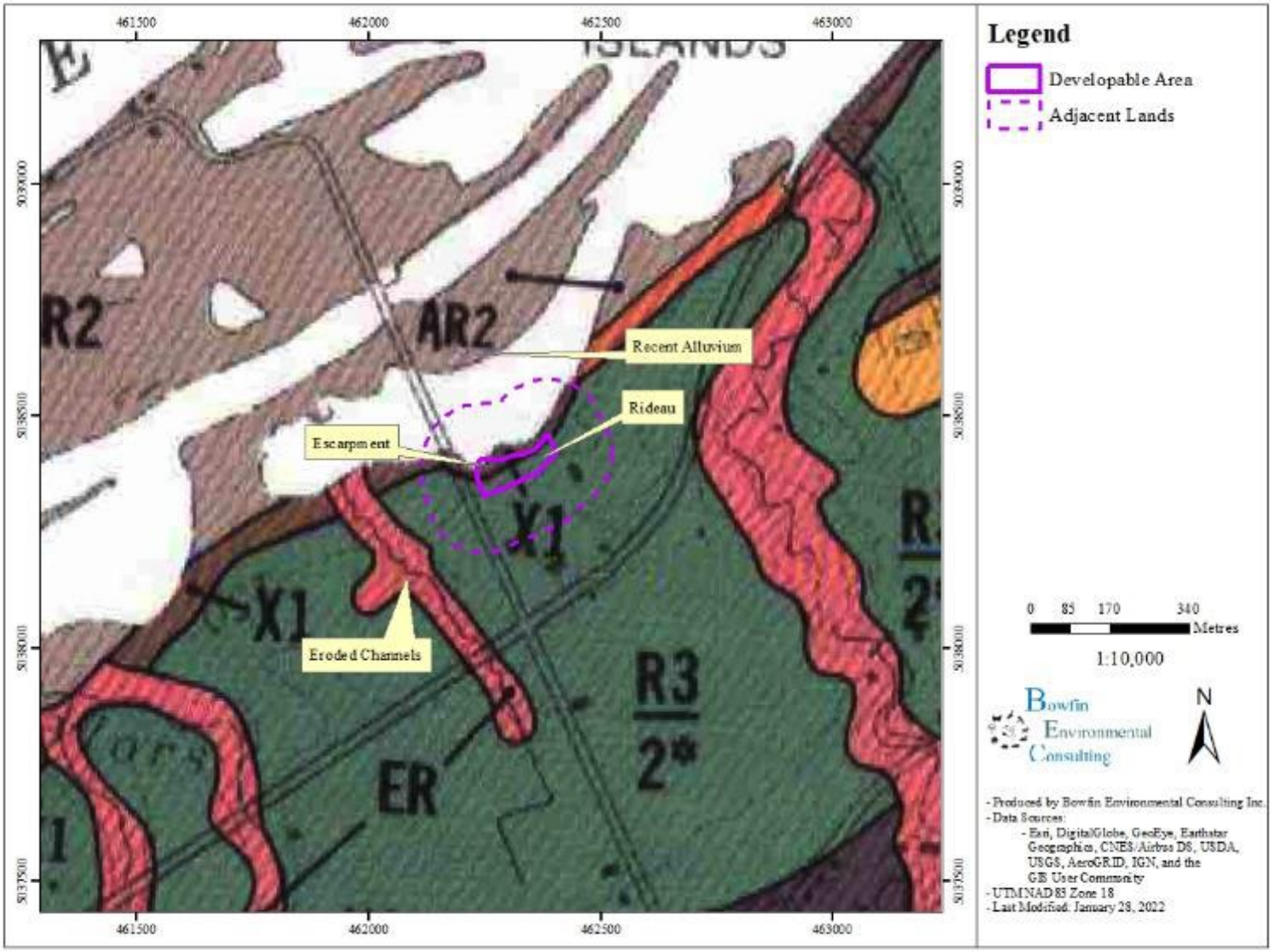
Appendix J: Hydrological Soil Group



Appendix K: Physiographic Unit



Appendix L: Soils

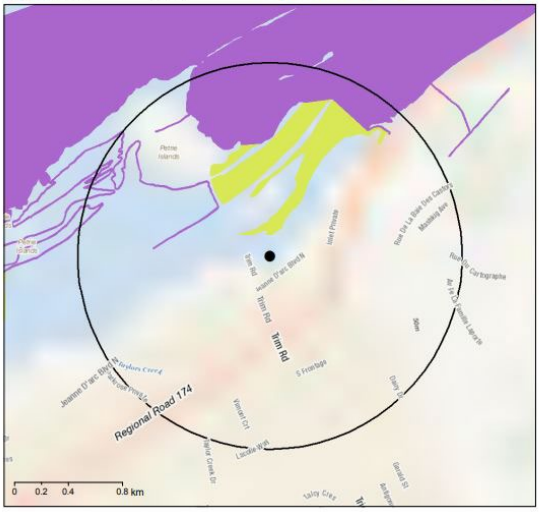


Appendix M: DFO NASAR Mapping

Fisheries and Oceans Canada Pêches et Océans Canada

Aquatic Species at Risk Report

Canada



One or more aquatic species listed under the Species at Risk Act are found (or potentially found) within the coloured areas.

- Critical Habitat
- Extirpated, Endangered, or Threatened
- Special Concern

How to use this information:

1. The map and species list are intended to provide a general overview of aquatic species at risk and their critical habitat that may occur within the mapped area.

2. To assess your project go to: www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html

If you encounter an aquatic species at risk in an area that is not currently mapped, please notify your regional Fisheries Protection Program office to ensure that you are compliant with the Species at Risk Act.
The official source of information for species at risk is the Species at Risk Public Registry www.sararegistry.gc.ca

To protect fish and fish habitat, including aquatic species at risk, their residences, and their critical habitat, efforts should be made to avoid, mitigate and/or offset harm. Following the measures to avoid harm will help you comply with the Fisheries Act and the Species at Risk Act.

Critical habitat for these species is found within the outlined area

Critical habitat is identified in recovery strategies or action plans for species listed under Schedule 1 of the Species at Risk Act as extirpated, endangered or threatened.

Name	Where Found	Species Status
	No critical habitat	

Species found (or potentially found) within the outlined area

Name	Where Found	Species Status
Channel Darter - St. Lawrence	Ottawa River/Rivière des Outaouais	Special Concern
Hickorynut	Ottawa River/Rivière des Outaouais	Endangered
Hickorynut	Rivière des Outaouais/Ottawa River	Endangered
Northern Brook Lamprey - Great Lakes - Upper St. Lawrence	Ottawa River/Rivière des Outaouais	Special Concern
River Redhorse	Ottawa River/Rivière des Outaouais	Special Concern
Silver Lamprey - Great Lakes - Upper St. Lawrence	Ottawa River/Rivière des Outaouais	Special Concern