Scoped Environmental Impact Statement

Petrie II Block 8

Cumberland Ward, Ottawa, Ontario

Prepared for:
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1.0 INTRODUCTION

Bowfin Environmental Consulting Inc. (Bowfin) was retained by Brigil Homes, hereafter referred to as the proponent, to prepare a scoped Environmental Impact Statement (EIS) for Petrie's Landing Block 8located at 180 Prestige Circle in support of their site plan application. The subject lands include approximately 0.7 hectares on the south side of the Jeanne d'Arc Boulevard North, approximately 1.1 km west of Trim Road, in part of Lot 33, Concession 1 of Cumberland Ward in the City of Ottawa (Figure 1).

It is noted that a Wetland Impact Study was completed by Muncaster Environmental Planning [*Wetland Impact Study for North Service Road Properties Cumberland Ward, City of Ottawa* (September 2004)]. That report also included a description of the terrestrial vegetative communities and a discussion of the potential impacts of development on the wetland, forests and other terrestrial areas and wildlife habitat.

Since the Muncaster Environmental Planning (MEP) 2004 report, portions of Phases 1 and 2 of Petrie's Landing have been built. Prior to constructing Phase 2 Block 8, the proponent was requested, by the City to update the 2004 report. To this effect Bowfin completed a site visit and an assessment of the natural environment to determine if any changes to the recommendations made in the above mentioned report were required. As per the Provincial Policy Statement (PPS) there are several natural features and areas identified as needing protection:

- Significant habitat of Endangered and Threatened Species;
- Significant wetlands;
- Significant woodlands;
- Significant valleylands;
- Significant wildlife habitat;
- Significant Areas of Natural and Scientific Interest; and
- Fish habitat.

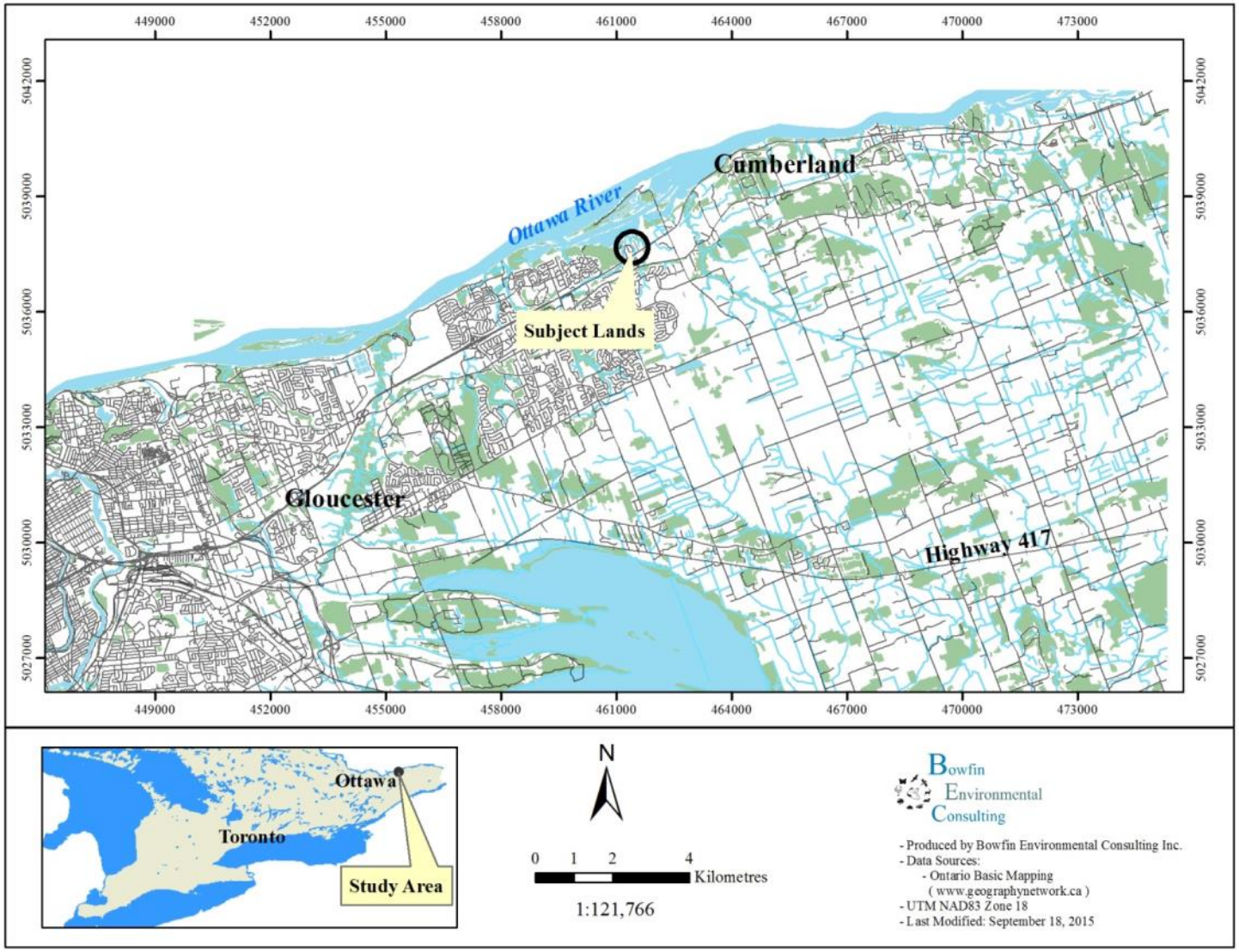
The City of Ottawa protects these and other natural features through their Official Plan (OP) as described in the policies found in Section 2.4.2. All of the features listed in the PPS, but habitat of endangered or threatened species, are identified on the City's OP schedules as either Significant Wetlands, Natural Environment Area, Rural Natural Features, or Urban Natural Features (as applicable). For this project, the applicable schedules are: B, K and L1. The presence/absence of habitat for endangered or threatened species are not depicted on the OP schedules. Instead, the appropriate provincial methodology [i.e. species-specific surveys, presence of preferred habitats] must be used to assess the potential impact to these species. The OP allows for other features, not identified on the schedules, that meet the criteria outlined in the *Natural Heritage Reference Manual* (NHRM) to be deemed significant through the EIS or other

plans (i.e. CDP). If features are identified, then the potential to be negatively impacted is evaluated. 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 fish habitat, any permanent alteration to, or destruction of fish habitat, except where, in conjunction with the appropriate authorities, it has been authorized under the Fisheries Act;*
> *d) 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."*

The following report provides a summary of the findings and an assessment of the functions and values of the natural features on the subject lands. It assesses the features to determine their significance following the applicable guidelines as referred to in the OP. The potential impacts to significant natural features are assessed and avoidance and mitigation measures provided.

Figure 1: General Location of Subject Lands



2.0 METHODOLOGY

Work undertaken for the completion of this project included a background review of existing information and field investigations.

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), 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

The field visit took place on September 22, 2015, a day with no cloud cover, light air (Beaufort Wind Force Scale of 1 – 0.3-1.5 km/h) to no wind and an air temperature of 14°C at 1300 hours. The visit was completed by Shaun St. Pierre (B. Sc. Biology with 7 years of experience as a biologist).

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 MNRF's ELC and OWES definition of wetlands do not match one another. Since wetlands are to be evaluated following OWES, 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 favored the dominance of either hydrophytic or water tolerant plants".*

Specific attention was paid to locating species at risk (SAR) or species of conservation value 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).

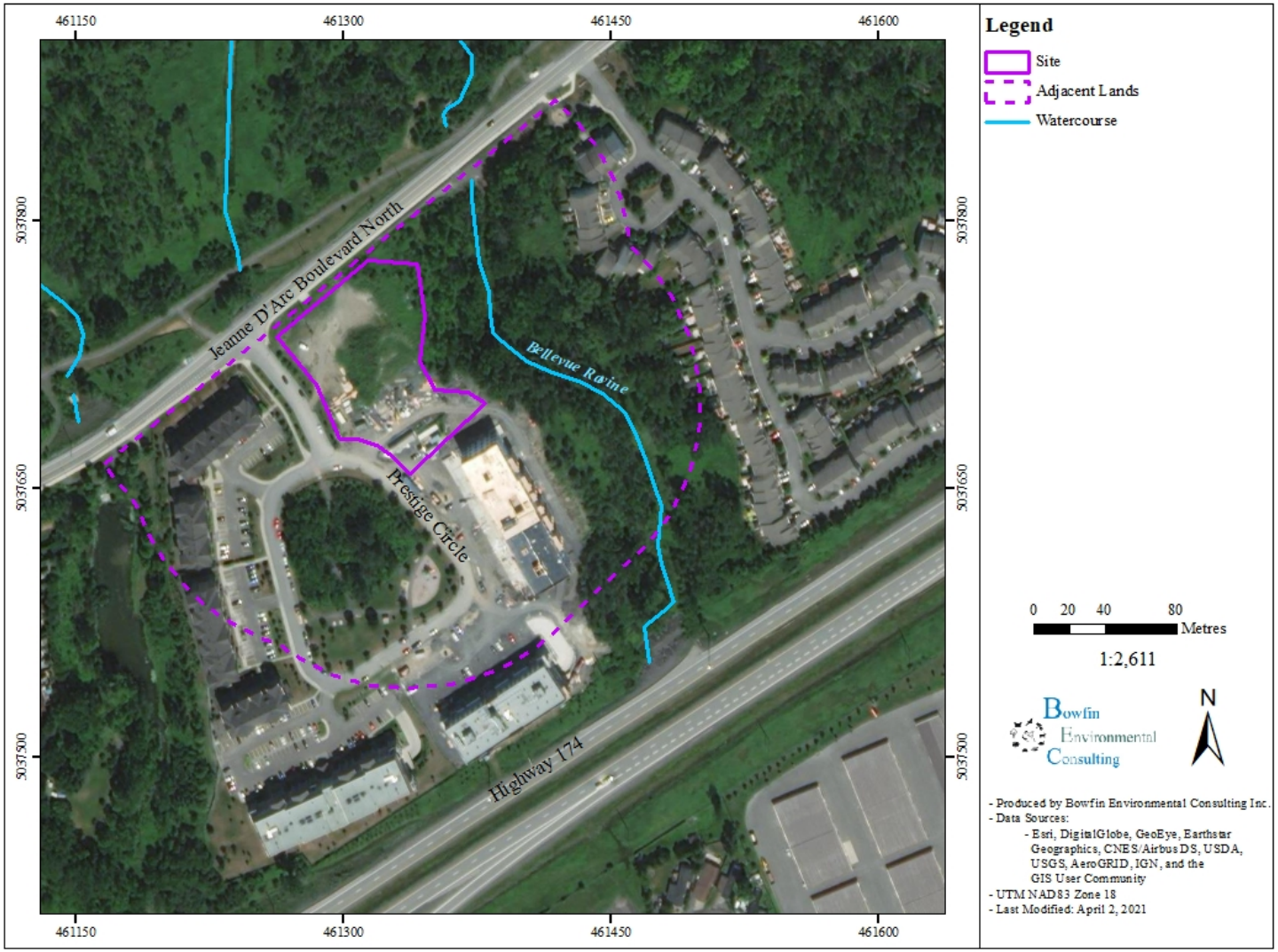
2.2.2 Butternut Inventory

Butternuts are an endangered species. While the Ministry of Environment, Conservation and Parks (MECP) is now responsible for the *Endangered Species Act* (ESA), they have not provided new guidelines. Previously, the MNRF certified Butternut Health Assessors (BHA) to complete Butternut Health Assessments as per MNRF's guidelines. This BHA was completed by a qualified Butternut Health Assessor (#281) in 2015. Presence of butternuts taller than the depth of snow was searched for on January 8, 2020 (BHA 723). The search included the site and the adjacent 50 m around the site, to the south of Jeanne d'Arc. 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 the BHA protocol.

2.2.3 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 2: Location of the Study Area



3.0 Results

3.1 Background Review

The subject lands, approximately 0.7 ha in size, are in Cumberland Ward of the City of Ottawa on Part of Lot 33 Concession 1 (Figure 1). They are situated to the north of Highway174, west of Bellevue Ravine and south of Jeanne d'Arc Boulevard North Road. The lands to the west, east and south are developed. The designated land-use for the subject lands is General Urban Area on Schedule B of the City of Ottawa Official Plan (OP). The only natural heritage constraints those listed on Schedule L1 and are associated with the ravine to the east of the site, also referred to as Bellevue Ravine. This ravine is identified as a natural heritage system. North of the Jeanne d'Arc Boulevard North the habitat is natural, and the OP identified the following features: natural heritage system, urban natural feature, fish habitat (Ottawa River) and the Petrie Island Wetland. Petrie Island Wetland is a provincially significant wetland (PSW).

Muncaster (2004) cites McNeely (1995) as noting that Bellevue Ravine was not fish habitat and appeared to no longer convey significant flow, likely a result of upstream residential and road developments that redirected flow to either Brisbois Creek or Taylor Creek. Muncaster (2004) confirmed this during his August survey indicating that there was no defined watercourse among meadow marsh habitat in the Bellevue ravine south of the Jeanne d'Arc Boulevard North Road.

Three tree conservation report (Bowfin, 2021) identified only two individuals in the area surveyed for that report, as having a diameter-at-breast height (dbh) of more than 50 cm. A review of the 1975 image on geoOttawa depicts a narrower treed corridor along the ravine as compared to today and the airphoto from 1965 indicates that there were few trees on the west side of the ravine at that time (Appendix A). Together this indicate that any wooded area associated with this site of the ravine is not more than 60 years old.

Table 1: Summary of Available Background Information on the Identified Natural Features (PSW, Woodlands, Valleylands, ANSIs, ESA, SWH, and Fish Habitat, and Policies under Section 2.4.2)

Natural Heritage Feature	Present within Site	Present within 120 m of Site	Additional Notes
Provincially Significant Wetlands (PSW)	No	The Petrie Island Wetland (PSW) is located 65m to the North	None

Natural Heritage Feature	Present within Site	Present within 120 m of Site	Additional Notes
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. Preliminary review of the satellite images suggest that there is a potential for bats and Butternuts in the adjacent lands. See section 5 of this report for more information.		None
Significant Woodlands	None	Trees along the ravine are young (<60 years and as such do not meet the requirements outlined in the *Significant Woodlands: Guidelines for Identification, Evaluation, and Impact Assessment* (City of Ottawa, 2019)	None
Unevaluated Wetlands	None	LIO shows unevaluated wetlands associated with significant woodlands and PSWs 55m north of subject lands	None
Significant Valleylands	No defined channel in the ravine.		None
Significant Wildlife Habitat (SWH)	None identified.		None
Areas of Natural and Scientific Interest (ANSIs)	None		Schedule B and L1 do not identify ANSI.
Urban Natural Features	None	Schedule B shows an urban natural feature 15m north of subject lands	
Forest Remnants, Corridors	None	The treed area along the ravine does not meet the other criteria but may be considered a forest remnant/natural corridor	None
Groundwater features	None observed		None

Natural Heritage Feature	Present within Site	Present within 120 m of Site	Additional Notes
Fish Habitat/Surface Water Features	None	The Ottawa River is situated roughly 85 m to the north. The Bellevue Ravine was found not to have a defined channel and was dry during site investigations by Muncaster and Bowfin.	none

Figure 3: City of Ottawa OP Schedule B

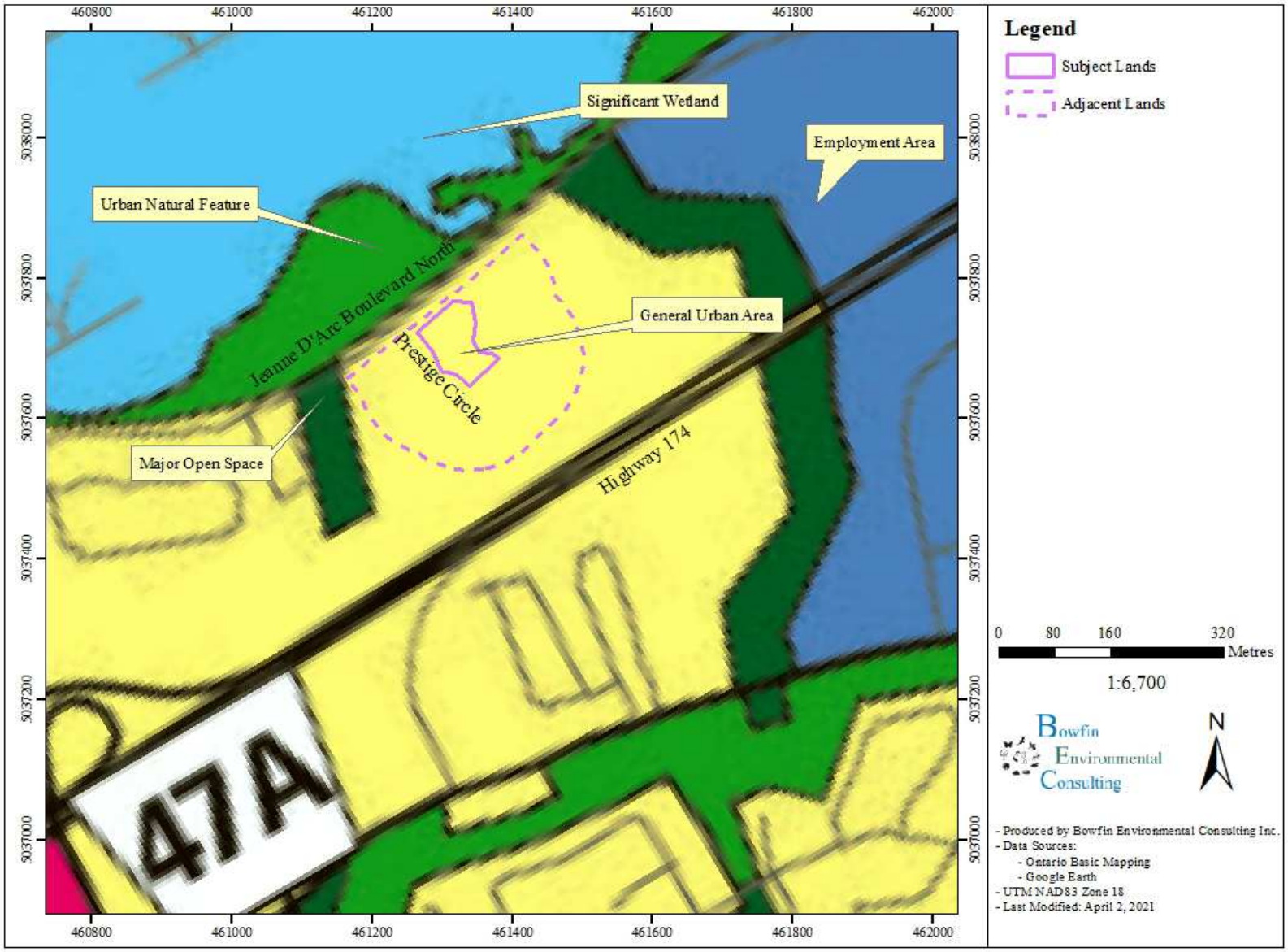
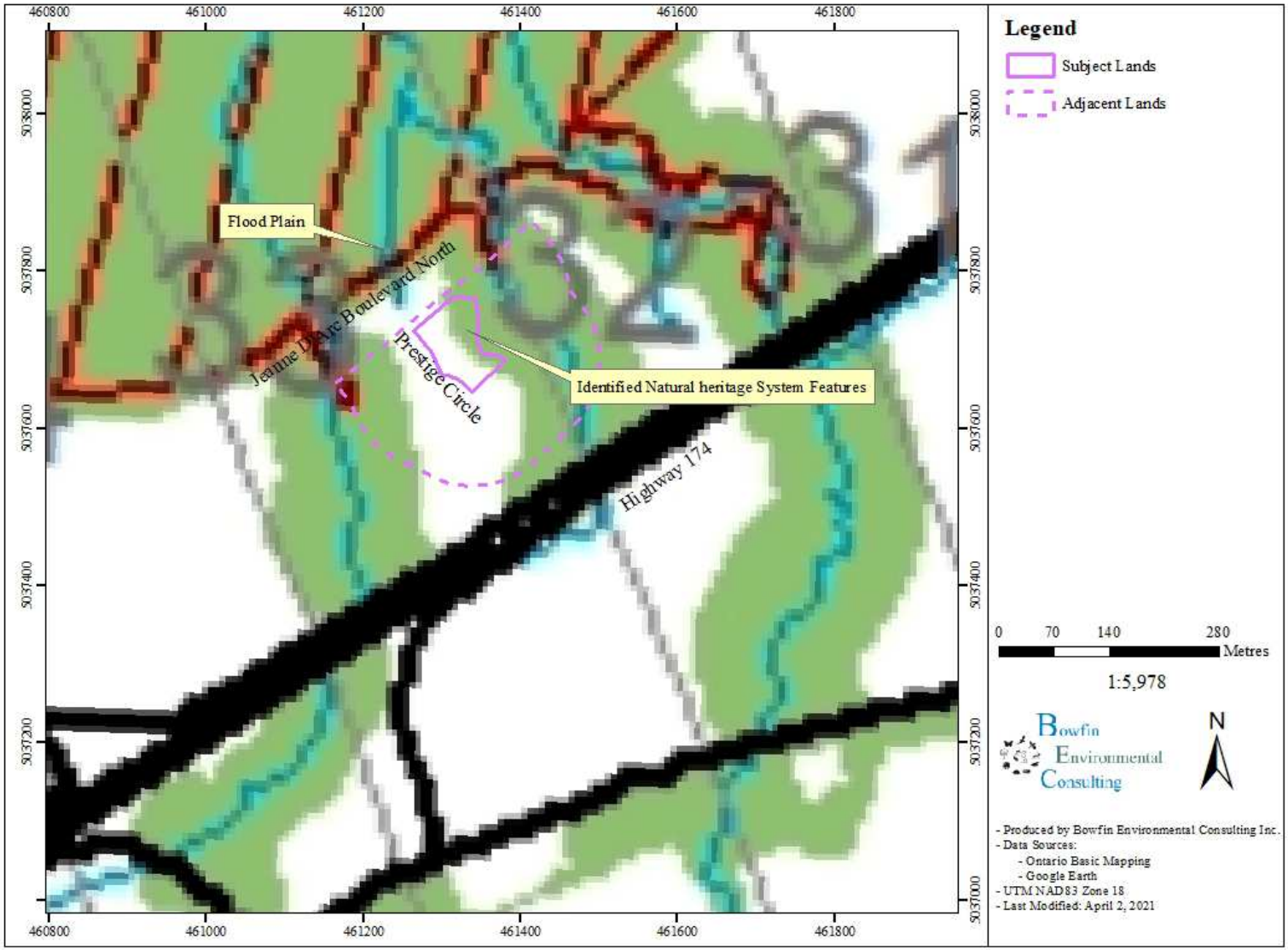


Figure 4: City of Ottawa OP Schedule L1



3.2 Existing Conditions

3.2.1 Geology and Hydrologic Conditions

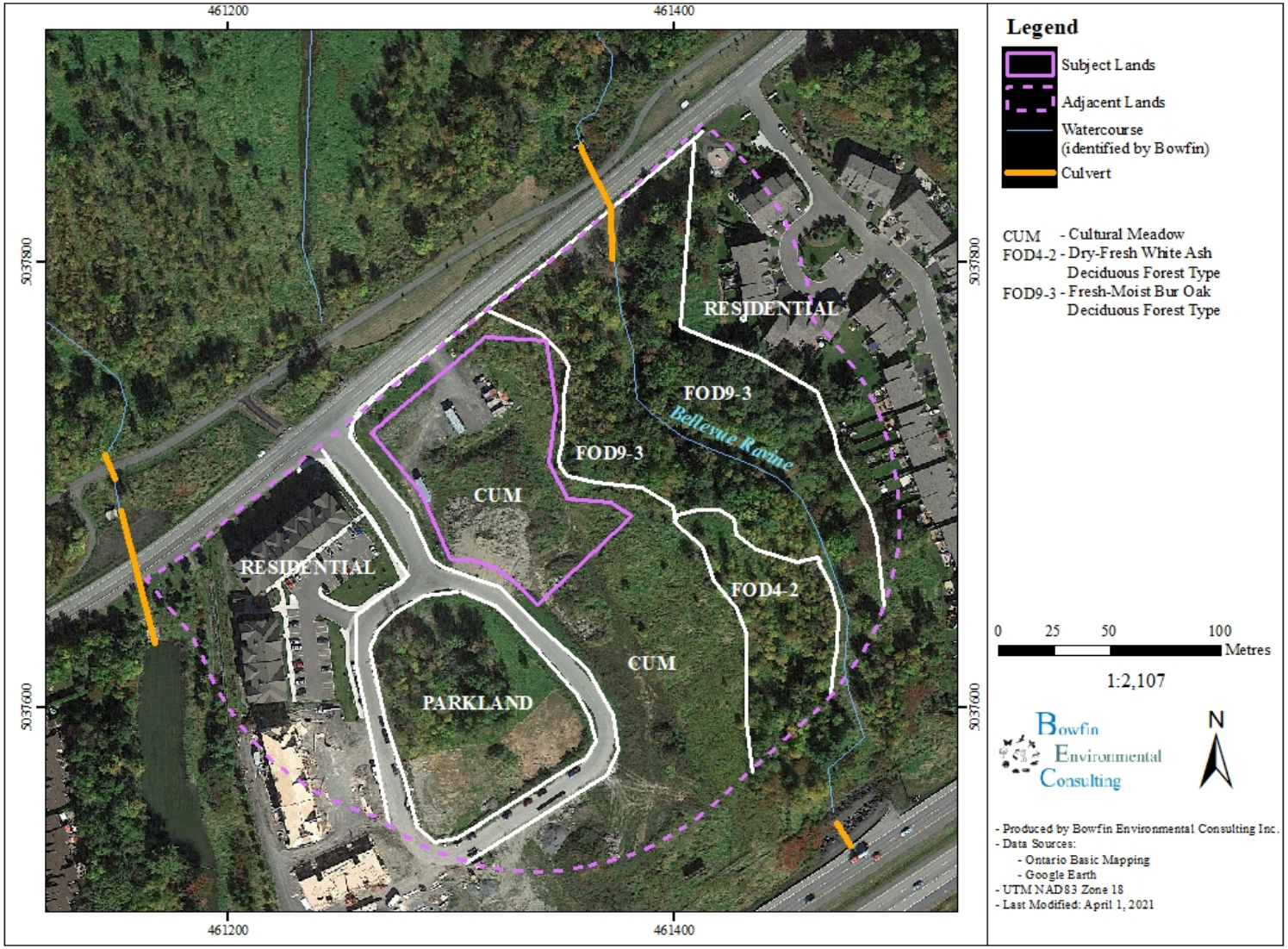
In general, the area was flat with the exception of the steep slopes of the Bellevue Ravine on the east side of the study area. No surface water or defined channels were present within ravine during the site visit (September 22, 2015). The nearest surface water feature was the Ottawa and Taylor Creek, both are outside of the subject lands. The Ottawa River is over 85 m to the north and Taylor Creek over 230 m to the east. There were no lakes, ponds, streams or groundwater seeps within the subject lands. The forested edge of the ravine is very steep and no areas that would serve as vernal pools were noted.

The area is identified as Clay 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 1. The soils map of the area shows the subject lands as having the Rideau soil association (which tends to have gray neutral heavy clay marine material) (*Soils of Regional Municipality of Ottawa-Carleton*).

Table 2: 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
Overburden Depth	Shallow
Hydrological Soil Group	D

Figure 5: Habitat Mapping



3.2.2 Vegetation Cover

The 2015 findings indicated that the entire subject lands consisted of a Fresh-Moist Mixed Meadow. Portions of the site had been cleared previously and used for temporary staging during the construction of other phases. The adjacent lands to the south formed part of this same community. West of the site is now developed as part of other phases and also includes a parkland in the middle of the Prestige Circle. The forest along the ravine consisted of deciduous forest (fresh) that was classified as Fresh-Moist Bur Oak to the north and Dry-Fresh White Ash – Hardwood to the south. None of the communities identified are considered rare vegetation communities [*Significant Wildlife Habitat Technical Guide* (2000)]. A description of the subject lands and natural habitat to the northwest are provided below. The community boundaries are based on satellite image interpretation.

Cultural Meadow (CUM)
This community was present throughout the subject lands and continued southeast until the Highway 174. The community was highly disturbed with storage containers, discarded garbage, gravel pads and spoil piles. The dominant layer was the ground cover (100% cover) which was characterized by reed canary grass, Canada goldenrod, late goldenrod, and rough goldenrod. Other layers included a canopy tree, sub-canopy and understory. The canopy (5-6 m tall; provided 2% cover) consisted of: white ash (average DBH 10 cm) which was more common than American elm (average DBH 12 cm). The sub-canopy (2-3 m tall; 5% cover) was dominated by Manitoba maple which was more common than staghorn sumac, common buckthorn or white ash. The understory (1 m tall; 10% cover) consisted of: wild red raspberry followed by purple flowering raspberry and black raspberry.

Photo 1: Cultural Meadow (CUM) (September 22, 2015)

Photo 2: Cultural Meadow (CUM) (Gravel Pad, Garbage, and Spoil Pile) (September 22, 2015)

Photo 3: Cultural Meadow (CUM) (September 22, 2015)

Fresh- Moist Bur Oak Deciduous Forest (FOD9-3)

This deciduous community was found within the eastern side of the adjacent lands. It was composed of 95% tree cover which included 5% coniferous trees. In MEP's 2004 report the community was identified as being Dry-Fresh Poplar Ash Deciduous forest with a notable amount of bur oak present, but significant changes in the stands structures have occurred since 2004 most notably the death of the white ash (emerald ash borer) in the canopy layer. Such changes have altered the structure making bur oak the dominant tree present.

This forested community was present on a steep (45° slope) ravine. The canopy was 13-15 m tall and provided 40% canopy cover. The dominant species was bur oak (95%, average 15 cm) which was much abundant than white pine (5%, average DBH 45 cm). The sub-canopy (8-10 m tall; 60% cover) was still strongly vegetated with bur oak followed by white ash, white birch, basswood and trembling aspen. The understory (1-3 m tall; 30% cover) was composed of: white ash, tartarian honeysuckle, and common buckthorn. The ground layer (40% cover) included: large-leaved aster, common strawberry, and northern lady fern.

The bottom of the ravine was vegetated with reed canary grass and could be classed as a narrow-leaved emergent marsh inclusion. Portions of this area also contained spotted jewel-weed, and New-England aster.

Photo 4: Fresh- Moist Bu-r Oak Deciduous Forest (FOD9-4) (September 22, 2015)

Photo 5: Narrow-leaved Emergent Marsh (September 22, 2015)

Dry-Fresh White Ash – Hardwood Deciduous Forest (FOD4-2)

This deciduous community was found within the south-eastern side of the adjacent lands. The community had 70% tree cover composed almost exclusively of young white ash (sub-canopy 4-5m; 65% cover) with a few basswood (canopy 8-10 m tall; 1% cover). The majority of the larger white ash trees were dead. The understory (1-2 m tall; 60% cover) consisted of white ash which was more common than black raspberry, bur oak and nannyberry. The ground layer (65% cover) was dominated by: large-leaved aster, common strawberry, avens species, Canada goldenrod and rough goldenrod.

Photo 6: Dry-Fresh White Ash – Hardwood Deciduous Forest (FOD4-2) (September 22, 2015)

Parkland

The park consisted of remnant natural vegetation which was thinned out and supplemented with plantings and manicured grass. The main woody species in the natural area were: trembling aspen, American elm, white ash, Manitoba maple, choke cherry, and wild red raspberry. The herbaceous species in the natural area included: grasses, Canada goldenrod, and rough goldenrod. Examples of the plantings are: sugar maple, black maple, white oak, white spruce and white pine.

Photo 7: Park (September 22, 2015)

Plant Species Discussion

The plant species recorded were analyzed based for the following parameters: number of species, percent native, provincial rank (SRank), species at risk (Endangered or Threatened provincially) and co-efficient of conservation (CC). This analysis provides information on the level of disturbance to the site and special features.

A total of 74 species were identified of which 65% were native. This is above the percent non-native cover in most natural areas in southern Ontario (which usually has between 20-30% non-native cover Oldlam et al., 1995). The higher percentage of non-native plants can be attributed to the plant species documented on the subject lands which as a result of the recent land clearing and use as a temporary work area. This also affected the average coefficient of conservation (cc) value of 3.4 which also indicates an area with severely degraded conditions. [The CC provides information on the species' tolerance to disturbance; those species with a high CC (maximum of 10) are highly sensitive].

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).

No Endangered, Threatened or species with a SRank of S3 or higher or listed as Special Concern, including no Butternuts, were found.

3.2.3 Incidental Wildlife Observation

There were only a few incidental observations, these were: eastern chipmunk and grey squirrel. Both are common species

3.2.4 Aquatic Features

As mentioned in the background review section Muncaster (2004) and McNeely (1995) indicated that Bellevue Ravine did not represent fish habitat. A review of the available satellite imaging and aerial photographs (geoOttawa) do not depict a continuous channel between Jeanne d'Arc Boulevard North and the Ottawa River (Figure 7).

On September 22, 2015, the lack of channel within the ravine between Jeanne d'Arc Boulevard North and Highway 174 was confirmed. During that visit, the ravine was dry (8.6 mm of rainfall was recorded at the Ottawa Airport within the 7 days preceding the site visit). The aquatic vegetation in the ravine bottom was composed of: reed canary grass, spotted jewel-weed, and New-England aster.

The top of the banks were well vegetated with herbaceous vegetation and woody species. The most common species were: large-leaved aster, common strawberry, field horsetail, glossy buckthorn, purple flowering raspberry, green ash, basswood, and bur oak.

4.0 Potential to Impact the Natural Features

The development of Petrie II Block 8 will require the removal of the cultural meadow habitat within the subject lands (approximately 0.7 ha) and a few individual trees (see the Tree Conservation Report). The forest associated with the ravine will be protected as the limit of development along the east side includes a minimum 15 m setback from the top of the ravine slope. The development will connect to the City's water and sanitary systems and the stormwater management water will be managed according to the Ministry of Environment, Conservation and Parks (MECP) regulations. No stormwater management ponds are predicted for this site.

The purpose of this report is to discuss if there are any changes to the mitigation measures outlined in the Muncaster (2004) report or any new measures required as a result of changes to the SAR. The potential to impacts these features, list of mitigation measures and a conclusion is provided below following the summary of the impact assessment methods.

Figure 6: Site Plan with Vegetation Mapping

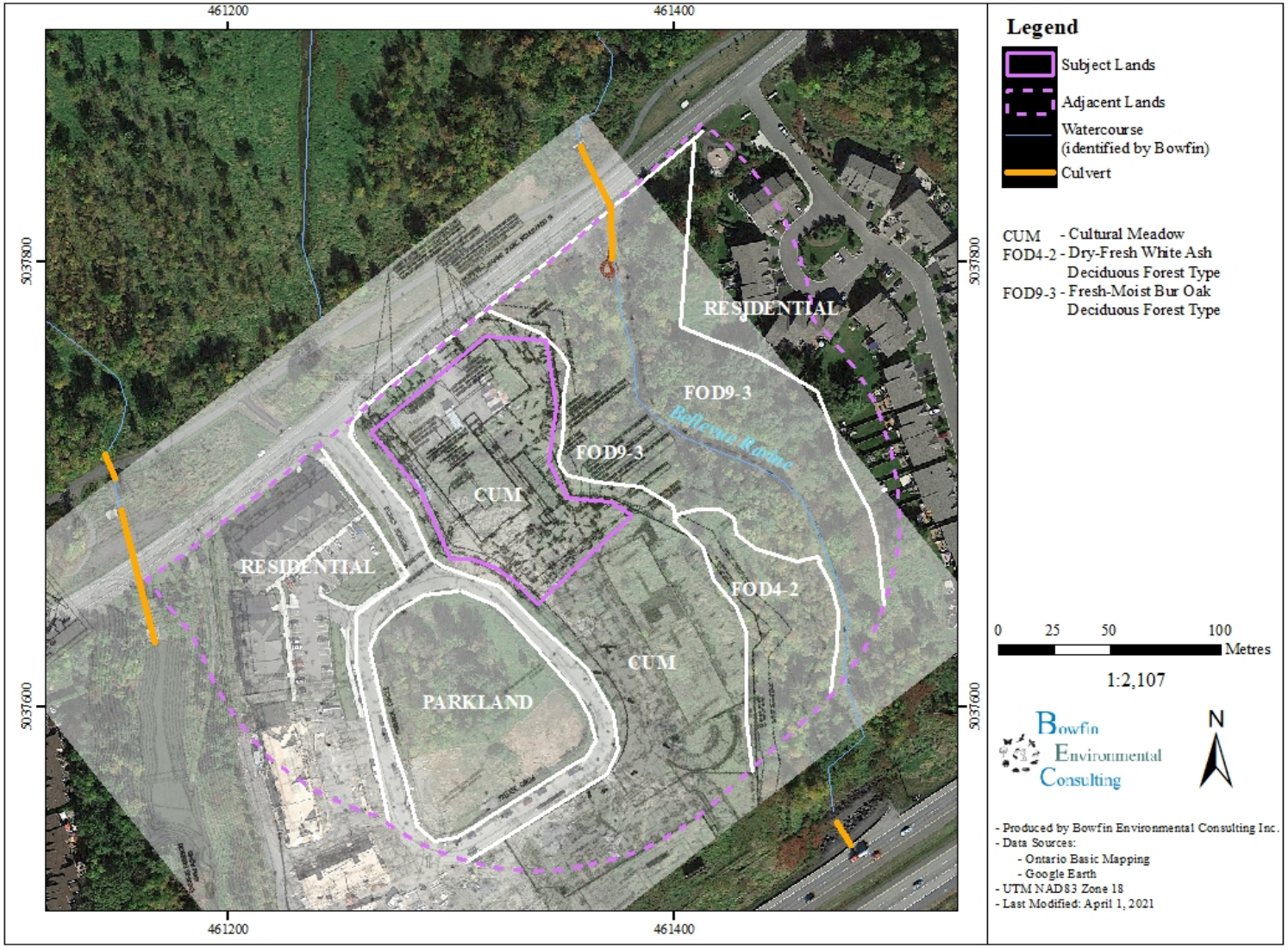
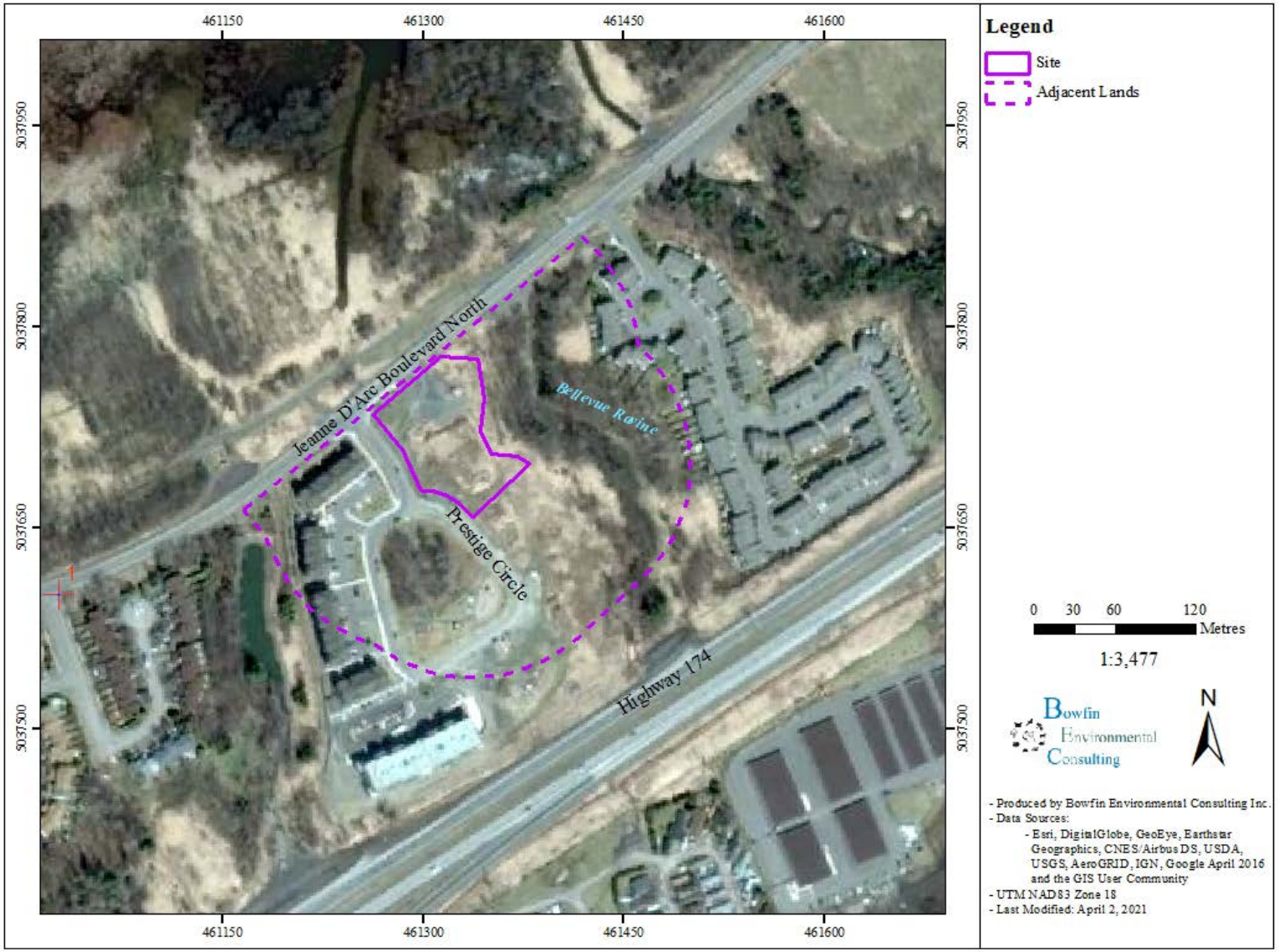


Figure 7: Spring View of Ravine



4.1 Impact Assessment Methods

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

- Clearing of the disturbed meadow and removal of a few individual trees
- Grading and backfilling
- Construction of residences

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)
    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.

4.2 Evaluation of Potential Impacts

4.2.1 Provincially Significant Wetlands

The Petrie Island PSW is situated to the north of the recreational bike path, north of the Jeanne d'Arc Boulevard North. It does not include any habitat within the subject lands. The nearest distance between the PSW and the subject lands is 110 m. No changes from the discussion found in Muncaster (2004) are needed. A summary of the Muncaster (2005) findings are provided below.

- Petrie Island Wetland will not be directly impacted as there is no wetland habitat on site. There will be a minimum distance of approximately 110 m of vegetated land between the north edge of development and the south edge of the PSW habitat.
- Potential indirect impacts on the wetland habitat are also minimized as all works will occur on the south of the Jeanne d'Arc Boulevard North and south of the other disturbances (a sanitary sewer was installed in the early 2000s along Jeanne d'Arc Boulevard North, and a recreational pathway).
- In addition to the above, the nearest wetland habitat to the north of the site is the insensitive meadow marsh dominated by reed canary grass. These habitats are tolerant of changes in water quality and other aspects of the moisture regime no such impacts are anticipated. The more sensitive features of Petrie Island, including the vegetation communities and species of interest are not in proximity to the site. The more ecologically significant areas are not found in the vicinity of the subject lands.
- It is noted that Bellevue Ravine provides a path for sediment-laden water to travel from the subject lands during construction to the wetland. The potential for poor water quality to leave the site can be mitigated through comment best management practices listed below.
- The existing forested slopes adjacent to the development tablelands will be retained in its existing conditions, with a setback of 15 metres from the top-of-bank to the limit of development.
- The stormwater management will be designed to meet MECP's requirements and will consider the presence of the PWS on the north side of the Jeanne d'Arc Boulevard North and the potential for water leaving the site to reach the PSW via Bellevue Ravine.
- No new recreational pathways are proposed as part of this project and as such there is not potential for its development to increase human presence on the wetland habitat to the north.

Conclusion:

- The Petrie Island Wetland is a Provincially Significant Wetland however it is located 110 m from the proposed development of Petrie's Landing Phase II Block 8. Jeanne d'Arc Boulevard North and the recreational path separate the proposed development from the wetland.
- There is not potential for direct impacts to the PSW wetland.
- Indirect impacts could occur as a result of change in water supply or quality, sediment/erosion to the forested slope on Bellevue Ravine which drains to the wetland. Mitigation measures for this is provided below. Note that the overall hydrology of the PSW is controlled by the Ottawa River levels.

Potential Impacts and Mitigation Measures:

- Indirect impacts as a result of change in water supply or quality, erosion to the forested slope on Bellevue Ravine which drains to the wetland. These will be mitigated by:
    - Ensuring that the stormwater management plans meet MECP's requirements and take the presence of the ravine into account.
    - The protection of the vegetation within the 15 m setback from the top of slope.
    - 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 development (along the edge of the forest).
    - At this time, no trees on the top of the slope of Bellevue Ravine is forecasted. If this changes then a permit from the City will be required prior to removing trees greater than 10 cm in diameter (a Tree Conservation Report will address this separately). Note that there may be a few individual trees removed but the forested area is anticipated to be protected.
    - Any stock piles of soil or fill material would be stored at least 30 m from the top of 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.
- No additional access to the wetland will be created (no trails).

Area	Nature	Duration	Magnitude
Local	Negative Indirect	Short to Medium Term depending on extent	Unlikely to occur (would occur as a result of an accident or malfunction resulting in sediment laden or contaminated water leaving the site)

4.2.2 Natural Heritage System

A natural heritage system was identified on Schedule L1. This feature consists of the Bellevue Ravine. Its attributes consisted of young (<60 years old) deciduous forests (Dry-Fresh White Ash-Hardwood and Fresh-Moist Bur Oak Deciduous Forests), with a distinct ravine. The Tree Conservation Report (Bowfin, 2021) only identified two trees with a dbh larger than 50 cm within 20 m of the Site. The majority of the trees were <30 cm. This ravine did not have any defined channels and was dry during the August 2014 (Muncaster 2004) and September 2015 visits. Muncaster (2004) also referred to the McNeely (1995) that listed this area as not fish habitat. The feature does not meet the PPS, NHRM or City of Ottawa's definitions of significant: woodland, valleyland, PSW, ANSI and does not provide fish habitat. However, the ravine is a distinct feature with forest remnant and has been identified on Schedule L1 and as such, the natural feature and its functions need to be protected.

The functions are limited to the protection of the ravine's slope from erosion. While it may have historically provided a movement corridor, its value is now limited. There is no continuation of the ravine to the south of Highway 174 and while there are distinct connections between the PSW and the Taylor Creek ravine, to the east, there is not one to the Bellevue Ravine (Figure 7, Photo 8). Any value as habitat for endangered or threatened species and this is discussed further below.

Photo 8: Looking north from the recreational path towards the Ottawa River at the ravine (September 22, 2015).

Conclusion:

- The forested slope along the northwest side of the subject lands form part of the identified natural heritage system.
- The proposed development abuts the identified natural heritage system.
- The development does not propose any removal of the trees along the ravine's banks.
- This ravine is limited in its function. The primary function is to prevent erosion of the ravine slopes.

Potential Impact and Mitigation Measures:

- A minimum of 15 m setback from the top of slope has been established and prevents direct impact. This is to be clearly shown on the construction drawings and staked/surveyed on-site prior to clearing of vegetation.
- Indirect impacts could occur if the trees along the top of the slope are accidentally harmed resulting in less stability of the slope.
    - The removal of trees is not forecasted
    - Geotechnical advice will be followed to ensure that no erosion or bank stability issues arise from the proposed development.

- A permit from the City will be required prior to removing trees greater than 10 cm in diameter. See the Tree Conservation Report for more details.
- Sturdy fencing will be installed outside of the Critical Root Zone (CRZ) (defined by the City as 10 x the DBH) of the trunk of the trees to be retained.
    - No grading or activities that may cause soil compaction (such as heavy machinery and stockpiling of materials) will be allowed within the fenced area.
    - 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.
- Refer to the Tree Conservation Report for additional measures.

Activity	Area	Nature	Duration	Magnitude
Clearing of trees. This will be limited by the setback (min. 15 m from top of slope)	Local	Negative Indirect	Long Term to Permanent depending on extent	Provided that the vegetation within 15 m of the top of slope is protected, then no alterations to the function of the remnant forest/ravine/NHS are anticipated to occur

4.2.3 Other – Urban Natural Area

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. 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 submature Green Ash Deciduous Swamp Forest
    - Submature United Maple, Silver Maple, Red Maple Deciduous Swamp Forest (dominant vegetation on alluvial islands)
    - Submature to mature Hackberry Deciduous Swamp Forest (small areas on all islands)
    - Deciduous Thicket Swamp
    - Reed canary grass Marsh
    - Cattail Marsh
    - Shallow water aquatic associates
    - Young to submature upland forest (Green Ash, White Birch and Red Maple – common in lower slopes and backshore)
    - Mature upland Mixed Forest (Eastern Hemlock and Sugar Maple – small area of original Ottawa shore forest in Queenswood Forest)
    - 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
- Wildlife habitat
    - Large population of map turtles and Blanding's turtles in wetlands and adjacent swamp forest, respectively
    - Provincially significant least bittern (SAR) and black tern (Special Concern), at least former breeding species, in open marsh habitat
    - Breeding habitat for Regionally significant raptor Cooper's hawk in Queenswood Forest

Conclusion:

- This UNA consists of alluvial islands, riparian deciduous swamp forests and mainland deciduous and mixed upland forests
- The mapping for this UNA shows that, within the vicinity of the study area, it is restricted to the north side of Jeanne d'Arc Boulevard North.
- No direct impacts to this feature will occur.
- Potential for indirect impacts are restricted to the potential for sediment-laden water leaving the site via Bellevue Ravine. This has been dealt with in other sections.

- Note that the potential for Blanding's Turtle is also dealt with in a separate section.

Potential Impact and Mitigation Measures:

- No additional mitigation measures for the UNA are required.

Area	Nature	Duration	Magnitude
Local	Negative Indirect	Long Term to Permanent depending on extent	Not anticipated to occur (would occur as a result of an accident or malfunction)

4.2.4 SAR

Terrestrial and wetland Endangered and Threatened Species at Risk, on private land, are protected under provincial *Endangered Species Act*. It is noted that bird species protected under the *Species at Risk Act* (SARA) are protected by the *Migratory Bird Convention Act* (MBCA) on private lands. Within this report, the acronym SAR refers to only Endangered or Threatened species. No Special Concern species were identified and further they do not receive protection from ESA or SARA.

A list of potential SAR was compiled using various sources and identified up to roughly 5 km from the Site. The resulting list includes 12 potential SAR: 1 reptile (Blanding's turtle), 6 birds (least bittern, eastern whip-poor-will, chimney swift, barn swallow, bobolink, and eastern meadowlark), 4 mammals (little brown myotis, northern myotis, eastern small-footed myotis, and the tri-colored bat), and 1 plant (butternut) (Table 3). Fish were not included as there is no fish habitat present. Of these, many were determined not to be present or had no triggers for review based on guidance from the province. Table 3 notes the relevant MECP guidelines and triggers and indicates whether the species is brought forward for discussion.

NOTE: The ESA has now been transferred to the Ministry of Environment, Conservation and Parks (MECP) (as of April 1, 2019). To date MECP has not changed the protocols or process for assessing the potential to impact SAR. References to dealing with MNRF have been left in this report as they were the responsible Ministry at the time of the field work.

Table 3: Summary of Potential SAR

Common Name/ Population	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)
REPTILES								
Blanding's Turtle	*Emydoidea blandingii*	S3	THR	THR	Shallow water, large marshes, shallow lakes or similar such water bodies.	COSEWIC 2016a	This species is noted in the background information to be present within 500 m and the bottom of the ravine could provide habitat.	yes
BIRDS								
Least Bittern	*Ixobrychus exilis*	S4B	THR	THR	Freshwater marshes, ditches, creeks, rivers and lakes with tall emergent vegetation.	COSEWIC 2009	No habitat is present on-site, but individuals have been listed to occur within the PSW to the north of Jeanne d'Arc Boulevard North. MECP does not have category guidelines for this species and the wetland will not be impacted.	No
Eastern Whip-poor-will	*Caprimulgus 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	No suitable habitat is present on-site or within 500 m	No
Chimney Swift	*Chaetura pelagica*	S4B, S4N	THR	THR	Cities, towns, villages, rural, and wooded areas.	COSEWIC 2007	None observed, and most trees were <30 cm in diameter. No individuals are shown within 2 km of the site on iNaturalist, but they are present within 10 km (ABBO)	Yes
Barn Swallow	*Hirundo rustica*	S4B	THR	THR	Open or semi-open lands: farms, field, marshes.	COSEWIC 2011a	There were no structures in or within 5 m of the Site. Houses and buildings were present within 200 m, but these would not be impacted.	No
Bobolink	*Dolichonyx oryzivorus*	S4B	THR	THR	Primarily in forage crops, and grassland habitat.	COSEWIC 2010	Meadows are broadleaf, smaller than 4 ha, and not suitable grassland.	No

Common Name/ Population	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)
Eastern Meadowlark	*Sturnella magna*	S4B	THR	THR	Fields, meadows and prairies.	COSEWIC 2011b	Meadows are broadleaf, smaller than 4 ha, and not suitable grassland.	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	MECP recommends the use of avoidance timing window for clearing of trees (>10 cm in diameter) if this can be accomplished then no impacts.	Yes
Northern Myotis/Northern Long-eared Bat	*Myotis septentrionalis*	S3	END	END	Older (late successional or primary forests) with large interior habitat.	Menzel et al. 2002, Broders et al. 2006, SWH 6E Ecoregion Criterion Schedule		
Eastern Small-footed Myotis	*Myotis leibii*	S2S3	END	No Status	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		
PLANTS								
Butternut	*Juglans cinerea*	S3?	END	END	Variety of sites, grows best on well-drained fertile soils in shallow valleys and on gradual slopes	COSEWIC 2003	Inventory completed in 2015 and none found. No large individuals were noted during winter 2020. Inventory has a shelf-life	Yes

Status updated: March 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.

Reptiles

Blanding's Turtle

Blanding's turtle is associated with a variety of shallow slow aquatic habitats with submergent and emergent plants. 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, 2005). This species can migrate far distances of up to 6 km (OMNR, 2013b). Migration routes can include overland movement.

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

No Blanding's Turtle surveys were undertaken. The habitat on-site did not provide overwintering, nesting or suitable movement corridor functions. There are occurrences of Blanding's turtle on the Ottawa River within the PSW (make-a-map) but no sightings on iNaturalist despite this area being heavily visited by the public. Blanding's Turtle are anticipated to utilize the aquatic habitat adjacent to the site (Ottawa River and associated wetland habitat). The Ottawa River could provide overwintering habitat.

The guidelines indicate that suitable habitat within 500 m of the sighting plus its adjacent habitat (30 m) should be automatically considered Category 2 habitat. The exact location of the sightings are unknown. It is assumed that the reed canary / jewelweed inclusion at the bottom of the ravine could provide suitable habitat for this species and this is within 500 m of the PSW. While the Category 3 habitat would also be automatically placed over much of the site, the surrounding lands are cleared and developed and as not suitable for use. Based on these investigations, it is proposed that:

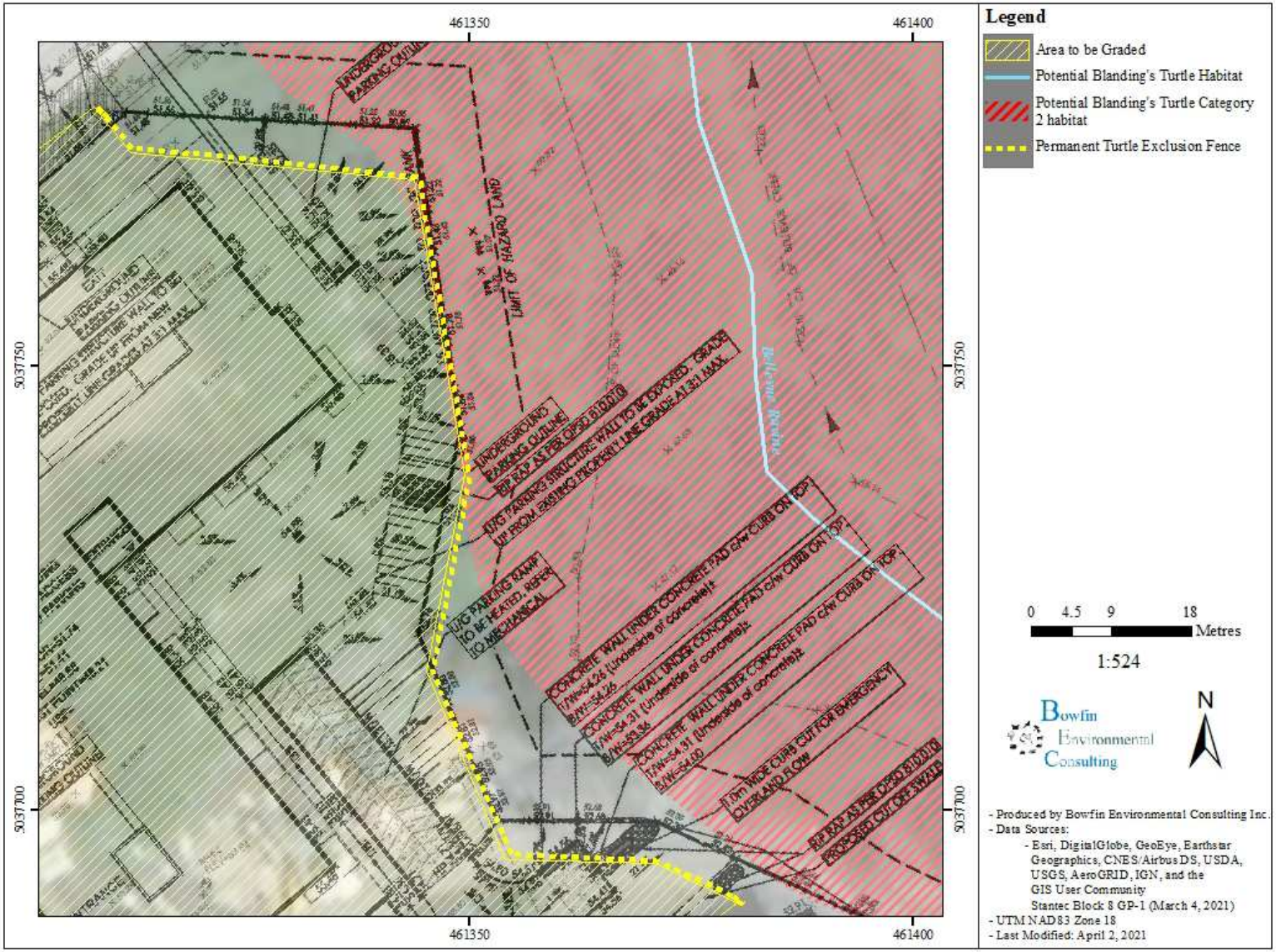
1. The Ottawa River be considered appropriate habitat for overwintering or Category 2.

2. The reed inclusion community at the base of the ravine be considered appropriate habitat for Category 2.

The value of much of the adjacent lands as Category 3 Habitat is questionable. 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. The surrounding areas to the west, east and south are developed. No overwintering, wetland or nesting areas are noted in these directions. The more natural migration route would be for the turtles to travel to the stormwater management pond to the west for overwintering or to migrate through Taylor Creek.

The development of Petrie II Block 8 would not affect the use of any existing habitat or migration routes. The mitigation measures would include the installation of a permanent exclusion fence (Figure 8).

Figure 8: Potential Blanding's Turtle Habitat



Birds

Chimney Swift (*Chaetura pelagica)*

The chimney swift can often be found in developed areas and prefers to utilize structures such as large (>50 cm diameter) trees or man-made structures such as chimneys for its nesting habitat (COSEWIC, 2007). The use of large trees is now considered a rare event and the documented occurrences have all be in trees that were <1 km from a waterbody (large enough to be shown on 1:50,000 topographical maps) (COSEWIC, 2007).

The results from the Tree Conservation Report were reviewed and there were only two trees that were suitable in size (diameter >50 cm) nearby. Neither will be impacted by this project. This species is easily identified when present, it is very vocal and forages often. There are no recordings of this species within 2 km of this site on iNaturalist and there are no large trees to be removed. While there remains a potential for its presence, impacts to this species can be avoided through the implementation of timing windows.

Barn Swallow (*Hirundo rustica)*

The barn swallow can often be found nesting on man-made structures. The G*eneral Habitat Description for Barn Swallow* (OMNRF, 2018b) indicates that the protected habitat for this species includes three categories:

Category 1	nest
Category 2	the area within 5 m of the nest
Category 3	the area between 5 m and 200 m of the nest

No buildings were present within the subject lands. The buildings in the adjacent lands could provide habitat for this species, these will not be impacted by the developments. This species will not be impacted.

Bats

The potential SAR bats within the general area are: little brown myotis, northern myotis, eastern small-footed myotis and tri-colored bat. There are three types of habitats required by bats: hibernation, maternity sites and day-roost sites. The latter is not considered critical habitat. These four bat species prefer to hibernate in caves or mines. They can hibernate in buildings but that is rare for these species (COSEWIC, 2013a). No caves, buildings, or mines were present.

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). This habitat is absent.

The recovery strategy for the eastern small-footed myotis indicates that the preferred maternity habitat of this species consists of open rock habitats and that it rarely uses old buildings as roosting/maternity sites (Humphrey, 2017). There was no suitable rocky habitat present or buildings. Based on this information, this species' maternity sites are considered absent.

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. 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. There remains the potential for the other species to utilise the trees on-site for day-roosts. Mitigation measures will be included discussed further below.

Plants

Butternuts

As discussed above, no butternuts were identified in or within 50 m of this site by the surveyor in 2015 and no large trees were noted in the winter of 2020. Butternuts are normally assessed based on the amount of canker (the disease which is killing the species), their size and health, as per the MNRF BHA protocol. This method classes the individual trees as one of three categories:

- Category 1 are those that are heavily infected to the point that they are not expected to survive.
- Category 2 may have some canker but are still considered healthy.
- Category 3 are the same as Category 2, but these are larger individuals situated near heavily cankered trees and MNRF believes that some may be showing immunity to the disease.

Butternut inventories are good for 2-years. A new butternut inventory should be completed within 2-years prior to clearing of vegetation.

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. 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.

Turtles

- Based on the mapping there is no measurable amount of Category 2 lands that will be impacted (temporarily or permanently).
- During construction, an exclusion fences will be in place. The 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 side closest to the ravine. Reptile and Amphibian Exclusion Fencing: Best Practices (OMNR, 2013d) should be followed for exclusion fence design.
- A permanent barrier to turtle access of the newly developed area will be included in the final design of the development. Reptile and Amphibian Exclusion Fencing: Best Practices (OMNR, 2013d) will be followed for exclusion fence design.
- Implement a strict speed limit of <15 km/h during construction.
- If possible, clearing of vegetation will take place outside of the active turtle season [i.e. clear after October 16 (or freeze up) and before April 15 (or spring thaw)].
- If clearing takes place during the active season, then a biologist familiar with this species, will sweep the area to be cleared immediately prior to the clearing and remain on site during clearing works. Where feasible clear using hand tools/chain saws.
- 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.

- 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.

Activity	**Area**	**Nature**	**Duration**	**Magnitude**	**Likelihood**
Removal of vegetation	Local	Negative Direct	Permanent	Low potential; all work is outside of Category 2 habitat	Negligible (if timing window is followed and exclusion fences installed)

Birds

Apart from the low potential for chimney swifts to utilize the larger diameter trees in the ravine, there is not potential for critical SAR birds in the Site or adjacent lands.

SAR Birds:

- No trees that have a diameter of 50 cm or larger will be removed.
- The removal of all trees will occur outside of the Chimney Swift nesting period (provided from MECP as being between May 15 and August 31 in Southern Ontario (including eastern Ontario)). This is to ensure no disturbance to any that may be nesting in the adjacent lands. To remove this condition, two breeding bird visits would be required during the appropriate timing window (end of May to first week in July and spaced at least 15 days apart). However, it is noted that the bat timing window includes this period and as such, it cannot be removed without a bat exit survey as well (see below).

Activity	**Area**	**Nature**	**Duration**	**Magnitude**	**Likelihood**
Removal of vegetation	Local	Negative Direct	Permanent	Low potential; no critical SAR bird habitat	Negligible (if timing window is followed)

				within the area to be cleared	

Bats: Recent discussions with MECP on bats, in the Kemptville area, 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 trees 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.

Activity	Area	Nature	Duration	Magnitude	Likelihood
Removal of vegetation	Local	Negative Direct	Permanent	Low potential; habitat is not a restrictive item in eastern Ontario	Negligible (if timing window is followed and exclusion fences installed)

4.2.5 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 slope and 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.

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 MECP Spills Action Centre (1800 268-6060).

4.2.6 Other

The measures outlined above serve to protect the identified or potentially present natural features identified in the background review and/or site investigations. However, there are also some other items that should be mentioned.

1. Almost all birds in Ontario are protected by either MBCA or FWCA.
2. Most reptiles are protected by the FWCA

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 5th to August 28th. 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. These dates only serve as a guideline.
- During construction, there is a potential for suitable habitat for ground nesting birds (i.e. killdeer) to be created. These include 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).

Table 4: Summary of Impacts, Mitigation Measures and Residual Effects

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
Construction				
Vegetation Clearing in preparation development	Ravine Small potential for Blanding's Turtle, Chimney Swifts and bats in adjacent lands. Bird nests protected by MBCA	Disturbance to vegetation along the slope of the ravine could result in erosion. Sediment-laden water could end up in the PSW downstream. If Blanding's Turtle are present, they could be accidentally harmed by machinery if present during clearing. If Chimney Swifts are present in adjacent lands, they could be indirectly impacted by removal of vegetation during their nesting period.	Vegetation within 15 m from the top of slope will not be impacted. Only a few (2 live) trees on the site are anticipated to be removed. A permit from the City will be required prior to removing trees greater than 10 cm DBH. Refer to the Tree Conservation Report for details. Use small machinery within 20 m of ravine. Any clearing of vegetation within the CRZ (DBH x 10 cm) of trees to be retained will be done by hand tools.	None

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
		If bats are present, they could be impacted if trees (>10 cm) are removed during their active season. Birds in general could be using the area for nesting.	All vegetation clearing must occur outside of breeding bird season, active turtle season, active bat season. Exceptions can only be made if Chimney Swift surveys and bat exit surveys are completed along with general nesting bird surveys. Daily sweeps for turtles will be completed between April 15-October 16. If clearing takes place during active turtle season, a biologist will complete the daily sweeps. Temporary (during construction) and permanent turtle	

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
			exclusion (operation) will be installed and monitored. Stockpiles will have additional sediment fence around them to ensure that turtles do not nest.	
Grading	Indirect impacts to wetland, ravine and UNA should erosion or sediment control measures fail.	Negative impacts to: quality of wetland or UNA habitat or its functions (wildlife and fish habitat) as a result of erosion or sedimentation of wetlands or aquatic habitats. Given the distance between the site and the natural features it is unlikely that even indirect impacts will occur to the Petrie Island PSW or UNA.	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) along the top of slope of the ravine and around spoil piles.	None provided that mitigation measures are properly implemented and maintained.

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
		Noise from machinery may also cause a disturbance to wildlife in the ravine. Permanent structures could cause slope instability.	Maintain sediment fencing as needed. 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. No work outside of limit of development. No maintenance of equipment or fueling within 30 m of the ravine (this matches the edge of the grading area). No storage of stockpiles within 30m of top of ravine (slope).	

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
			Work during the daytime hours to prevent light disturbances. Ensure that all equipment have the appropriate mufflers to reduce noise disturbances. Slope stability to be confirmed by a geotechnical expert as needed. Construction staff will be informed of the SAR in the area (Appendix C).	
Accidents or Malfunctions	Indirect impacts to wetland, ravine or UNA should erosion or sediment control measures fail.	Spills or accidents during construction could impact the quality of wetland or UNA or ravine habitats or their	All equipment should be well maintained, clean and free of leaks. Maintenance of construction equipment	Unlikely

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
		functions (wildlife and fish habitat).	should occur at a minimum of 30m from the top of the slope/ravine and 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 and the crew trained on their use. Any spills will be reported immediately to	

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
			MECP Spills Action Centre (1.800.268.6060).	

5.0 CONCLUSIONS AND RECOMMENDATIONS

The subject lands consisted of a disturbed meadow. Nearby natural habitats consisted of the forested ravine, referred to as Bellevue Ravine. The meadow was disturbed during construction of other phases and roadways. The area is bordered by Jeanne d'Arc Boulevard North to the north, Highway 174 on the south and surrounded by other development on the east and west. The natural habitat north of the Jeanne d'Arc Boulevard North and recreational bike path consisted of Petrie Island PSW, Ottawa River and an identified natural heritage system (UNA #92). These significant features will not be directly impacted by the proposed development. They could be indirectly impacted if a large sediment or contaminant spill occurred during construction however given the project's location and distance from these it is considered unlikely especially if properly installed and maintained sediment and erosion control practices are followed.

The Bellevue Ravine and its slopes are to be protected through the minimum setback of 15 m from top of slope. This will protect the remnant forest associated with the ravine and, unless more stringent recommendations were made by geotechnical experts, will help prevent the erosion of the ravine's slopes.

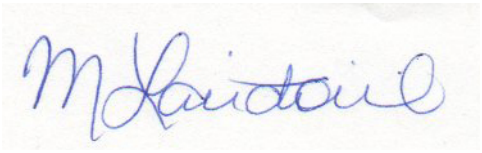
No SAR habitat or species were documented on the subject lands. No raptor nests were found within this area. With respect to species at risk, the most likely species would be: Blanding's turtle, chimney swift or bats. Avoidance and mitigation measures have been included to prevent harm to these or their habitats. It will be circulated to MECP for their review.

All of the impacts can be mitigated through the use of common mitigation measures and no residual negative impacts to the natural environment are anticipated as a result of the development of Phase II Block B. Unless, MECP provides additional measures, 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

6.0 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.

Broders, H., Forbes, G., Woodley, S. & Thompson, I. (2006). Range extent and stand selection for roosting and foraging in forest-dwelling northern long eared bats and little brown bats in the greater Fundy ecosystem, New Brunswick. *Journal of Wildlife Management* 70: 5.

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

Brunton. D.F. (2005) *City of Ottawa: Urban Natural Areas Environmental Evaluation Study – Appendix A – Vascular plants of the city of Ottawa with the identification of significant species*. Prepared for the Environmental Management Division Planning & Growth Management Department, City of Ottawa.

City of Ottawa (2008). Official Plan – As adopted by Council – May 2008. x + 229pp

City of Ottawa (2019). Significant Woodlands: Guidelines for Identification, Evaluation and Impact Assessment. 65pp.

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. (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. (2009a). COSEWIC assessment and update status report on the Least Bittern *Ixobrychus exilis* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 36 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. (2020). National Climate Data and Information Archive – OTTAWA INTL A. Accessed Online January 28, 2021 from: http://climate.weatheroffice.gc.ca.

Humphrey, C. (2017). Recovery Strategy for the Eastern Small-footed Myotis *Myotis leibii* in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario. vii + 76 pp.

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 Environmental Planning Inc. (2004). Wetland Impact Study – North Service Road Properties, Cumberland Ward, City of Ottawa. Report prepared for D.G. Belfie Planning & Development Consulting Ltd. 13 p.

Natural Resources Canada EODMS (nrcan-rncan.gc.ca)

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

OMNR. (2010). Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005. Ontario Ministry of Natural Resources. Second Edition: xi + 233 pp

OMNR. (2013a). Ontario Wetland Evaluation System 3rd. Edition Version 3.3. viii + 284pp.

OMNRF. (2013b). General Habitat Description for the Eastern Whip-poor-will (*Sturnella magna*). Eastern Meadowlark General Habitat Description | Ontario.ca

OMNRF. (2014a). Land Information Ontario.

OMNRF. (2018). Bobolink General Habitat Description. Accessed Online January 23, 2019 from: https://www.ontario.ca/page/bobolink-general-habitat-description

OMNRF. (2018). General Habitat Description for the Eastern Meadowlark (Sturnella magna). Accessed Online January 23, 2019 from: http://files.ontario.ca/environment-and-energy/species-at-risk/mnr_sar_ghd_est_mdwlrk_en.pdf

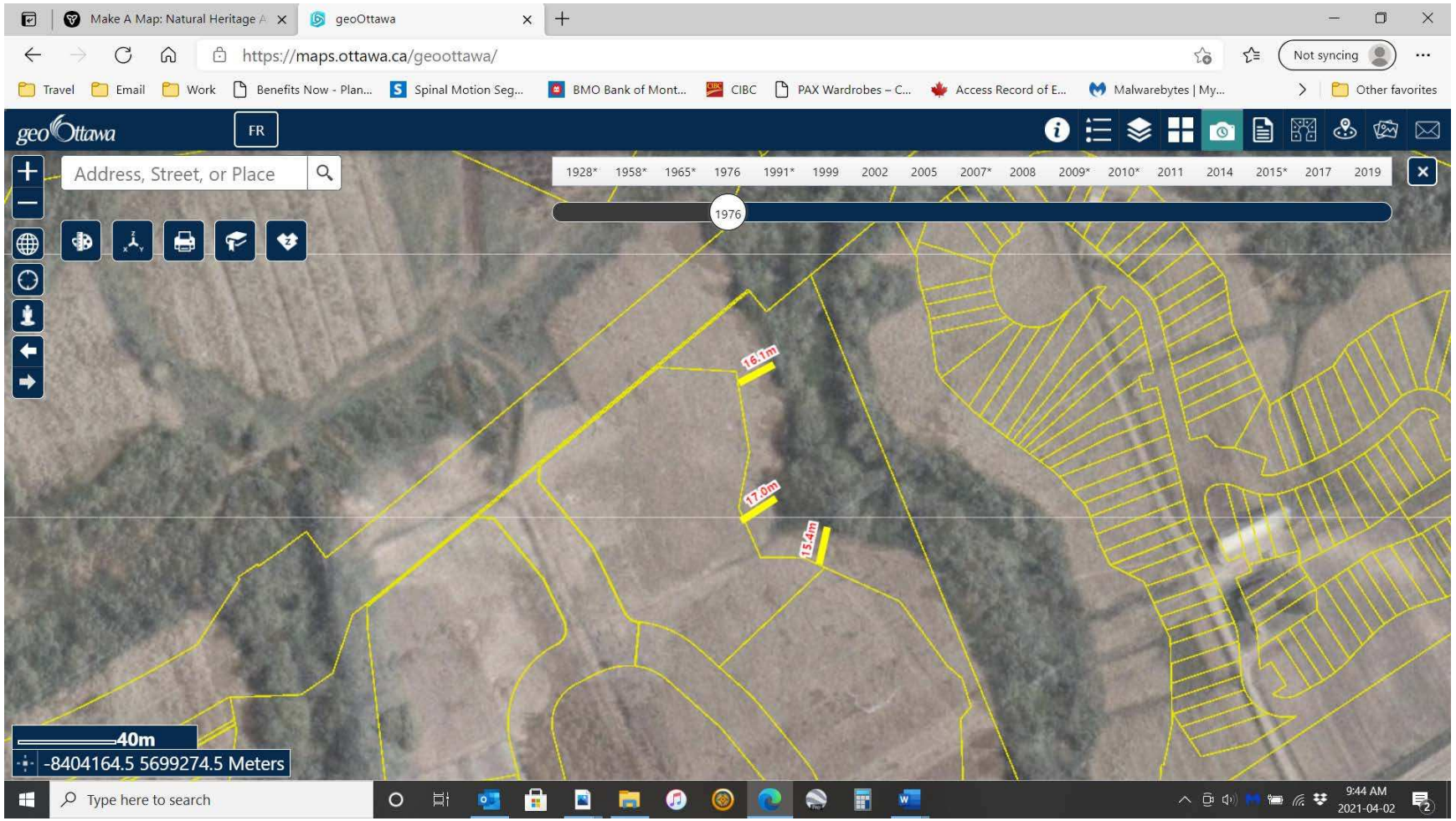
Ontario Provincial Policy Statement. (2020).

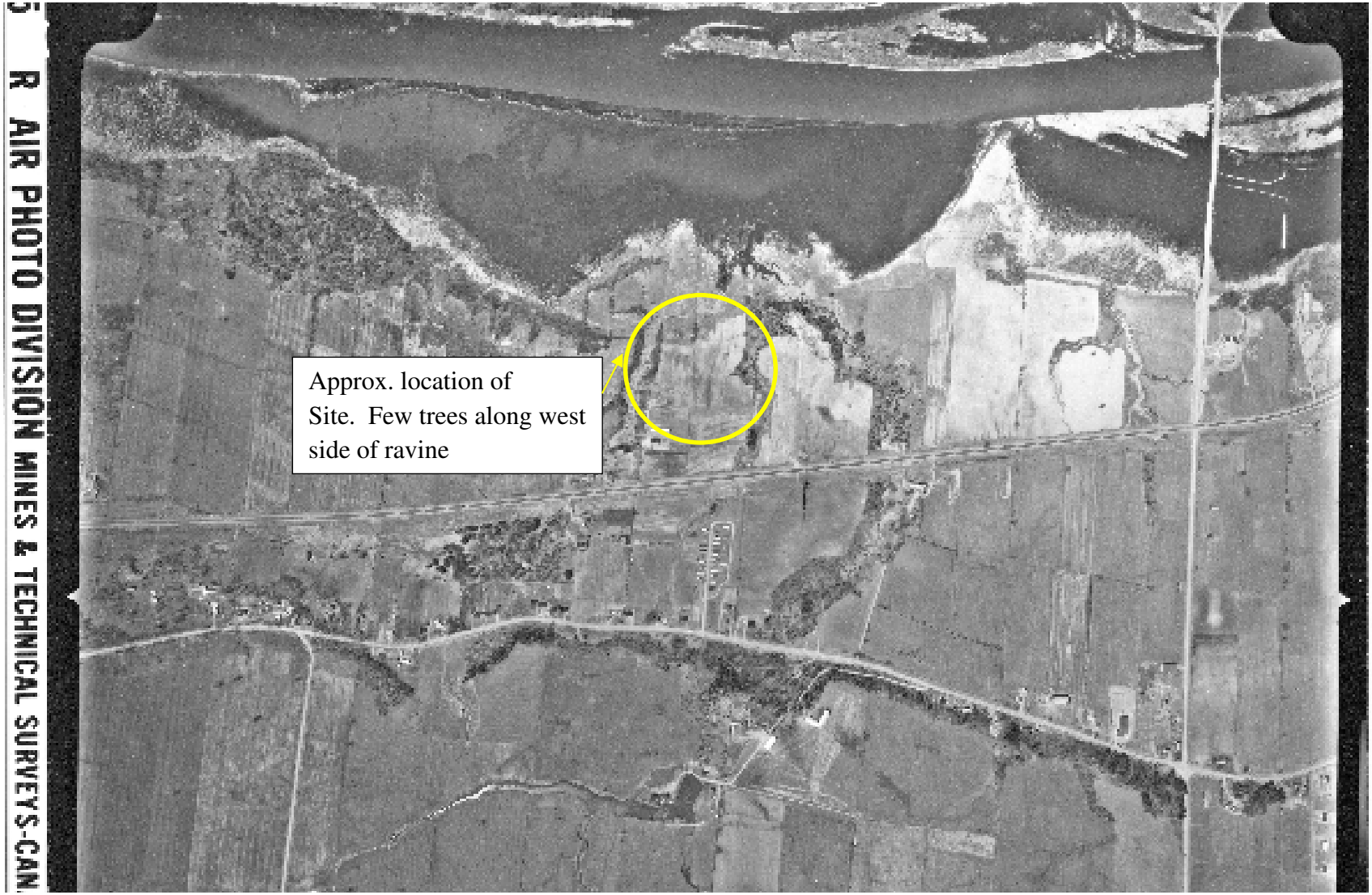
Peterson, R.T. (1980). *A field guide to the birds: A completely new guide to all the birds of eastern and central North America*. Houghton Mifflin Company, Boston.

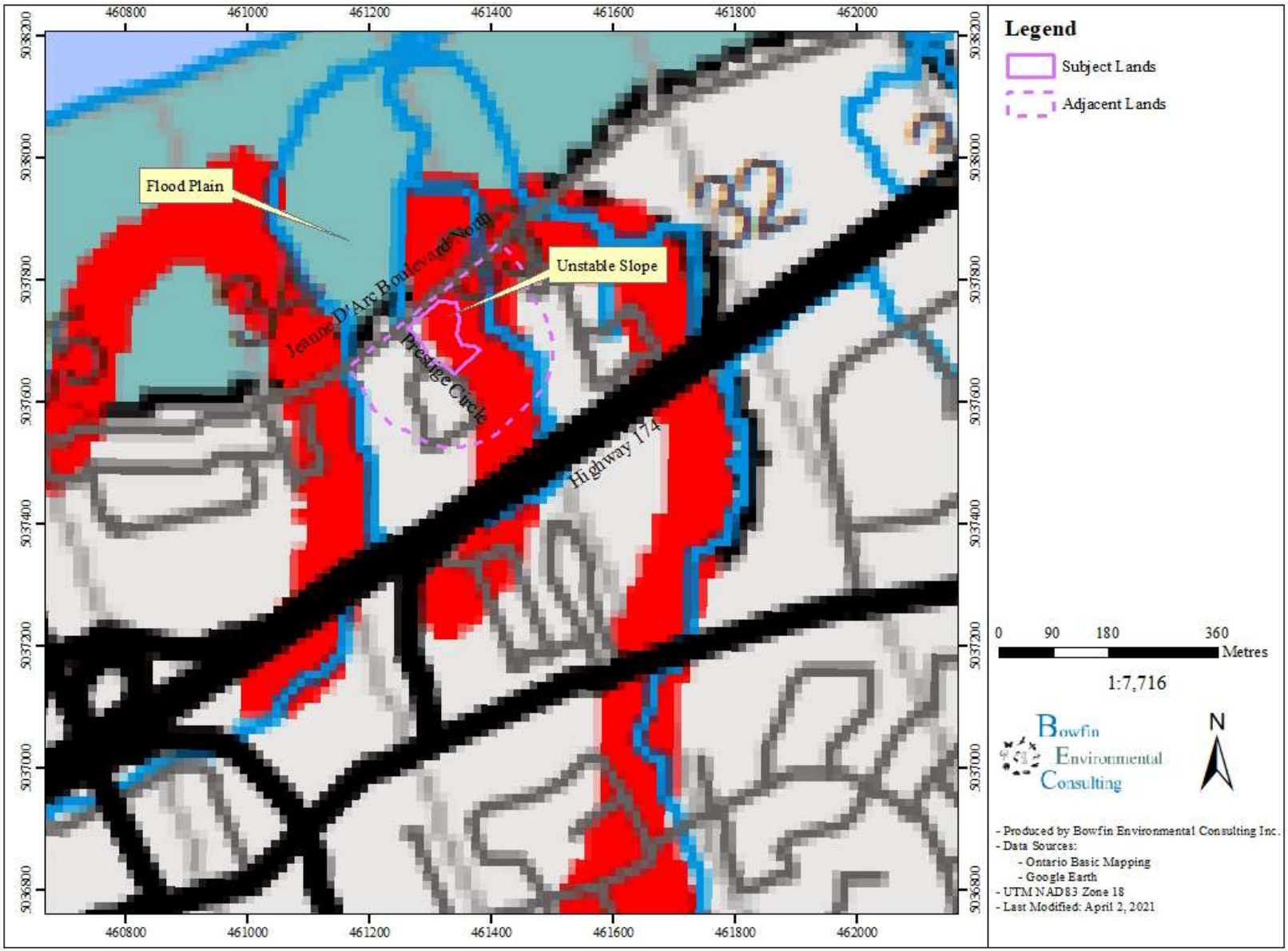
Sandilands, A. (2005). *Birds of Ontario Habitat Requirements, Limiting Factors and Status. Nonpasserines: waterfowl through cranes*. UBC Press Vancouver, BC. 260-263pp.

Yates, M. D., and R. M. Muzika. 2006. Effects of Forest Structure and Fragmentation on Site Occupancy of Bat Species in Missouri Ozark Forests. Journal of Wildlife Management. Dec 2006: Vol 70, Issues 5, pp. 1238-1248

Appendix A : Background Review Mapping




R AIR PHOTO DIVISION MINES & TECHNICAL SURVEYS-CAN
Approx. location of Site. Few trees along west side of ravine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Flood Plain
Unstable Slope
Jeanne D'Arc Boulevard North
Prestige Circle
Highway 174
32
Legend
Subject Lands
Adjacent Lands
0
90
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Bowfin Environmental Consulting
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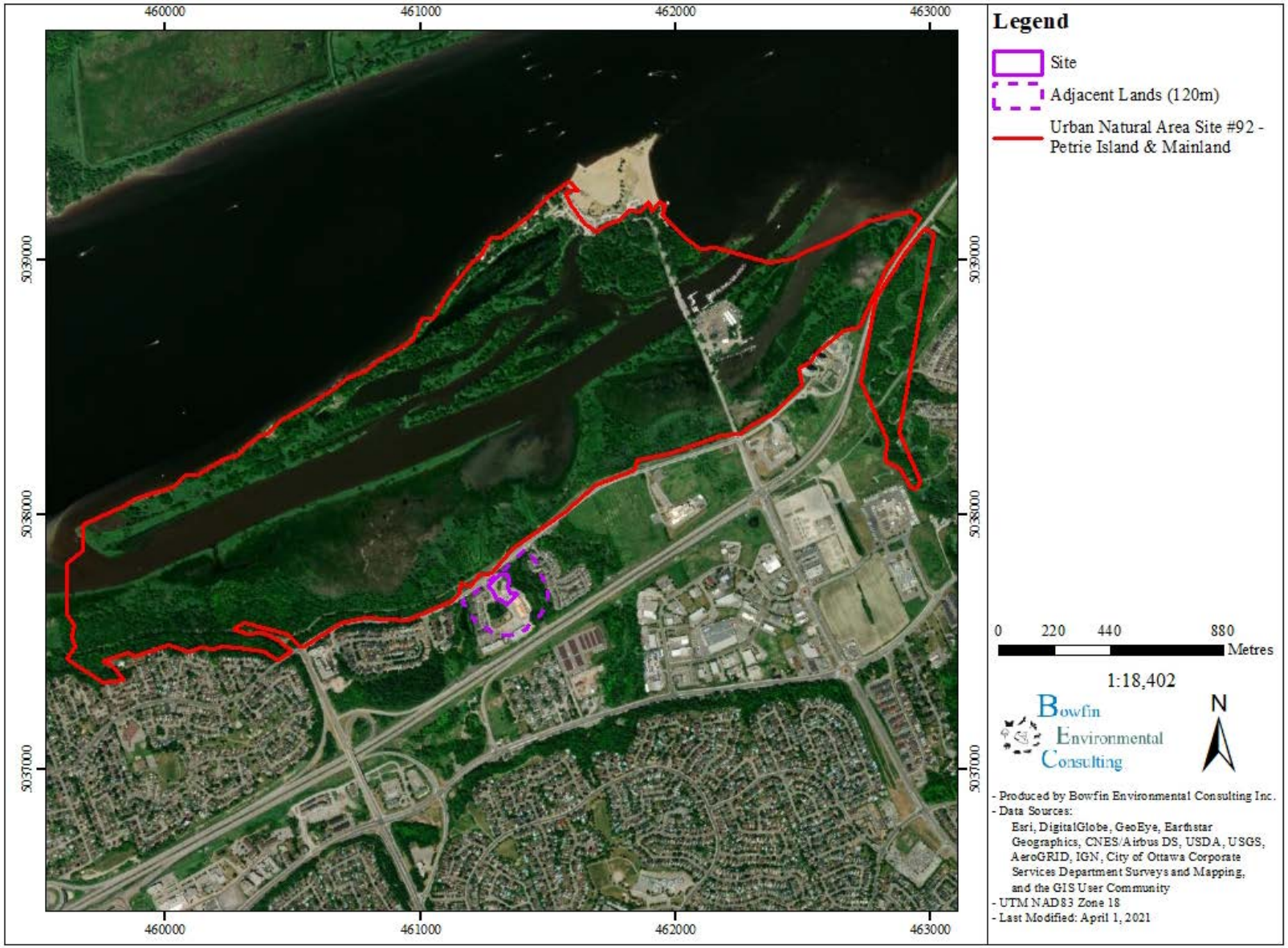
- Produced by Bowfin Environmental Consulting Inc.
- Data Sources:
- Ontario Basic Mapping
- Google Earth
- UTM NAD83 Zone 18
- Last Modified: April 2, 2021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Site
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Urban Natural Area Site #92 - Petrie Island & Mainland
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Bowfin Environmental Consulting
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- Produced by Bowfin Environmental Consulting Inc.
- Data Sources:
Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, City of Ottawa Corporate Services Department Surveys and Mapping, and the GIS User Community
- UTM NAD83 Zone 18
- Last Modified: April 1, 2021

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.

	Description	Action
Chimney Swift  Photo: Mark Peck http://www.rom.on.ca/ontario/risk.php?doc_type=fact&lang=&id=322	A dark coloured bird with a light throat that has a cigar-shaped, cylindrical body with a short tail and long narrow wings. **THREATENED**	<u>Following is for both bird species</u>: ➢ Stop any activity that may cause harm to these species and contact supervisor staff (see above) ➢ Individuals should only be encouraged to move if it is in immediate harm's way.
Barn Swallow  Photo:Royal Ontario Museum website http://www.rom.on.ca/ontario/fieldguides.php	➢ 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 bank across the top of the tail. **THREATENED**	

Blanding's Turtle

Photo: Royal Ontario Museum website
http://www.rom.on.ca/ontario/risk.php

Bernie Muncaster

Description and Status

- Medium sized turtle (12.5-28 cm)
- Bright yellow on chin and throat.
- Shall is dark and can have light coloured sports or lines. The spots fad with age.
- The shell is domed.

THREATENED

Biology

- Lives in waterbodies – most often in areas with aquatic vegetation. But because this turtle moves very large distances though all kinds of habitats it can be encountered almost anywhere.
- Hibernates in water that is deep enough that it doesn't freeze to the bottom.
- It travels to get to or from the hibernation area, to find a mate or to lay its eggs. The hatchlings migrate towards water.
- The females do not tend to the eggs.
- They leave the hibernation sites in early spring (late April to mid-May).
- Can nest in gravel along road shoulders. Nests during late May to early June. Usually overnight or in early morning.
- Hatchlings leave the nest in the fall

Types of Encounters:

- Blanding's might travel through the area.
- They could nest in the road shoulder or on spoil piles.