Environmental Impact Study

2225 Mer Bleue Road, Ottawa, Ontario

FINAL REPORT

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OTT-00239983-A0

Prepared By:
exp Services Inc.
1595 Clark Boulevard
Brampton, ON L6T 4V1
Canada
T: 905.793.9800
F: 905.793.0641
www.exp.com

Prepared For:
Montfort Hospital
c/o ZW Project Management Inc.
150 Richmond Road
Ottawa, Ontario
K1Z 6W2

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1 Introduction

ZW Project Management Inc. retained exp Services Inc. (**exp**) to complete an Environmental Impact Study (EIS) for the proposed land development located at 2225 Mer Bleue Road, Ottawa, Ontario (**Figure 1 - Appendix A**).

Approval is being sought to permit development of a proposed Health Care Facility. The Site is within the headwaters of McKinnons Creek and falls within the jurisdiction of the South Nation Conservation Authority (SNCA). According to the City of Ottawa Official Plan (OP), an EIS is required for any development and site alteration proposed in or within 30m of elements of the natural heritage system feature in the urban area not designated on Schedule A or B. The City of Ottawa also has records of Bobolink in the vicinity of the Site that was identified during previous transportation studies in the area, which also triggered the City's requirement for an EIS. No other natural heritage features or environmental constraints were identified in local and regional policy documents.

The purpose of the EIS is to determine if the proposed development will have negative impacts on the natural heritage features and functions identified on and adjacent to the Site in accordance with local and provincial natural heritage policy and applicable legislation. More specifically, the Scoped EIS was undertaken to define and characterize ecological features and functions associated with the Site; evaluate rarity, significance and sensitivity of natural features; and assess, avoid and mitigate potential environmental impacts that may occur from the proposed development.

2 Study Approach

2.1 Background Review

A background review of existing natural heritage information was conducted to assist with preparation of the EIS. The information was also reviewed to determine if there were any existing designated natural features or areas associated with the Site as well as to refine the study approach and supplement field data collected for the Site. The key information sources that were reviewed included the following:

- City of Ottawa Official Plan policies and mapping
- DFO Aquatic Species at Risk Distribution Maps
- Government species at risk websites and documentation
- NHIC Natural Heritage Mapping Web Application
- Kemptville District MNRF Natural Heritage Records
- Characterization of Ottawa's Watersheds (City of Ottawa, 2011)
- Urban Natural Areas Environmental Evaluation Study (Muncater Planning, 2005)
- Ottawa Bird Count
- Ontario Breeding Bird Atlas
- Ontario Reptile and Amphibian Atlas
- Ontario Butterfly Atlas
- Various Online Databases (FishNet2, FrogWatch, eBird, etc.)

2.2 Agency Consultation

South Nation Conservation Authority (SNCA) and the Ministry of Natural Resources and Forestry (MNRF) Kemptville District Office were consulted to acquire any records of rare species, fisheries, significant wildlife habitat and other natural heritage occurrences on or in the vicinity of the Site. These records were used to help determine the likelihood of species and habitat occurring on or adjacent to the Site as part of the background review.

2.3 Field Surveys

Field surveys were conducted to identify, map and inventory existing features on the Site including vegetation, wildlife, surface hydrology and any rare, sensitive or significant species or natural features. Detailed field surveys were primarily limited to the Site due to property access issues on the adjacent lands. Adjacent lands and the interaction between the Site and surrounding landscape was assessed from the Site boundary aided with use of binoculars and by using remote sensing and background data sources. A description of the methods for the field studies that were completed for the Scoped EIS is provided in Section 3. A summary of site visit details is provided in **Table 1**.

Table 1: Site Visit Details

Date	Start/End Time	Field Surveys	Weather Conditions	Ecologist
June 7, 2017	6:50-10:15	• Vegetation • Breeding Birds • Incidental Wildlife Observations • General Wildlife Habitat • Species at Risk Habitat	Temperature: 11°C Wind (Beaufort Scale): 3 Cloud Cover: 0%	M. Ross, B.Sc.
June 20, 2017	6:15-6:41	• Breeding Birds • Incidental Wildlife Observations	Temperature: 17°C Wind (Beaufort Scale): 3 Cloud Cover: 100%	M. Ross, B.Sc.

2.4 Analysis of Significance

Evaluation of natural features to determine their significance was based on local and provincial natural heritage policy and guidelines. Identification of potentially significant wildlife habitat followed the guidance of the Significant Wildlife Habitat Technical Guide (MNR 2000) and SWH Criteria Schedules - Ecoregion 6E (MNRF 2015b) as well as habitat descriptions for species of conservation concern. Other natural features were evaluated based on the Natural Heritage Reference Manual (MNR 2010).

2.5 Impact Assessment

Direct and indirect potential ecological impacts were evaluated by comparing natural features and functions identified on and adjacent to the Site with the proposed development. Measures to avoid or reduce significant impacts as well as recommendations on ecological enhancement and monitoring were then considered. MNRF (2014a) was used to assess mitigation options for potential impacts to significant wildlife habitat.

3 Methodology

3.1 Vegetation

Distinct vegetation communities were mapped as polygons onto a 2016 aerial imagery of the Site and later verified in the field. A botanical inventory of each vegetation community was conducted on June 7th of 2017. Vegetation communities were defined according to the Ecological Land Classification (ELC) System for Southern Ontario (Lee et al. 1998).

Vegetation communities and plants were summarized and checked for rarity and status. Plant species rarity and nomenclature was cross-referenced with the Ontario Vascular Plants List (MNRF 2016a). Vegetation

communities less than 0.5 hectares were not mapped unless they were provincially rare vegetation communities, contained rare plant species, or provided an important ecological function.

3.2 Wildlife

Breeding bird surveys were completed on June 7 and 20, 2017 under suitable weather conditions and were undertaken following the Ontario Breeding Bird Atlas survey protocol (BSC 2001). Bird breeding calls as well as visual detection and signs of breeding evidence (e.g. egg shells, nest, etc.) were recorded.

Incidental observations of other herpetofauna, mammals, fish, and invertebrates were recorded during the vegetation and bird surveys. All wildlife (including tracks and other sign) were recorded according to the vegetation community where the animal was observed.

Amphibian breeding surveys were not conducted due to the timing of field visits falling outside the prime breeding period for anurans. In addition, it was determined that the Site and adjacent lands did not likely contain suitable breeding habitat for amphibian species based on the surface hydrology and hydroperiod on the Site.

3.3 Wildlife Habitat

Wildlife habitat on the Site was assessed based on ELC mapping, natural features mapping, wildlife habitat requirements and field observations. Localized wildlife habitat features (e.g. amphibian breeding pond, turtle nest site, fish spawning site, hibernation site, etc.) were mapped and the location recorded using GPS as required. Identification and general classification of wildlife habitat was identified following the Significant Wildlife Habitat Technical Guide (MNR 2000) and supporting documentation.

3.4 Rare Species

The possible presence of Species at Risk (SAR) and their habitat within and adjacent to the Site was assessed based on information obtained from the background data review, agency consultation and observations made during the EIS field surveys. Provincially and regionally rare species and vegetation communities were also assessed. This included species or communities with conservation status ranks of S1, S2 or S3 assigned by the Natural Heritage Information Centre (NHIC).

3.5 Surficial Geology and Topography

Information regarding soils and surficial geology for the Site was obtained from field observations, online resources and results of the preliminary geotechnical investigations conducted by exp Services (2017) at the Site in the spring of 2017 that was completed as part of the proposed development.

3.6 Surface Hydrology

Surface water features and site drainage were assessed based on field observations, elevation mapping for the Site and information provided in other study reports completed for the proposed development.

4 Existing Conditions

4.1 Site Description

The Site fronts onto Mer Bleue Road and is located within the southern portion of the suburb of Orleans on the east side of the City of Ottawa. The Site is 9.2 hectares in size and is currently vacant. Prior to 2008, the Site operated as a farmstead with a house, shed, barn and agricultural fields which are no longer present. The agricultural fields have become overgrown with vegetation and site drainage has been left unmaintained such that wetland conditions have established throughout much of the Site. There is a meadow marsh occupying the majority of the south and west portion of the Site and a thicket swamp and cultural woodland in the northern portion of the Site (**Photos 1, 2 and 3** - **Appendix B).** No built structures

currently exist on the Site. The Site is zoned ‘Mixed Use Centre’ and ‘General Urban Area’ in the City of Ottawa OP.

4.2 Adjacent Land Use

Land use adjacent to the Site includes a hydro transmission right of way to the north, residential area to the east and agricultural lands to the south and west. The City OP indicates that surrounding lands are zoned ‘Mixed Use Centre’, ‘General Urban Area’ and ‘Employment Area’.

4.3 Designated Natural Features

This section discusses existing designated natural features and areas occurring on or adjacent to the Site that were identified from the background review.

The Site is in the McKinnons Creek subwatershed and falls under the jurisdiction of South Nation Conservation Authority (SNCA). The SNCA currently does not have any regulated area mapping for the Site but they indicated that any watercourses on the Site would be subject to the requirements of Ontario Regulation 172/06 (Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation). Under the *Conservation Authorities Act*, a “watercourse” is defined as an identifiable depression in the ground in which a flow of water regularly or continuously occurs. Some of the drainage features on the Site could be subject to Ontario Regulation 170/06 and require SNCA review and permitting.

Based on the background review, no other existing designated natural features or areas were identified on or within 120m adjacent to the Site.

4.4 Biophysical Features

4.4.1 Vegetation

The Site contains three (3) ecological land classification (vegetation community) types, which include: Meadow Marsh (MAM2-2), Thicket Swamp (SWT2-2) and Cultural Woodland (CUW) (**Figure 2** - **Appendix A**).

A description of each vegetation community type is provided below. A list of plant species recorded in each community as well as the rarity and status of each plant is presented in **Appendix C**. Definitions for the terms used in the plant species list is provided in **Appendix D**.

Reed Canary Grass Meadow Marsh (MAM2-2)

This vegetation community is located in the south and west sections of the Site adjacent to Brian Coburn Boulevard and Mer Bleue Road and comprises the majority of the Site. A total of 17 plants were inventoried in this feature. Six (35%) of the plant species in this community are non-native, one of which, European White Poplar, is an invasive species. Reed Canary Grass dominates the feature while Bird’s-foot Trefoil is abundant. Other species that are commonly associated with this community type, such as Broad-leaved Cattail, Wool Grass and Fox Sedge, as well as other herbaceous species associated with old fields such as Cow Vetch, Common Milkweed and Ox-eye Daisy were also observed in drier areas.

This vegetation community is of low quality and has established following past clearing, human disturbance and agricultural practices. The underlying soil structure is silty clay resulting in poor drainage and formation of standing water that supports conditions for water tolerant plant species.

Willow Thicket Swamp (SWT2-2)

This community type is located in the northern portion of the Site. Half of the community occurs within the Site, while the remainder extends to the north, immediately adjacent to the Site. The northern two thirds of this community contains larger and more mature Slender and Bebb's Willow plants than the southern third, likely due to the more recent abandonment of the agricultural lands where the southern portion of the community occurs.

A total of 17 plants were identified in this feature. Two (12%) of the plant species in this community are non-native. Slender Willow is dominant in this feature, while Reed Canary Grass and Wool Grass are abundant. Bebb's Willow, Red-osier Dogwood, Graceful Sedge, Pointed Broom Sedge and Fox Sedge were also present but occasional in occurrence. Some species associated with old fields such as Tall Buttercup, Cow Vetch and Kentucky Blue Grass were also observed in drier areas, although uncommon in occurrence.

This community is the result of natural vegetation that established following human disturbance and agricultural land use. As with the previous vegetation community, the soil structure and hydrology of the Site has contributed to the gradual establishment of water tolerant plants.

Cultural Woodland (CUW)

This community type is located within the northern end of the Site. Only a portion of the community occurs on the Site. Much of the community extends to the north, immediately adjacent to the Site.

A total of 23 plants were identified in this feature. Five (22%) of the plant species in this community are non-native, one of which, European White Poplar, is an invasive species. European White Poplar and Eastern Cottonwood are dominant in the canopy layer, while Trembling Aspen is abundant in this layer. In the understory, Red-osier Dogwood is abundant, while Slender Willow and Bebb's Willow occur occasionally. The ground vegetation consists of a combination of old field (Bird's-foot Trefoil, Kentucky Blue Grass, Canada Goldenrod, Wild Carrot, Cow Vetch) and wetland plants (Pointed Broom Sedge, Fringed Sedge, Reed Canary Grass), where the old field species were generally higher in abundance.

This community is also the result of early-successional regeneration following human disturbance and land use for agricultural purposes. Interspersed throughout the cultural woodland are old asphalt laneways, associated with the previous farmstead. Evidence of trespassing and dumping were present as garbage, broken bottles and fire pits were observed occasionally within the community. As with the previous vegetation communities, the soil structure and hydrology of the Site is likely contributing to the presence of water tolerant plants.

4.4.2 Wildlife and Wildlife Habitat

The species groups and total number of wildlife in each group that were inventoried during the field surveys were as follows: birds (20) and invertebrates (1). A list of wildlife species and the location where they were observed on and adjacent to the Site is provided in **Appendix C**. Definitions for the terms used in the wildlife species list is provided in **Appendix D**. There was no incidental observations of mammals, reptiles, amphibians or fish during the site visits.

Evidence of bird breeding activity on and adjacent to the Site was confirmed. Breeding evidence documented for bird species was as follows: 8 Possible, 10 Probable, and 1 Confirmed. The majority of the breeding activity was observed in the cultural woodland (CUW) in the northern portion of the Site and immediately adjacent to the north end of the Site. In general, thirteen of the 19 species (68%) of birds for which breeding evidence was documented were observed in the cultural woodland. Territories were identified for American Goldfinch, Least Flycatcher and Warbling Vireo, while Wilson's Snipe were observed displaying above and flushed from within the sparsely treed areas of the cultural woodland; Yellow Warbler was observed exhibiting agitated behaviour. Songs and calls of males were heard for Hairy Woodpecker, American Robin, American Crow, House Wren, Veery, Gray Catbird and Common Yellowthroat. Tree Swallows were seen foraging above and adjacent to the cultural woodland and perching in the trees.

Nine of the 19 species (47%) exhibiting breeding evidence were observed in the meadow marsh (MAM2-2) that comprises the majority of the Site. A female mallard with recently fledged young was observed in

the drainage ditch running east to west in the southern portion of this community (**Figure 2** - **Appendix A**). Territories were identified for Killdeer, Wilson's Snipe, Swamp Sparrow, Song Sparrow, Red-winged Blackbird and American Goldfinch. Yellow Warbler was observed exhibiting agitated behaviour, while the songs and calls of Common Yellowthroat were heard.

The remaining seven of the 19 species (37%) for which breeding evidence was documented were observed in the thicket swamp (SWT2-2) that occupies most of the northern portion of the Site. Territories were identified for Willow Flycatcher, Swamp Sparrow and Red-winged Blackbird. Yellow Warbler and Song Sparrow were observed exhibiting agitated behaviour, while the songs and calls of American Robin and American Goldfinch were heard. Although not observed exhibiting evidence of breeding, a Green Heron was seen flying overhead during the field investigations in the thicket swamp.

Cabbage White Butterflies were observed foraging in the meadow marsh (MAM2-2) and is a common species that is considered resident to the area.

The Site and adjacent lands, as currently observed, are unlikely to provide suitable breeding habitat for amphibian species based on past land use and current surface hydrology (refer to Section 4.4.4) on the Site. Prior to 2008 there was expectedly no amphibian breeding habitat since most of the Site contained agricultural fields and site drainage was maintained. Since then, poor site drainage has resulted in water tolerant plants establishing creating wetland habitats. This year has seen unprecedented amounts of rain resulting in unusually wetter than normal conditions on the Site. However, observations by **exp** staff have shown that the standing water quickly dries up at the Site within several days. Breeding amphibians generally require two or more months for larva to develop and mature to adults. Although water tolerant plants have established on the Site, the hydroperiod currently observed on the site is not sufficient to support amphibian breeding habitat.

4.4.3 Rare Species

Based on the background review, the Ontario distribution of 23 Species At Risk (SAR) overlap with the Ottawa region. Based on SAR habitat requirements, potential suitable habitat for 2 of the SAR was identified on or adjacent to the Site. The 2 SAR are listed in **Table 2**. No SAR were observed during the field investigations. A discussion of the SAR in **Table 2** and potential suitable habitat on Site is discussed below.

Table 2: SAR identified from background review and field surveys

Species Group	Common Name	Scientific Name	ESA[1]	SARA[2]	NHIC[3]
Reptiles	Eastern Milksnake	*Lampropeltis triangulum*	-	SC	S4
Insects	Monarch	*Danaus plexippus*	SC	END	S2N, S4B

[1] Ontario *Endangered Species Act* (ESA): END = Endangered; THR= Threatened; SC = Special Concern; "-" = No Status

[2] Federal *Species At Risk Act* (SARA): END = Endangered; THR= Threatened; SC = Special Concern; "-" = No Status

[3] Ontario Natural Heritage Information Centre (NHIC): S1 = Extremely rare; S2 = Very rare; S3 = Rare to uncommon; S4 = Common; S5 = Very common; SE = Exotic; S#S# = range of uncertainty between ranks; SH = Possibly extirpated; SX= Extirpated; SNR = Not yet ranked; SNA = Not suitable for conservation; SU = Insufficient data

Eastern Milksnake is a habitat generalist and can be found in a variety of terrestrial habitat types. The species has been documented in open habitats such as prairies, meadows and pastures, rock outcrops and rocky hillsides and open forests such as deciduous, coniferous, mixed forests and pine plantations. In rural areas, the snake frequently occurs in and around barns, sheds and old buildings in search of prey (e.g. rodents) and shelter. Milksnakes prefer open and edge habitats (compared to closed-canopy habitats) since these habitat characteristics aid in thermoregulation. It is usually found close to a water source and under suitable cover objects including large planks, debris, stumps, decaying logs, rocks and rock piles, stones, bark, rubbish, tar paper, iron sheets, and damp trash. Suitable hibernation sites include mammal

burrows, old building foundations, crawl spaces, old wells and cisterns, stone walls, dirt banks, hollow logs, rotting stumps or rock crevices. Suitable habitat for Milksnake on and adjacent to the Site includes the cultural woodland (CUW) and drier areas of the meadow marsh (MAM2-2). Milksnake was not detected during the site visits. A couple of areas of remnant concrete foundation were observed in the meadow marsh (MAM2-2) and old, broken asphalt laneways were present in the cultural woodland (CUW). These features could possibly provide suitable habitat for a snake hibernaculum. Due to the reclusiveness of snakes, numerous site visits would be required to confirm the presence of this species on the Site. Therefore, a more practical approach to determine the presence of Milksnake (as well as other snakes) is based on the presence of suitable habitat.

Monarchs use three different types of habitat during their lifetime - overwintering, breeding, staging areas and nectaring habitat. Only the larva feed on milkweed plants (*Asclepias syriaca*) and therefore are confined to meadows, fields, and other open areas where milkweed grows. Adult butterflies are found in more diverse habitats where they feed on nectar from a variety of wildflowers. No Monarchs were observed during the field investigations. However, the meadow marsh (MAM2-2) and the cultural woodland (CUW) on and adjacent to the Site could provide both potentially suitable breeding and foraging habitat due to the presence of milkweed plants and other wildflowers in these vegetation communities.

The City of Ottawa has records of Bobolink (*Dolichonyx oryzivorus*) that were identified in proximity to the Site during recent transportation studies completed for Mer Bleue Road and Brian Coburn Boulevard. Based on the field investigations for the EIS, vegetation communities mapped on Site do not provide suitable nesting habitat for Bobolink.

No other provincially rare species or vegetation communities were identified during the field investigations.

4.4.4 Surficial Geology and Topography

The Site falls within an area of glacio-marine deposits of clay, silty clay and silt. Fill material is present in the area of the former residence on the west edge of the Site. At this location, approximately 1.5 m of sand fill and 0.2 m of sand and gravel fill were found. The majority of the Site contains silty clay to a maximum depth of 16 m below ground surface. The silty clay is underlain by grey, limestone bedrock. Groundwater ranges in depth from approximately 0.3 m to 2.4 m below surface. Inferred groundwater flow is southwest to northeast across the Site. The Site is considerably flat with minimal topographic relief.

4.4.5 Surface Hydrology

The Site is relatively flat and generally drains towards the south of the Site (**Figure 3** - **Appendix A**). Based on Ontario soil mapping (OMAFRA, 2017), soils on the Site are defined as Poorly Drained. Drainage ditches in the north and south sections of the Site convey storm water from the Site west into the drain along Mer Bleue Road.

At the time of field investigations, a substantial volume of water was present on the Site due to recent rain events (**Photo 4** - **Attachment B**). The drainage ditches on the Site contained water and rainwater was pooled in low lying areas throughout the Site, although much of the water was actively draining from the site via the drainage ditches and entering the drain along Mer Bleue Road. These observations verify the silty clay soil conditions and indicate that most water accumulated on the Site likely does not remain for a prolonged period. The spring and summer of 2017 have also seen more frequent and intense rain events than in previous years and therefore the Site has remained saturated for longer than usual. The surface hydrology of the Site, combined with the existing drains on and adjacent to the Site, serve to rapidly drain the Site and under average precipitation amounts the Site would expectedly dry up within a couple of weeks.

McKinnons Creek is the only natural surface water feature in proximity to the Site (**Figure 1** - **Appendix A)**. A tributary of the creek originates from an area approximately 300 m northeast of the Site and historically continued south of Brian Coburn Boulevard connecting to the main branch of McKinnons Creek. Since then, significant land development has occurred east and southeast of the Site and it appears the tributary now flows into the municipal stormwater system associated with the residential area east of the Site.

4.5 Significant Natural Features

This section discusses potential and confirmed significant natural heritage features and areas on or adjacent to the Site that were identified from the background review, field surveys and evaluation of natural features. Additional information relating to the significant features is provided in the previous subsections. The locations of the significant features are shown in **Figure 4** - **Appendix A**. Significant features identified on or adjacent to the Site include the following:

- Species At Risk Habitat
- Significant Wildlife Habitat
- Wetlands

4.5.1 Species At Risk Habitat

According to the Provincial Policy Statement (PPS, 2014), development and site alteration is not permitted in the habitat of endangered and threatened species, except in accordance with provincial and federal requirements. Species listed as Endangered or Threatened provincially are protected under the ESA. Only aquatic and migratory bird SAR on private land that are listed as Endangered or Threatened federally are protected under SARA. Species listed as Special Concern do not receive species or habitat protection. Habitat for endangered and threatened species that was identified on the Site is discussed below.

The cultural woodland (CUW) and drier areas of the meadow marsh (MAM2-2) may provide suitable summer / foraging habitat for Milksnake. Due to excessive precipitation in the last two years, the meadow marsh has become wetter than previous years and currently is unlikely to provide suitable foraging habitat for Milksnake, which prefer drier environments. Multiple field surveys would be required to confirm the presence-absence of Milksnake (and other snakes) due to its reclusiveness and difficulty to detect. Milksnake is listed as Special Concern and does not have habitat protection under the ESA.

The meadow marsh (MAM2-2) and flowering plants in the cultural woodland (CUW) could provide potentially suitable breeding and foraging habitat for Monarchs. Monarch was not observed during the field investigations. Monarch is listed as Special Concern and does not have habitat protection under the ESA.

4.5.2 Significant Wildlife Habitat

There are four main types of significant wildlife habitat (SWH): Seasonal Concentration Areas; Rare and Specialized Habitat; Habitat for Species of Conservation Concern (excluding Endangered or Threatened Species); and, Animal Movement Corridors. Within each main SWH, there are specific wildlife habitat types (e.g. Waterfowl Stopover and Staging Areas, Turtle Nesting Areas, Marsh Bird Breeding Habitat, etc.). SWH that was identified on or adjacent to the Site is discussed below.

Habitat for Species of Conservation Concern

Species of conservation concern include wildlife species that are listed as Special Concern under the ESA and provincially rare plant and wildlife species (S1 - S3). The potential habitat of species of conservation concern on the Site is associated with the applicable rare species discussed in Section 4.4.3 and previously in this section. No other habitat of species of conservation concern was identified.

4.5.3 Wetlands

The meadow marsh (MAM2-2) and thicket swamp (SWT2-2) are wetlands based on the dominance of wetland plants present in these vegetation communities and according to the guidelines in MNRF (2014b). The establishment of wetlands on Site due to poor drainage associated with previous agricultural practices does not exempt the vegetation communities from being identified as wetlands (MNRF, 2014b). The wetlands are not currently designated in the City OP or shown in MNRF wetland mapping for the area (MNRF, 2015a). The wetlands on Site are however within 750m to other unevaluated wetlands mapped by the MNRF west of the Site. Wetlands within 750m of another wetland (generally within the same watershed

or catchment area) can be complexed into a single wetland unit. If the unevaluated wetlands west of the Site are determined by the MNRF to be Provincially Significant Wetland (PSW), the wetlands on Site potentially may also be included as PSW based on the 750m wetland complexing rule. The wetlands on Site currently would not meet the criteria to be classified a PSW if evaluated based on MNRF (2014b).

Any change or interference to the wetlands on Site may require a permit from the South Nation Conservation Authority, under the Ontario Regulation 170/06. The final determination for classifying a wetland as a PSW would be the responsibility of the local MNRF.

5 Description of the Proposed Development

The Site is being planned for development of an urgent care facility (Montford Hospital) that will include construction of a multi-storey main building / hub, access roads, parking areas, landscaped areas and stormwater infrastructure (**Figure 5** - **Appendix A**). The proposed development will occupy around 4.6 ha of the 9.2 ha Site. The remainder of the Site is planned for future development that will include a parking area expansion, road extension, a park and other development. The urgent care facility will have two access points and entrances – the west entrance off Mer Bleue Road and the east entrance off Brian Coburn Boulevard.

The site will be serviced by municipal water and sanitary sewer. Minimal grading and placement of fill is expected due to the flat terrain across the Site. Details regarding proposed stormwater management for the development were unavailable during preparation of the EIS report.

6 Potential Impacts and Mitigation

6.1 Potential Impacts

6.1.1 Direct Impacts

Most of the Site will be directly impacted from the proposed development and the future planned development on the Site (**Figure 5 - Attachment A**). Based on the proposed development, all of the meadow marsh (MAM2-2), thicket Swamp (SWT2-2) and cultural woodland (CUW) on the Site will be removed. These vegetation communities provide wildlife habitat however the habitat was assessed and not considered significant based on provincial guidelines.

The meadow marsh (MAM2-2) and cultural woodland (CUW) may also provide habitat for Monarch and Milksnake respectfully, which are both listed as Special Concern species under the ESA. There is currently no habitat protection for Special Concern species and therefore no permitting under the Act is required. However, best management practices can be implemented to minimize impacts to the species and its habitat. Past land use activities / disturbance and the early-successional state of the vegetation communities has, for the most part, limited the presence of significant ecological features and functions throughout most of the Site.

The wetlands on Site (MAM2-2 and SWT2-2) may be classified PSW if the wetlands are complexed with other unevaluated wetlands west of the Site. The wetlands on Site did not provide any significant biological function and would not qualify as PSW as a standalone wetland based on MNRF (2014b). Any disturbance or removal of the wetlands would require approval by the SNCA and MNRF.

No fish were observed in the intermittent drainage ditches in the north and south half of the Site. It appears that the ditches dry out after storm events and are not directly connected to other waterbodies supporting fish habitat. Projects that interfere with agricultural drains and ditches that are not connected to a waterbody that contains fish at any time do not require Department of Fisheries and Oceans (DFO) review under the review under the *Fisheries Act*. Removal of the ditches on site may require permits from the SNCA if they deem that the ditch meets the definition of a watercourse as per the *Conservation Authorities Act*.

6.1.2 Indirect Impacts

Indirect impacts to natural features from construction activity (noise, dust, sedimentation, spills, etc.) can occur. Noise from construction machinery can interfere with wildlife during sensitive periods (e.g. breeding, spawning, etc.). Dust can be created by machinery and settle on the surrounding vegetation causing stress to plants. Sedimentation to offsite waterbodies can occur if proper sediment and erosion control measures are not implemented during site clearing, grading and construction. Potential chemical spills (fuel, hydraulics, lubricants, etc.) during construction can also occur. Potential impacts from dewatering activities that may be required to construct the main building are not expected since no aquatic features (stream, river, etc.) is on or adjacent to the Site.

Impermeable surfaces (building, parking areas, etc.) created from the development are not expected to negatively affect groundwater due to the existing impervious soils and poor drainage across the Site. No information on stormwater management for the development was available during the EIS and therefore potential stormwater impacts could not be assessed. Due to existing soil and drainage conditions, Low Impact Designs (LID) are not likely feasible. In general, chloride and sodium from de-icing salts applied to the access roads, parking and other areas during winter can enter the stormwater system and eventually make its way into receiving waterbodies. Chloride is persistent in the environment and high concentrations can be toxic to aquatic organisms, particularly during the spring melt from salt-laden snow storage areas.

6.2 Mitigation

6.2.1 Direct Impacts

The Site did not contain SAR. Potential habitat associated with the Special Concern SAR on and adjacent to the Site is not protected under the ESA. However, best management practices can be considered to offset potential harm to SAR that may occur on Site during construction. These measures would also serve to avoid direct harm and impacts to non-protected wildlife species.

Timing windows for construction activities (site clearing, grubbing) on site can be implemented to minimize disturbing and harming wildlife during sensitive or active periods. For birds, activities should be scheduled outside of the peak breeding / nesting season, which for most species in southern Ontario generally occurs from May 1 to July 15. For most snakes, the primary active period is generally from May to September. For butterflies (Monarch), the active summer period is June to August. Based on the combined sensitive and active seasons described above, the timing window for site clearing / grubbing would be between September 1 to May 1 of any given year. As an added contingency measure and following the guidelines in the City of Ottawa's Protocol for Wildlife Protection During Construction (City of Ottawa, 2015), undisturbed portions of the site should be inspected by a qualified biologist or environmental consultant prior to each day that site clearing is scheduled to assure that no nesting birds or other wildlife are harmed from construction machinery and activity. This will assure that the project is in adherence with applicable legislation such as the ESA and *Migratory Birds Convention Act* (MBCA).

The future development area and parking expansion in the north half of the Site (**Figure 5** - **Appendix A**) should be designed to retain as much of the cultural woodland (CUW), meadow marsh (MAM2-2) and thicket swamp (SWT2-2) (**Figure 2** - **Attachment A)** within and adjacent to these development areas that is feasible to preserve natural features on the Site. These retained areas could also be used to transplant and compensate for loss of Milkweed plants for Monarch Butterfly, which is the only plant used by Monarch for larval development.

Disturbance and/or removal of the wetlands on Site will require review and approval by the SNCA.

6.2.2 Indirect Impacts

Indirect impacts caused during construction such as noise, dust, sediment and chemical spills can be mitigated through implementation of provincial standard best management practices for construction sites such as the Ontario Provincial Standard Specifications (OPSS) and that are typically required as condition of development approval. Dust suppressants (i.e. water) can be used to manage airborne dust during dry

months if required. Erosion control fencing can be installed around the Site to contain any sediment runoff. A Spills Prevention and Management Program can be implemented to prevent contamination of environmental receptors (soil, groundwater, offsite drains, etc.) during construction.

An ecological buffer can be established along the north boundary of the Site to minimize potential indirect impacts caused by the future parking and development area on the natural features north of the Site. The buffer would also will help to retain portions of the cultural woodland and thicket swamp on the Site. No significant ecological features and functions were identified in the cultural woodland and thicket swamp along the north boundary of the Site. A minimum buffer width of at least 15m can be implemented to minimize indirect impacts from the development.

Measures to minimize impacts from de-icing salts on groundwater and potential downstream receiving natural systems can include implementing a salt management plan for the medical facility to reduce overall use of de-icing salts. This could include applying sand-salt mix to reduce chloride concentration and limiting application of de-icing salt to high risk areas. The location and management of snow storage for the access roads and parking areas could be planned so that salt-laden meltwater from snow piles is treated so downstream systems are not adversely impacted. Other measures to mitigate potential stormwater impacts can be assessed when stormwater management plans for the Site become available.

7 Conclusions and Recommendations

Based on the field surveys and impact assessment, the proposed development can occur without causing negative impacts to natural features identified on and adjacent to the Site. This conclusion takes into consideration implementation of the recommendations and mitigation measures discussed in Sections 6.2, which are summarized as follows (the list is separated into different development stages to assist with planning and implementation):

Pre-construction

1. Establish a 15-metre buffer along the north boundary of the Site to help mitigate potential indirect impacts on the adjacent natural areas north of the Site (**Figure 6** - **Attachment A**). The buffer should remain in a natural undisturbed state indefinitely.

2. Configure site plans to minimize loss of the vegetation communities that fall within the proposed future parking expansion and development area in the north half of the Site.

3. Retain portions of vegetation communities that fall outside of the proposed development footprint shown in **Figure 6** - **Attachment A** and allow retained areas to remain undisturbed and naturalize / enhance with native plantings as needed.

4. The SNCA should be consulted prior to any disturbance or removal of the wetlands and ditches on the Site which could be subject to Ontario Regulation 170/06.

5. The MNRF Kemptville District Office should be consulted to further evaluate the possibility of the wetlands on Site being designated PSW based on the 750m wetland complexing rule.

During-construction

6. Schedule construction activities (site clearing / grubbing) to occur within the timing window from September 1 to May 1 of any given year to minimize potential disturbance and direct harm to wildlife species during sensitive and active periods. Site clearing should proceed in phases, generally moving from the south half of the Site (most disturbed) towards the north half (least disturbed) of the Site to “herd” wildlife out of the site into the adjacent undisturbed habitat.

7. Install and maintain silt fencing around the perimeter of the development area prior to start of site construction. The fencing would follow the boundary of the 15-metre buffer recommended along the north boundary of the Site. The bottom of the silt fence should be firmly anchored or secured to the ground to avoid sediment from passing under the fence. The fencing would also serve as exclusion fencing to deter wildlife from entering the construction site.

8. Conduct site inspections of undisturbed areas on the Site at the start of each day that site clearing is scheduled. If wildlife (snake, turtle, mammal) are found, it should be gently 'herded' out of the construction area into the adjacent natural areas north of the Site. Removal of wildlife from the Site during site clearing and site inspections can be facilitated by creating 'wildlife escape gates' in sections of the silt fencing along the north Site boundary as illustrated in **Figure 7** - **Appendix A**. The gates (1m wide) should be opened and closed at the start and end of each day that site clearing is undertaken. The funnel design helps guide wildlife within the construction area to the gate. The proposed location of the wildlife escape gates are shown in **Figure 6** - **Appendix A**.

9. Implement standard best management practices (e.g. OPS 182, 518, 807) to mitigate potential noise, dust, erosion and pollution impacts for construction sites. This should include a Spills Prevention and Management Plan to prevent contamination of any environmental receptors. The plan would lay out requirements for preventing and responding to spills and leaks (i.e. designated refuelling areas, primary and secondary fuel containment, sill clean-up kits, machinery maintenance program, spill absorption booms, etc.).

Post-construction

10. The retained portions of the existing vegetation communities on the Site that fall outside of the development footprint (**Figure 6** - **Attachment A**) can function as donor sites for transplanting and compensating the loss of Common Milkweed for Monarch Butterfly. This mitigation measure can be guided through development of a Milkweed Salvage and Transplanting Plan.

11. Implement a low-salt management plan and other best management practices to reduce use of de-icing salts and chloride impacts to environmental receptors.

The above listed recommendations and mitigation measures should be considered as conditions of development approval, or other planning approval mechanism, to protect and conserve natural heritage features adjacent to and within the Site to the extent possible.

8 General Limitations

Information in this report is considered to be privileged and confidential and has been prepared exclusively for **Montfort Hospital** and **ZW Project Management**. The information presented in this document is based on baseline data designed to provide ecological information to support the client in proceeding forward with their proposed development application. The conclusions and recommendations presented within this report reflect Site conditions existing at the time of the investigation. Should changes occur that potentially impact the condition of the Site, the conclusions presented by **exp** may require re-evaluation.

9 Closure

We trust this report is satisfactory for your purposes. Should you have any questions, please do not hesitate to contact this office.

Yours truly,

exp Services Inc.

Matt Ross, B.Sc.
Ecologist
Environmental Services

Les Misch, B.E.S., Env. Tech.
Senior Ecologist, Team Lead
Environmental Services

10 References

Bakowsky, W.D. 1996. Natural Heritage Resources of Southern Ontario: Vegetation Communities of Southern Ontario. Ontario Ministry of Natural Resources, Natural Heritage Information Centre.

BSC. 2001. Ontario Breeding Bird Atlas - Guide for Participants. Bird Studies Canada.

BSC. 2008. Marsh Monitoring Program Participant's Handbook Surveying Amphibians. 2008 Edition. 20 pages. Published by Bird Studies Canada in cooperation with Environment Canada and the U.S. Environmental Protection Agency. February 2008.

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

City of Ottawa. 2011. Characterization of Ottawa's Watersheds: An Environmental Foundation Document with Supporting Information Base. City of Ottawa.

City of Ottawa. 2003. City of Ottawa Official Plan. Retrieved from http://ottawa.ca/en/city-hall/planning-and-development/official-plan-and-master-plans/official-plan

COSEWIC. 2012. COSEWIC. 2012. COSEWIC assessment and status report on the Eastern Wood-pewee Contopus virens in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 39 pp. (www.registrelep-sararegistry.gc.ca/default_e.cfm).

Harding, J.H. 1997. Amphibians and Reptiles of the Great Lakes Region. University of Michigan Press.

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

MNR (Ontario Ministry of Natural Resources). 2000. Significant Wildlife Habitat Technical Guide. Fish and Wildlife Branch, Wildlife Section. Science Development and Transfer Branch, Southcentral Sciences Section.

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

MNR. 2012. Categorizing and Protecting Habitat under the Endangered Species Act. 2007. Ministry of Natural Resources, Species at Risk Branch, Peterborough, Ontario.

MNRF (Ontario Ministry of Natural Resources and Forestry). 2014a. Significant Wildlife Habitat Mitigation Support Tool. Version 2014. Ontario Ministry of Natural Resources and Forestry, Resources Section.

MNRF. 2014b. Ontario Wetland Evaluation System – Southern Manual. 3rd Edition (Version 3.3). Ontario Ministry of Natural Resources and Forestry. Queen's Printer for Ontario.

MNRF. 2015a. Natural Heritage Mapping Web Application. Natural Heritage Information Centre. http://www.giscoeapp.lrc.gov.on.ca/web/MNR/NHLUPS/NaturalHeritage/Viewer/Viewer.html

MNRF. 2015b. Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E. 2015. Addendum to Significant Wildlife Habitat Technical Guide. Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario.

MNRF. 2016a. Ontario Vascular Plants List. Natural Heritage Information Centre. 26 August 2016 version. Available online at https://www.ontario.ca/page/get-natural-heritage-information

MNRF. 2016b. Survey Protocol for Ontario's Species at Risk Snakes. Ontario Ministry of Natural Resources and Forestry, Species Conservation Policy Branch. Peterborough, Ontario. ii + 17 pp.

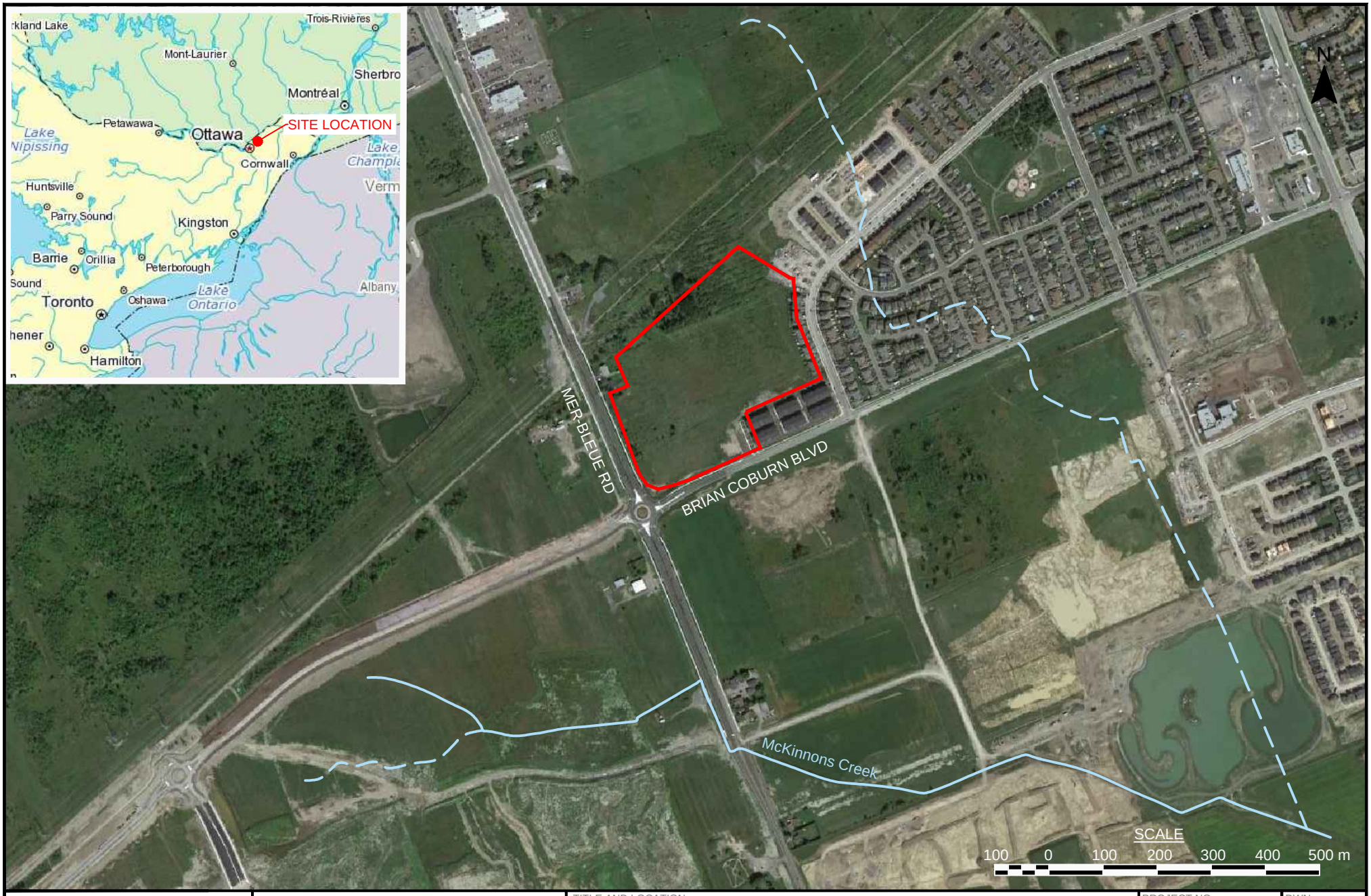
Muncaster Environmental Planning and Brunton Consulting. 2005. City of Ottawa Urban Natural Areas Environmental Evaluation Study (Final Report). A report prepared for the Environmental Management Division, Planning & Growth Management Department, City of Ottawa.

Oldham, M. J., W. D. Bakowsky and D. A. Sutherland. 1995. Floristic Quality Assessment System for Southern Ontario. Natural Heritage Information Centre, Ministry of Natural Resources. Peterborough, Ontario.

OMAFRA (Ontario Ministry of Agriculture, Food and Rural Affairs). 2017. Agricultural Information Atlas. https://www.gisapplication.lrc.gov.on.ca/AIA/index.html?viewer=AIA.AIA&locale=en-US

Ontario Nature. 2017. Reptiles and Amphibians of Ontario. Retrieved from https://www.ontarionature.org/protect/species/reptiles_and_amphibians/index.php#top

Appendix A: Figures



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LEGEND:

SITE BOUNDARY

TITLE AND LOCATION:

SITE LOCATION

ENVIRONMENTAL IMPACT STUDY
2225 MER-BLEUE ROAD
OTTAWA, ONTARIO

PROJECT NO.:	DWN.:
OTT-00239983-A0	AS
SCALE: AS NOTED	CK: LM
DATE: JULY 2017	FIG. NO.: 1

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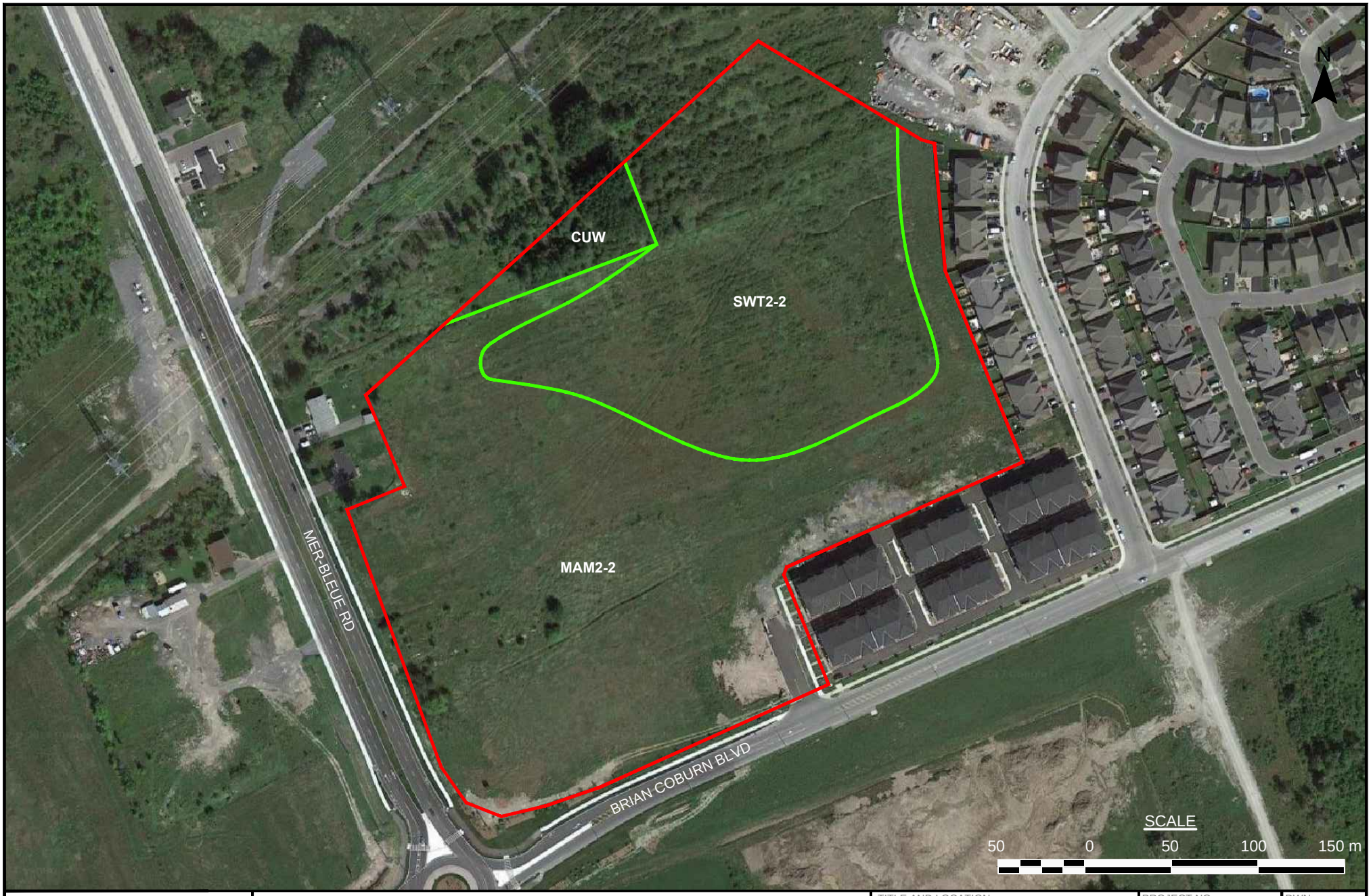

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ELC BOUNDARY

MAM2-2	REED CANARY GRASS MEADOW MARSH
SWT2-2	WILLOW THICKET SWAMP
CUW	CULTURAL WOODLAND

TITLE AND LOCATION:

ECOLOGICAL LAND CLASSIFICATION

ENVIRONMENTAL IMPACT STUDY
2225 MER-BLEUE ROAD
OTTAWA, ONTARIO

PROJECT NO.: OTT-00239983-A0	DWN.: AS
SCALE: AS NOTED	CK: LM
DATE: JULY 2017	FIG. NO.: **2**

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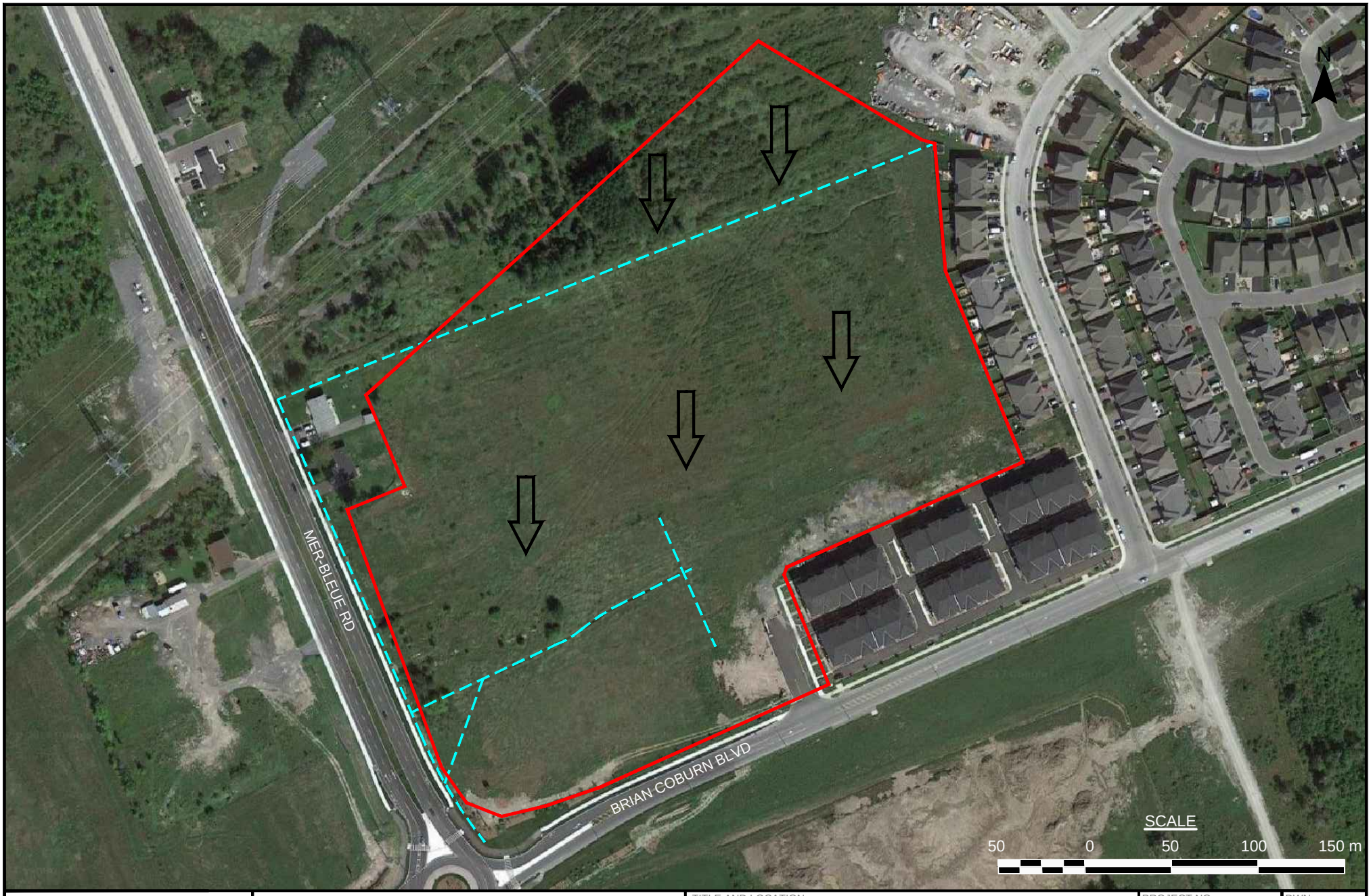

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- SITE DRAINAGE
- DRAINAGE DITCH (INTERMITTENT)

TITLE AND LOCATION:

SURFACE HYDROLOGY

ENVIRONMENTAL IMPACT STUDY
2225 MER-BLEUE ROAD
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PROJECT NO.: OTT-00239983-A0	DWN.: AS
SCALE: AS NOTED	CK: LM
DATE: JULY 2017	FIG. NO.: 3

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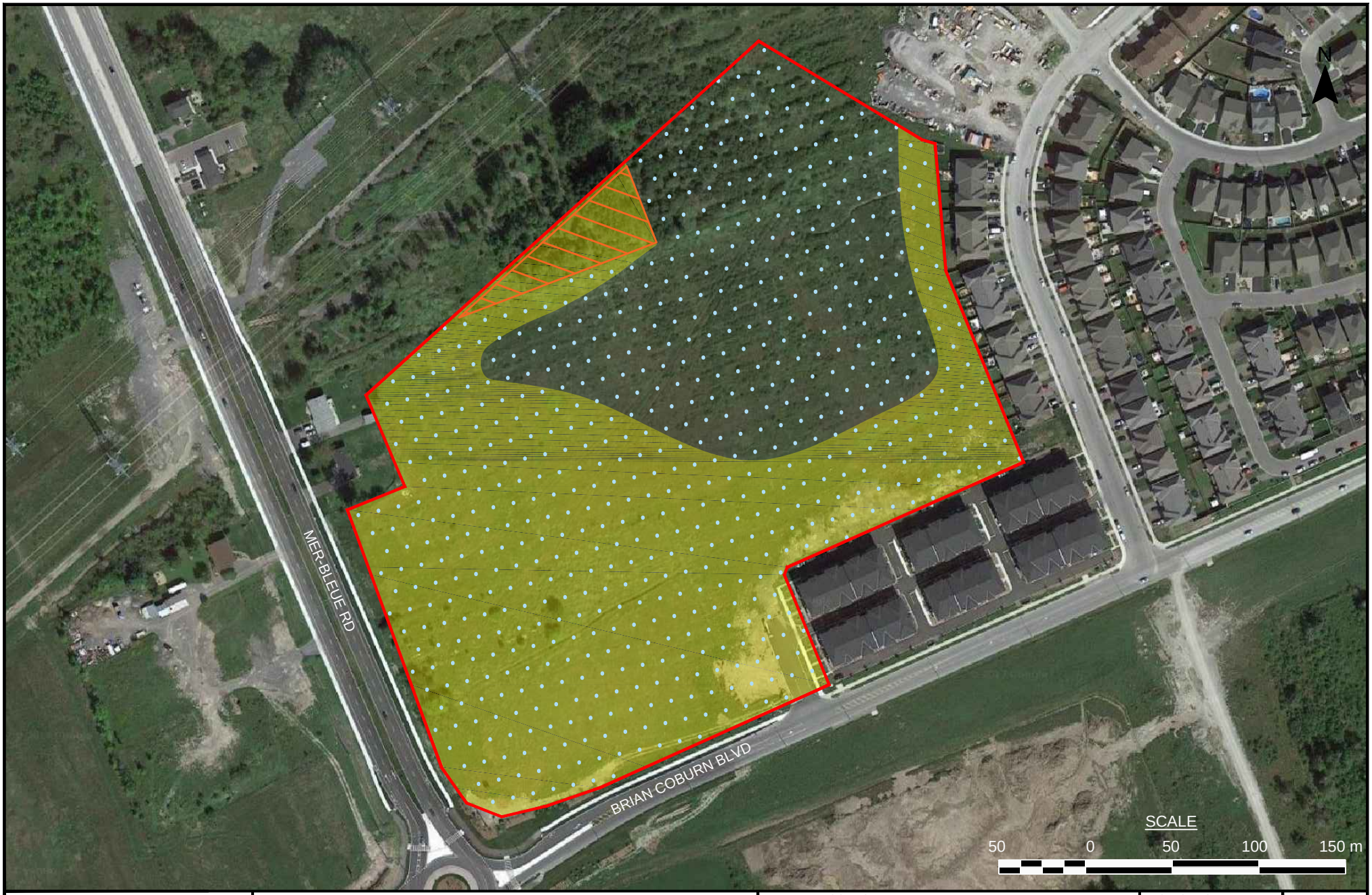

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- POTENTIAL MILKSNAKE HABITAT
- POTENTIAL MONARCH HABITAT
- POTENTIAL PSW

TITLE AND LOCATION:

SIGNIFICANT FEATURES

ENVIRONMENTAL IMPACT STUDY
2225 MER-BLEUE ROAD
OTTAWA, ONTARIO

PROJECT NO.:	DWN.:
OTT-00239983-A0	AS
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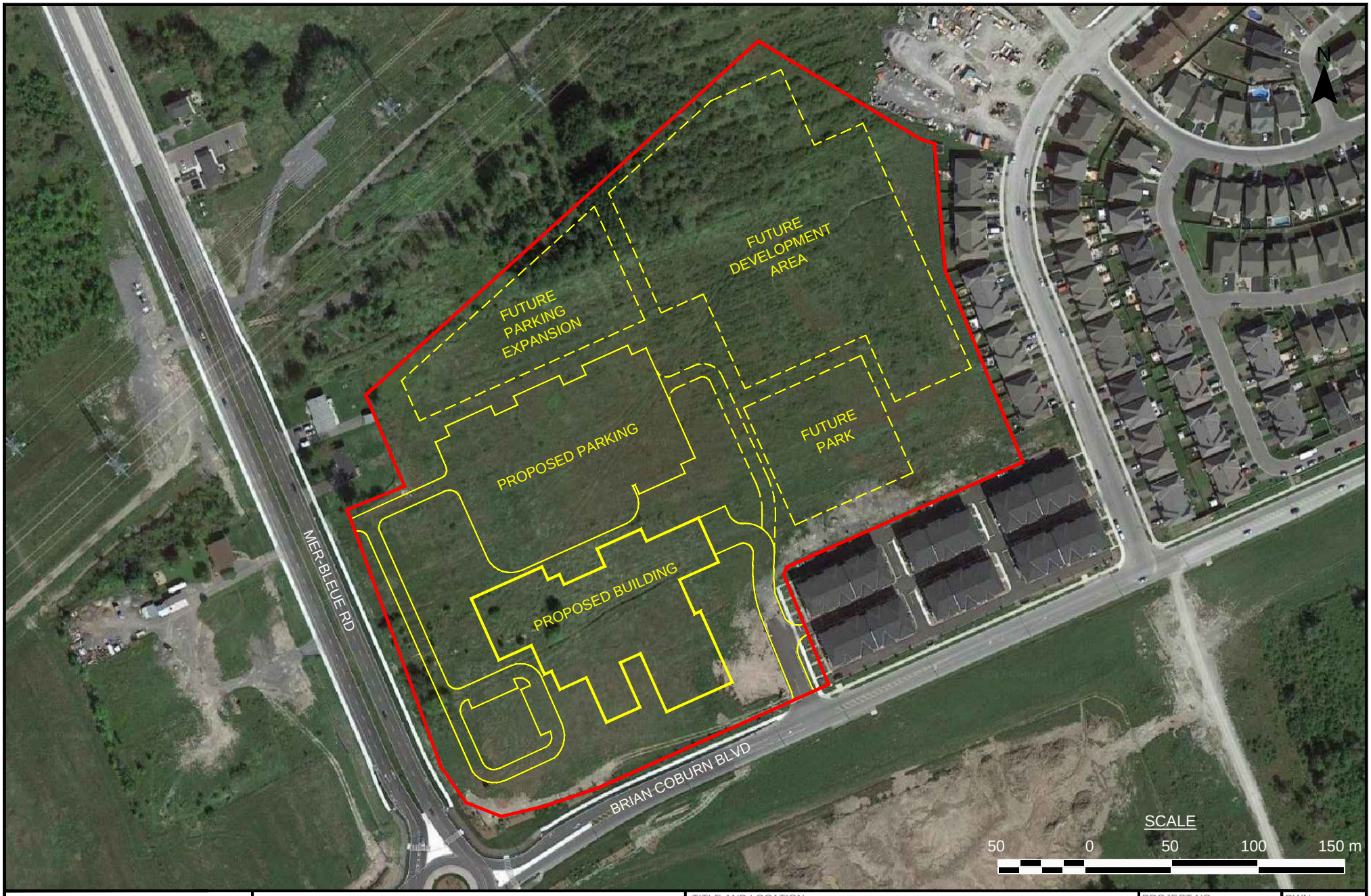
JULY 2017	4



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TITLE AND LOCATION:

PROPOSED DEVELOPMENT

ENVIRONMENTAL IMPACT STUDY
2225 MER-BLEUE ROAD
OTTAWA, ONTARIO

PROJECT NO.:	DWN.:
OTT-00239983-A0	AS
SCALE:	CK:
AS NOTED	LM
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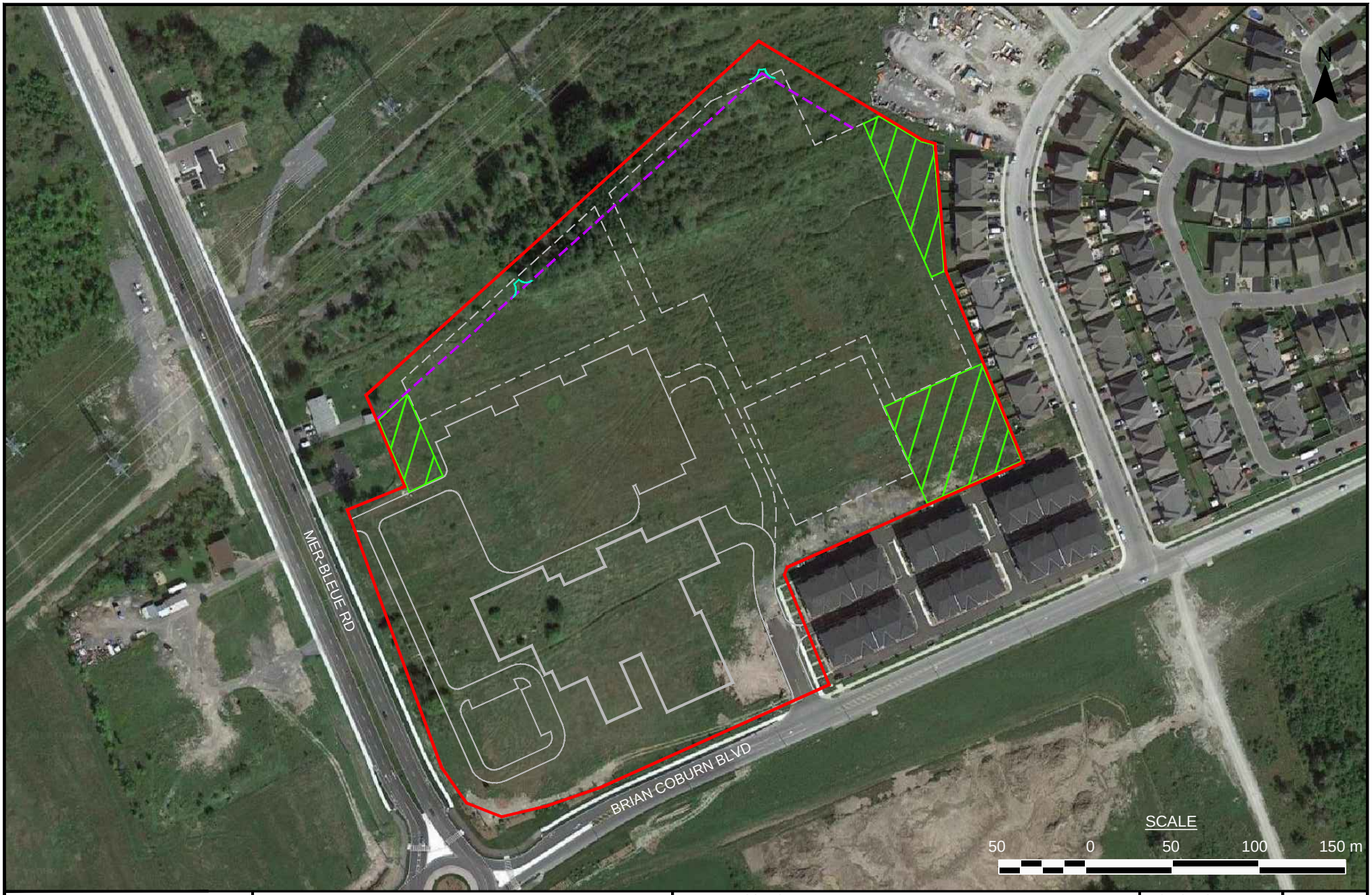

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- SITE BOUNDARY
- 15 m BUFFER
- RETAINED VEGETATION COMMUNITY AREAS
- WILDLIFE ESCAPE GATE

TITLE AND LOCATION:

MITIGATION AND PROTECTION MEASURES

ENVIRONMENTAL IMPACT STUDY
2225 MER-BLEUE ROAD
OTTAWA, ONTARIO

PROJECT NO.:	DWN.:
OTT-00239983-A0	AS
SCALE:	CK:
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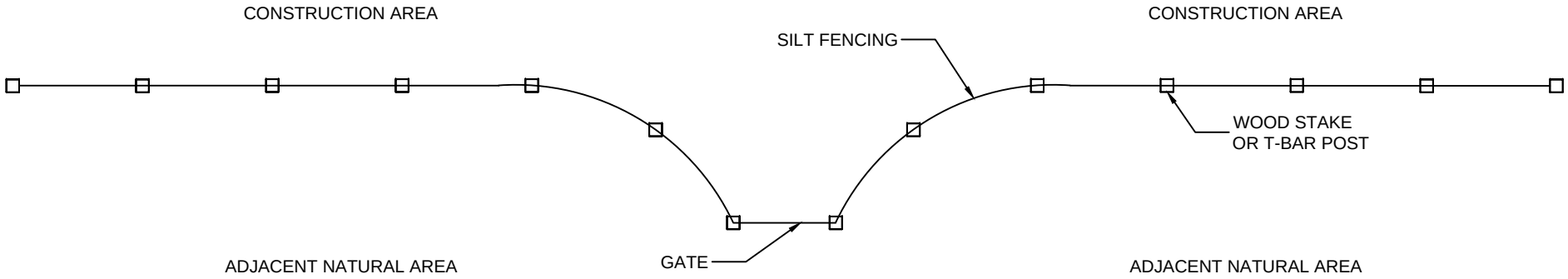
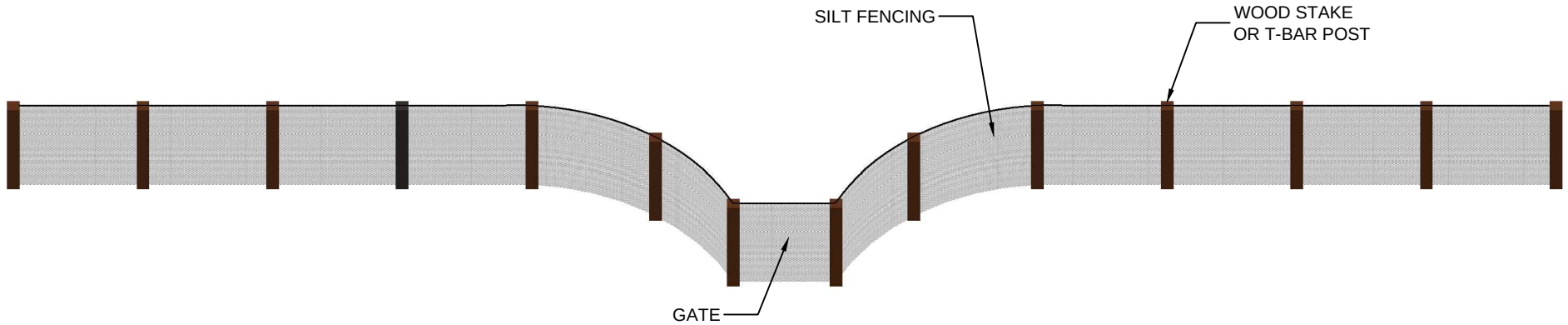


TOP VIEW



FRONT VIEW

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TITLE AND LOCATION:

WILDLIFE ESCAPE GATE

ENVIRONMENTAL IMPACT STUDY
2225 MER-BLEUE ROAD
OTTAWA, ONTARIO

PROJECT NO.:	DWN.:
OTT-00239983-A0	AS
SCALE:	CK:
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DATE:	FIG. NO.:
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Appendix B: Site Photographs

Photo 1 – Looking east across site at meadow marsh (foreground) and cultural woodland (background) (June 2017)

Photo 2 – Looking northeast at meadow marsh (foreground) and cultural woodland (background) (June 2017)

Photo 3 – Looking northeast at thicket swamp from west edge of swamp (June 2017)

Photo 4 – Temporary pooling in north half of site following rain event (June 2017)

Appendix C: Species Lists

Plant Species Observed During Field Surveys*

#	Scientific Name	Common Name	Vegetation Community[1]			Rarity / Status[2]			WETNESS[3]	SENSITIVITY[4]	WEEDINESS[5]	Comments
			MAM2-2	SWT2-2	CUW	National	Provincial					
						SARA	ESA	NHIC				
1	*Acer negundo*	Manitoba Maple			R			S5	-2	0		
2	*Asclepias syriaca*	Common Milkweed	O		O			S5	5	0		Located in drier areas of MAM2-2
3	*Carex crinita*	Fringed Sedge			O			S5	-4	6		
4	*Carex gracillima*	Graceful Sedge	O	O				S5	3	4		
5	*Carex scoparia*	Pointed Broom Sedge		O	O			S5	-3	5		
6	*Carex vulpinoidea*	Fox Sedge	O	O				S5	-5	3		
7	*Chrysanthemum leucanthemum*	Ox-eye Daisy	O		O			SE5	5	0	-1	
8	*Cicuta sp*	Water-hemlock Species	O	R								
9	*Cornus stolonifera*	Red-osier Dogwood		O	A			S5	-3	2		
10	*Daucus carota*	Wild Carrot			O			SE5	5	0	-2	
11	*Equisetum arvense*	Field Horsetail	O	O	A			S5	0	0		
12	*Fragaria virginiana ssp. virginiana*	Common Strawberry	O	O	A			S5	1	2		
13	*Galium sp*	Bedstraw Species		O								
14	*Lonicera sp*	Honeysuckle Species			O							
15	*Lotus corniculatus*	Bird's-foot Trefoil	A		A			SE5	1	0	-2	
16	*Parthenocissus sp*	Virginia Creeper Species			O							
17	*Phalaris arundinacea*	Reed Canary Grass	D	A	A			S5	-4	0		
18	*Phleum pratense*	Timothy	R					SE5	3	0	-1	
19	*Phragmites australis*	Common Reed	R					S5	-4	0		
20	*Poa pratensis ssp. pratensis*	Kentucky Blue Grass		O	A			S5	1	0		
21	*Populus alba*	European White Poplar	R		D			SE5	5	0	-3	
22	*Populus deltoides ssp. deltoides*	Eastern Cottonwood			D			S5	-1	4		
23	*Populus tremuloides*	Trembling Aspen			A			S5	0	2		
24	*Ranunculus acris*	Tall Buttercup		R				SE5	-2	0	-2	
25	*Salix bebbiana*	Bebb's Willow		O	O			S5	-4	4		
26	*Salix petiolaris*	Slender Willow		D	O			S5	-4	3		
27	*Scirpus cyperinus*	Wool Grass	O	A				S5	-5	4		
28	*Solidago canadensis*	Canada Goldenrod	O		A			S5	3	1		
29	*Spiraea alba*	Narrow-leaved Meadowsweet		O				S5	-4	3		
30	*Trifolium pratense*	Red Clover	R					SE5	2	0	-2	
31	*Typha latifolia*	Broad-leaved Cattail	O	O				S5	-5	3		
32	*Ulmus americana*	White Elm			R			S5	-2	3		
33	*Vicia cracca*	Cow Vetch	O	R	O			SE5	5	0	-1	
34	*Vitis riparia*	Riverbank Grape			R			S5	-2	0		

*** Refer to Appendix D for definition of terms used in wildlife species list table.**

Wildlife Species Observed During Field Surveys*

Common Name	Scientific Name	Rarity / Status[1]			Location Observed			BE[2]	Comments
		National	Provincial						
		SARA	ESA	NHIC	MAM2-2	SWT2-2	CUW		
MAMMALS									
No mammals recorded									
BIRDS									
Mallard	*Anas platyrhynchos*			S5	x			CO	Adult female with young in drain ditch
Green Heron	*Butorides virescens*			S4		x		NE	Flew overhead
Killdeer	*Charadrius vociferus*			S5	x			PR	
Wilson's Snipe	*Gallinago delicata*			S5	x		x	PR	Several birds in both communities
Hairy Woodpecker	*Picoides villosus*			S5			x	PO	
Willow Flycatcher	*Empidonax traillii*			S5		x		PR	
Least Flycatcher	*Empidonax minimus*			S5			x	PR	
Warbling Vireo	*Vireo gilvus*			S5			x	PR	
American Crow	*Corvus brachyrhynchos*			S5			x	PO	
Tree Swallow	*Tachycineta bicolor*			S4			x	PO	
House Wren	*Troglodytes aedon*			S5			x	PO	
Veery	*Catharus fuscescens*			S4			x	PO	
American Robin	*Turdus migratorius*			S5		x	x	PO	
Gray Catbird	*Dumetella carolinensis*			S5			x	PO	
Yellow Warbler	*Dendroica petechia*			S5	x	x	x	PR	
Common Yellowthroat	*Geothlypis trichas*			S5	x		x	PO	
Song Sparrow	*Melospiza melodia*			S5	x	x		PR	
Swamp Sparrow	*Melospiza georgiana*			S5	x	x		PR	
Red-winged Blackbird	*Agelaius phoeniceus*			S5	x	x		PR	
American Goldfinch	*Spinus tristis*			S5	x	x	x	PR	
REPTILES									
No reptiles recorded									
AMPHIBIANS									
No amphibians recorded									
FISH									
No fish recorded									

Common Name	Scientific Name	Rarity / Status[1]			Location Observed			BE[2]	Comments
		National	Provincial						
		SARA	ESA	NHIC	MAM2-2	SWT2-2	CUW		
BUTTERFLIES									
Cabbage White	*Pieris rapae*			SE	x			RS	
ODONATA									
No odonata recorded									

*** Refer to Appendix D for definition of terms used in wildlife species list table.**

Total Number of Species

Mammals:	0	Amphibians:	0
Birds:	20	Fish:	0
Reptiles:	0	Invertebrates:	1

Appendix D: Species List Terms and Definitions

PLANT SPECIES LIST TERMS AND DEFINITIONS:

[1] RELATIVE ABUNDANCE OF PLANT SPECIES ASSOCIATED WITH EACH VEGETATION COMMUNITY*

D - dominant	Represented by large numbers of individuals or clumps; visually more abundant than other plant species
A - abundant	Represented in the vegetation community by large numbers of individuals or clumps
O - occasional	Present as scattered individuals or represented by one or more large clumps of many individuals
R - rare	Represented in the vegetation community by less than three to five individuals or small clumps

** Based on Ecological Land Classificaton for Southern Ontario (MNR 1998)*

[2] RARITY / POPULATION STATUS

National	Provincial		Regional
SARA	ESA	NHIC	
END - Endangered	**END** - Endangered	**S1** - Critically imperiled	**Municipal** - Rare in county or regional municipality as determined by the municipality
THR - Threatened	**THR** - Threatened	**S2** - Imperiled	
EXP - Extirpated	**EXP** - Extirpated	**S3** - Vulnerable	
SC - Special Concern	**SC** - Special Concern	**S4** - Apparently secure	**CA** - Rare in regional watershed as determined by the local conservation authority (CA)
NAR - Not at Risk	**NAR** - Not at Risk	**S5** - Secure	
DD - Data Deficient	**DD** - Data Deficient	**SE** - Exotic (non-native)	
		? - uncertain about status	

[3] WETNESS*

-5	Obligate Wetland	occurs almost always in wetlands under natural conditions (>99% probability)
-2 to -4	Facultative Wetland	usually occurs in wetlands, but occasionally found in non-wetlands (67-99% probability)
1 to -1	Facultative	equally likely to occur in wetlands or non-wetlands (34-66% probability)
2 to 4	Facultative Upland	occasionally occurs in wetlands, but usually occurs in non-wetlands (1-33% probability)
5	Obligate Upland	occurs alomost never in wetlands under natural conditions (<1% probability)

** Based on Floristic Quality Assessment System (MNR 1995)*

[4] PLANT SPECIES SENSITIVITY*

0 - 3	Plants found in a wide variety of communities, including disturbed sites
4 - 6	Plants typically associated with a specific plant community, but tolerate moderate disturbance
7 - 8	Plants associated with a community in an advanced successional stage that has undergone minor disturbance
9 - 10	Plants with a high degree of fidelity to a narrow range of specific habitats or ecological conditions

** Values and terminology derived from Floristic Quality Assessment (MNR 1995)*

[5] WEEDINESS*

-1	Non-native plants with little or no impact on natural areas
-2	Non-native plants that sometimes cause problems, but only infrequently or in localized areas
-3	Non-native highly invasive plants that can become serious problems in natural areas by displacing native flora

** Based on Floristic Quality Assessment (MNR 1995)*

WILDLIFE SPECIES LIST TERMS AND DEFINITIONS:

[1] RARITY / POPULATION STATUS

National	Provincial		Regional
SARA	ESA	NHIC[a]	
END - Endangered	**END** - Endangered	**S1** - Critically imperiled	**Municipal** - Rare in county or regional municipality as determined by the municipality
THR - Threatened	**THR** - Threatened	**S2** - Imperiled	
EXP - Extirpated	**EXP** - Extirpated	**S3** - Vulnerable	
SC - Special Concern	**SC** - Special Concern	**S4** - Apparently secure	**CA** - Rare in regional watershed as determined by the local conservation authority (CA)
NAR - Not at Risk	**NAR** - Not at Risk	**S5** - Secure	
DD - Data Deficient	**DD** - Data Deficient	**SE** - Exotic (non-native)	
		? - uncertain about status	

[2] BE (BREEDING EVIDENCE)**

Anurans (Frogs and Toads) Breeding Call Levels:

L1 - Call Level 1	Calls of individual frogs or toads do not overlap and individuals can be counted
L2 - Call Level 2	Calls of individuals sometimes overlap but the number of individuals can reasonably be counted
L3 - Call Level 3	Calls are continous and overlapping and a count estimate is not possible

Birds:

NE - No Evidence	Species observed in its breeding season, but no breeding evidence observed
PO - Possible	Indicated by presence of species or singing male during the breeding season in suitable habitat
PR - Probable	Indicated by territorial/courtship displays, presence of mating pair, agitated behavior or nest building
C - Confirmed	Indicated by presence of eggs, fledlings, distraction displays, active nest, fecal/food carrying, etc.
NH - No Suitable Habitat	Species observed during mating season, but no suitable breeding habitat in study area
OB - Observed	Species observed outside of the breeding season
NB - Non-breeding Migrant	Migrant species (breeds outside of region containing study area)

Other Wildlife:

CO - Confirmed	Indicated by presence of eggs, larvae, young, defensive behavior, food carrying, active nest/den/redd, etc.
RS - Resident Species	Species expected to be breeding within the study area due to localized territory

***** *Breeding evidence terminology for anurans is based on Marsh Monitoring Program and for birds is derived from Ontario Breeding Bird Atlas*