McLean Landing Subdivision
Phase 2

Environmental Impact Statement

Prepared for:
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List of Acronyms and Definitions

ABBO - Atlas of Breeding Birds of Ontario
ANSI – Area of Natural and Scientific Interest
BHA - Butternut Health Assessment
CC - Co-Efficient of Conservation
DBH - Diameter at breast height
EIS – Environmental Impact Study
ELC - Ecological Land Classification
CUW – Cultural Woodland
CUT – Cultural Thicket
ESA - *Endangered Species Act* (Provincial)
GPS – Global Positioning System
NAD 83: North American Datum 1983
UTM: Universal Transverse Mercator
LIO - Land Information Ontario
MECP – Ministry of Environment Conservation and Parks
NHIC – Natural Heritage Information Centre
NHRM - Natural Heritage Reference Manual
OMNR/MNRF - Ontario Ministry of Natural Resources (old name)
-Ministry of Natural Resources and Forestry (new name)
OP – Official Plan
OWES - Ontario Wetland Evaluation System
PPS - Provincial Policy Statement
PSW - Provincially Significant Wetland
SAR - Species at Risk (in this report they refer to species that are provincially or federally listed as endangered or threatened and receive protection under ESA or SARA)
SARA - *Species at Risk Act* (Federal)
SARO - Species at Risk in Ontario
SWH - Significant Wildlife Habitat
SWHCS – Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E
SWHTG - Significant Wildlife Habitat Technical Guide

SRANK DEFINITIONS

S1 Critically Imperiled in the nation or state/province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state/province.

S2 Imperiled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.

S3 Vulnerable in the nation or state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

S4 Apparently Secure; uncommon but not rare; some cause for long-term concern due to declines or other factors.

S5 Secure; Common, widespread, and abundant in the nation or state/province.

? Inexact Numeric Rank—Denotes inexact numeric rank

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

S#B Breeding

S#N Non-Breeding

SARA STATUS DEFINITIONS

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

THR Threatened: a wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.

SC Special Concern, a wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats.

SARO STATUS DEFINITIONS

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

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

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

Coefficient of Conservatism Ranking Criteria

0 Obligate to ruderal areas.

1 Occurs more frequently in ruderal areas than natural areas.

2 Facultative to ruderal and natural areas.

3 Occurs less frequent in ruderal areas than natural areas.

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

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

6 Weak affinity to high-quality natural areas.

7 Moderate affinity to high-quality natural areas.

8 High affinity to high-quality natural areas.

9 Very high affinity to high-quality natural areas.
10 Obligate to high-quality natural areas.

Table of Contents

List of Figures

List of Tables

List of Photographs

1.0 INTRODUCTION

2287171 Ontario Ltd., here after referred to as the proponent, is preparing for Phase 2 of the McLean Landing Subdivision. These lands are situated in part of lot 10, concession A, in the Village of Merrickville-Wolford. They include roughly 3.6 ha in the southwest end of Merrickville (Figure 1 and Figure 2). Phase 1 is situated to the east of Phase 2 and consists of six residential lots along Sophie Lane. The proposed Phase will consist of 43 lots that will be fully serviced. This phase of the subdivision will require the clearing of the vegetation for the development activities (construction of new sewer and water mains, roads and houses). The dry pond and oil and grit separator, previously constructed, was sized for both phases.

As per the Official Plan of the municipality of Merrickville-Wolford (OP, Village of Merrickville-Woldford, 2019), proposed subdivisions are required to complete an Environmental Impact Statement (EIS)to assess the potential impacts to the natural environment. The OP follows the guidelines set out in the Provincial Policy Statement (PPS) in which there are several natural features and areas identified as needing protection. These are:

- 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.

To this end, Bowfin Environmental Consulting Inc. (Bowfin) was retained to complete the EIS. This work included background review of existing information and several site investigations. This report includes a review of the applicable OP schedules to determine if significant natural features have been designated in or adjacent to the study area followed by a summary of existing conditions as observed during field investigations. Note that the presence/absence of habitat for Endangered or Threatened Species are not always depicted on the OP schedules. Their presence/absence must be determined based on the appropriate MNRF methodology (i.e. species-specific surveys, presence of preferred habitats). Where identified, the boundaries of any significant features are noted and the potential for the proposed land development to cause negative impacts is assessed. For those features which may be negatively impacted, mitigation measures and where appropriate compensation measures are recommended.

Figure 1: General Location of Subject Lands

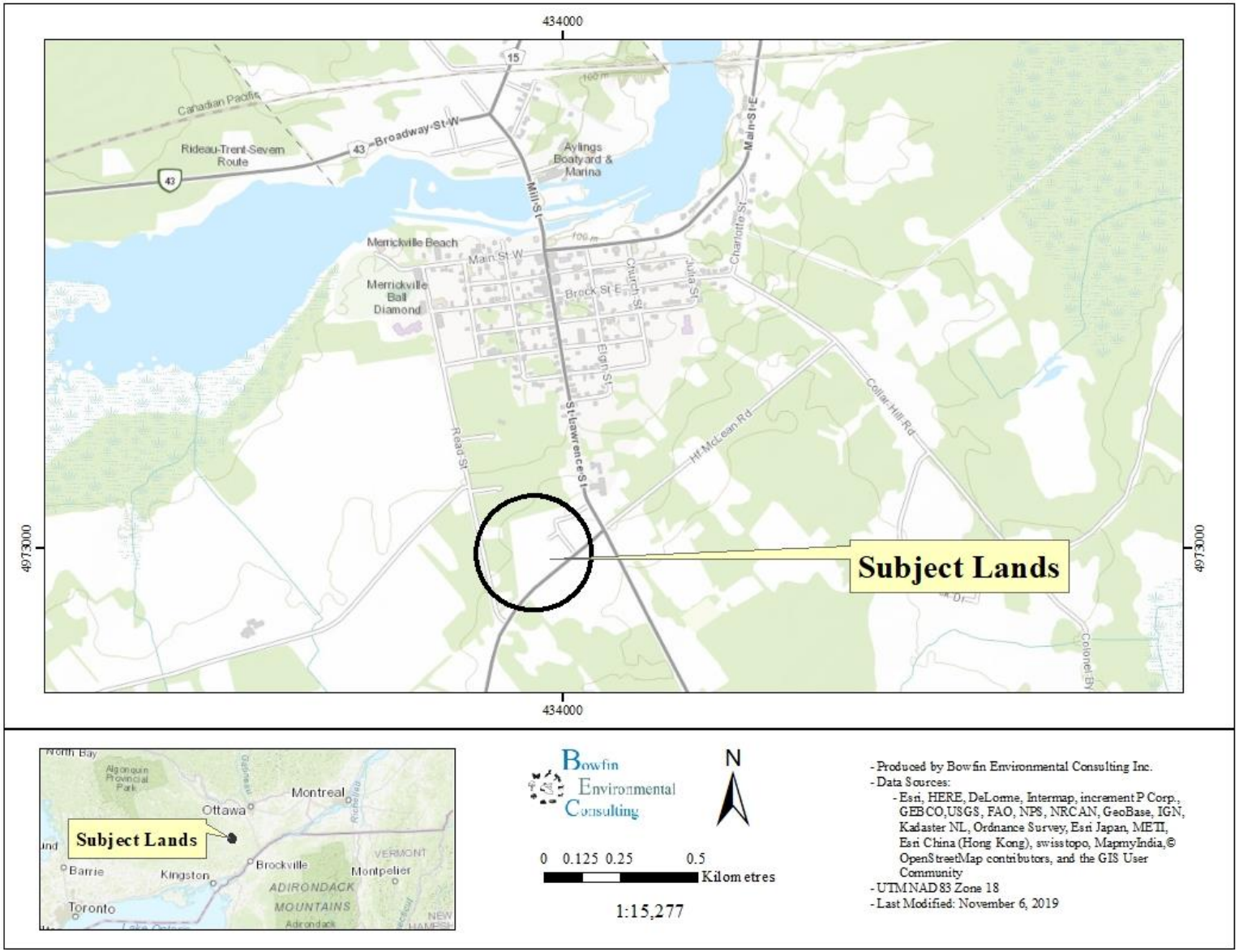
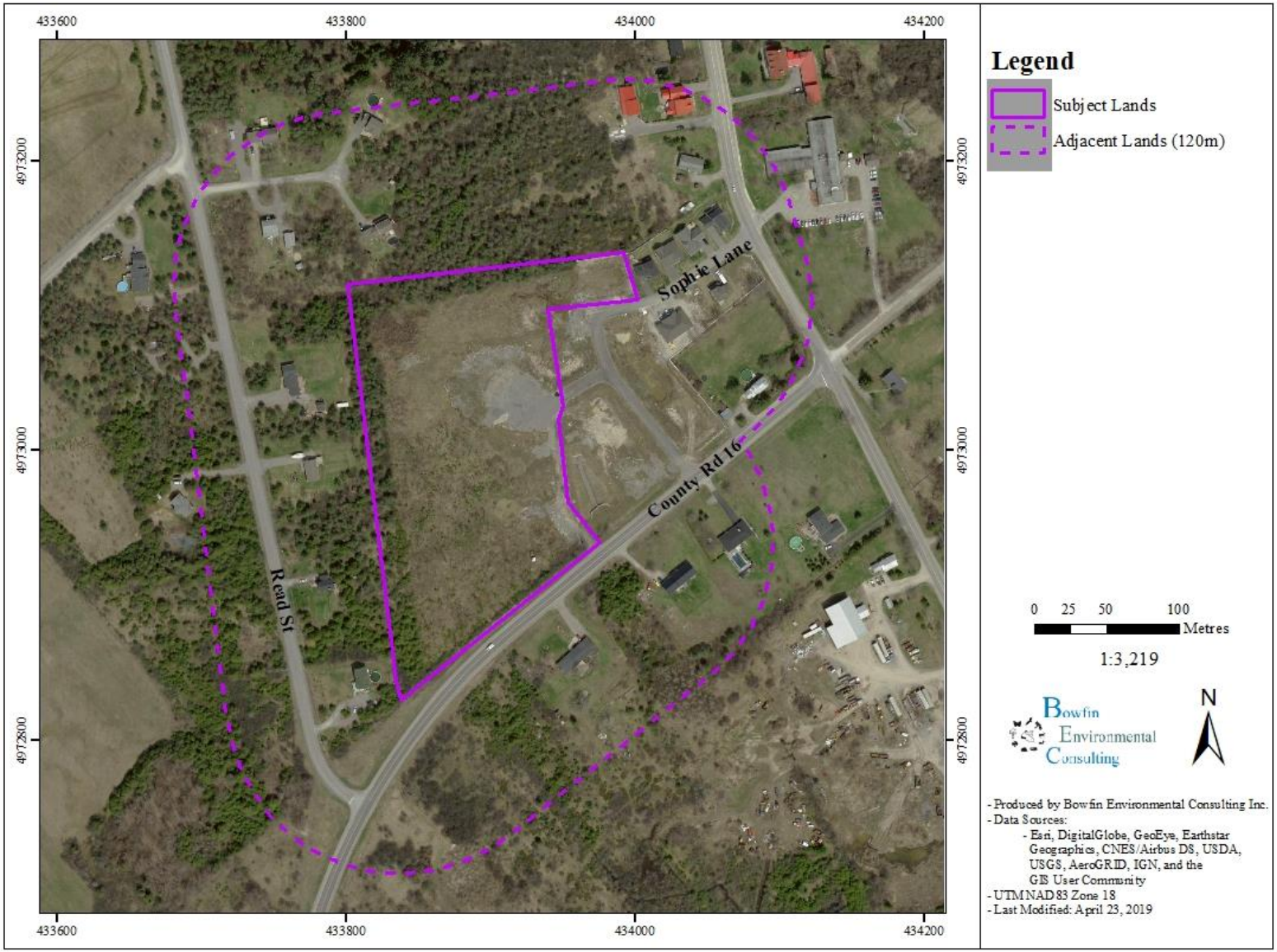


Figure 2: Location of Subject Lands



2.0 METHODS

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

2.1 Study Areas

The study areas varied with the item being surveyed. The study area for each item is described herein. For the most part, the OP calls for an evaluation of the study area and the adjacent 120 m. The detailed field investigations and assessments were completed within the subject lands. These investigations also included general observations and surveying within the adjacent lands. The background review and consideration for the potential to impact natural heritage features included a larger study area (±5 km).

2.2 Background Review

The background review began with preliminary mapping of the vegetation communities in the study areas and the adjacent 120 m, as a desktop exercise. The search of databases and available background data also included the adjacent ±5 km. The search of available records and consulting reports was made to gather information on the known and potential occurrences of SAR within the study areas. The following web sources were reviewed during the background review: Natural Heritage Information Centre (NHIC), species at risk in Ontario website, Land Information Ontario (LIO), and Atlas of Breeding Birds of Ontario (ABBO). Citizen science databases such as eBird, iNaturalist, and Ontario Reptile and Amphibian Atlas were also consulted. In the Village of Merrickville-Wolford, natural heritage features are designated on Schedules A1 and A2 of the OP and as such these were also reviewed (Figure 7).

2.3 Field Studies

Information on the features was collected during numerous visits scheduled throughout 2019. A summary of the dates, times, ambient conditions and purpose for the visits are provided in Table 2.

2.3.1 Habitat Descriptions and Flora Observations

To assess the potential for significant wildlife habitat and SAR or their habitat, the vegetation communities within the subject lands and the adjacent 120 m were visited. Sufficient level of detail was collected to provide general habitat descriptions and identify preferred habitats.

The field studies were completed by systematically travelling through the subject lands and by ground truthing the results from the preliminary mapping exercise. Habitat descriptions were based on the appropriate methodologies such as: *Ontario Wetland Evaluation System, Southern Manual* (OWES; OMNR, 2013a) for wetland habitats and the *Ecological Land Classification for*

Southern Ontario (ELC; Lee et al. 1998) 1st approximation, *Natural Heritage Reference Manual* (NHRM; OMNR, 2010) and *Significant Wildlife Habitat Technical Guide* (SWHTG; OMNR, 2000) for terrestrial habitats. Note that OWES took precedent over the ELC where the community met the OWES wetland definition. This definition is:

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

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

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). Specific attention was made to locating SAR or species of conservation value (any S1-S3 species) listed as potentially occurring within the study area. Any specimen observed was photographed and its coordinates were recorded on a GPS using NAD83.

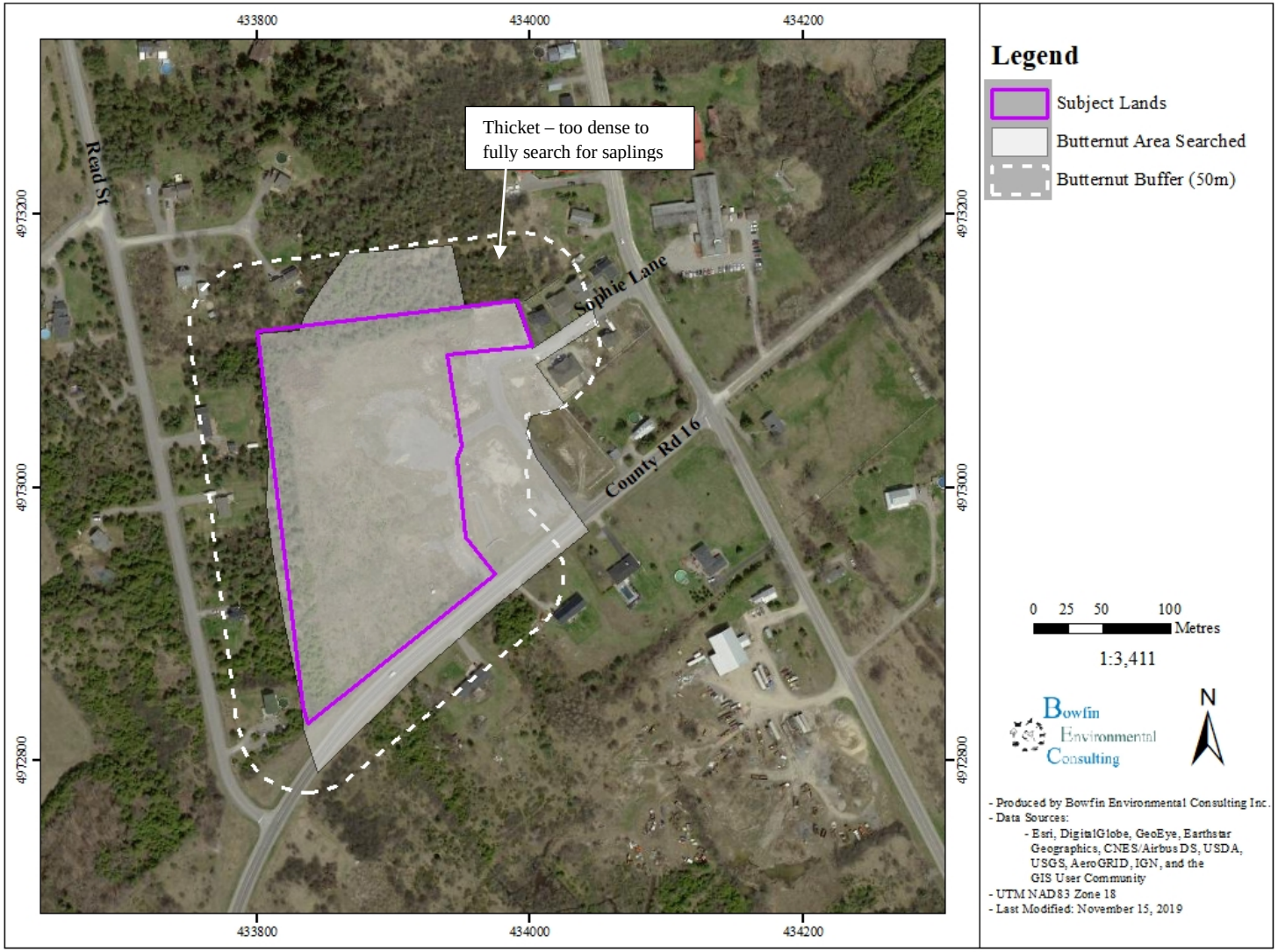
2.3.2 Species-specific Surveys

The Ministry of Environment, Conservation and Parks (MECP) has recently taken over the *Endangered Species Act* and is now responsible for its implementation. At this time, the existing protocols developed by the Ministry of Natural Resources and Forestry (MNRF) are still applicable.

Butternut Inventory

Butternuts are an endangered species protected on private lands by the *Endangered Species Act* (ESA). The MNRF have certified Butternut Health Assessors (BHA) to complete Butternut Health Assessments (BHA) as per MNRF specifications. This inventory was conducted by BHA assessors #722 and 723. The inventory area included in and within 50 m of the subject lands (Figure 3), but not on private residential lands. These were searched from the edge and from Read Street and County Road 16 for mature individuals. There was also a dense thicket in the northeast corner of the adjacent lands (on the properties of others) that could not be adequately searched for saplings. 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.

Figure 3: Butternut Survey Area



Bird Surveys

Daytime Bird Surveys

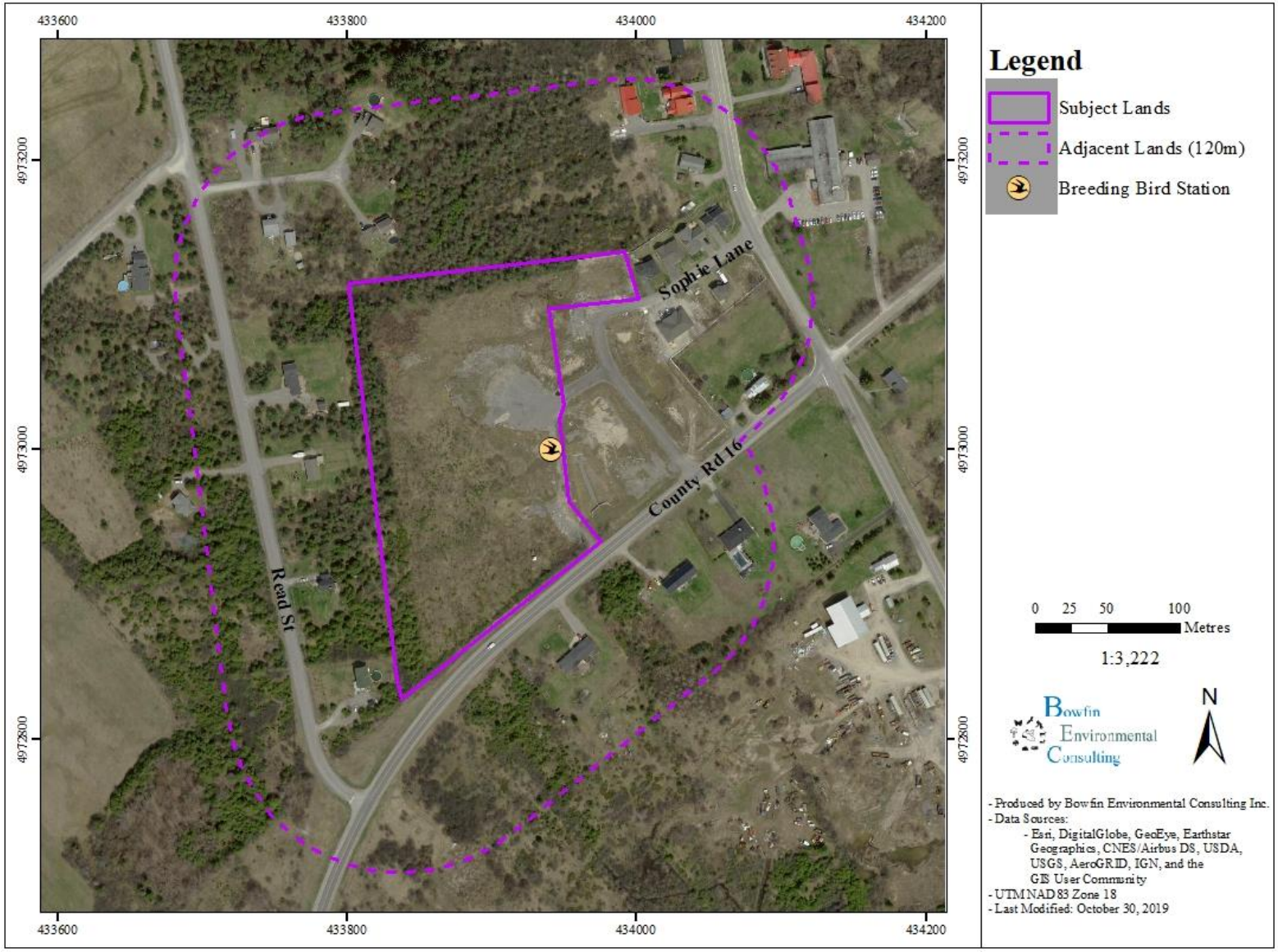
Information on bird use of the area was collected through a raptor nest survey and breeding bird surveys. The raptor nest survey consisted of looking for evidence of nesting (such as stick nests, food caches, whitewashing of branches and foliage, accumulation of feathers/fur or prey remains on the ground or in shrubs within the subject lands and adjacent lands as per the SWHTG, Appendix O (OMNR, 2000), as well as the raptors themselves. The purpose of this survey is to gather information on SAR (species that call during the daytime) and potential significant wildlife habitat.

The daytime breeding bird surveys consisted of one survey point within the subject lands (Figure 4). Additional information was then gathered while walking around the area. Since, there was no continuous grassland habitat within the subject lands or nearby, no grassland breeding bird surveys were completed. The daytime breeding bird surveys methods were as follows:

- Two visits were completed and were a minimum of 15 days apart (June 3, 2019 and June 20, 2019).
- Surveys began no earlier than 30 minutes after dawn and completed by midday.
- Visits were conducted on days with no rain, little to no wind and good visibility.
    - 5-minute point-count surveys were conducted at one location and consisted of listening and observing over the specified time period and recording the number of birds heard/seen, their sex, location, behaviour and interactions with others; and
    - While walking to and from the point, any additional observations were recorded.
- Birds were identified by sound and/or sight.

During pre-consultation meetings with the municipality, the presence of turkey vulture roosting sites within or adjacent to the subject lands was mentioned. As such, evidence of turkey vulture roosting was searched for during the raptor nest survey (whitewashing and nests) and the during all visits, the presence and behaviour of any individuals was noted.

Figure 4: Location of Breeding Bird Survey Station



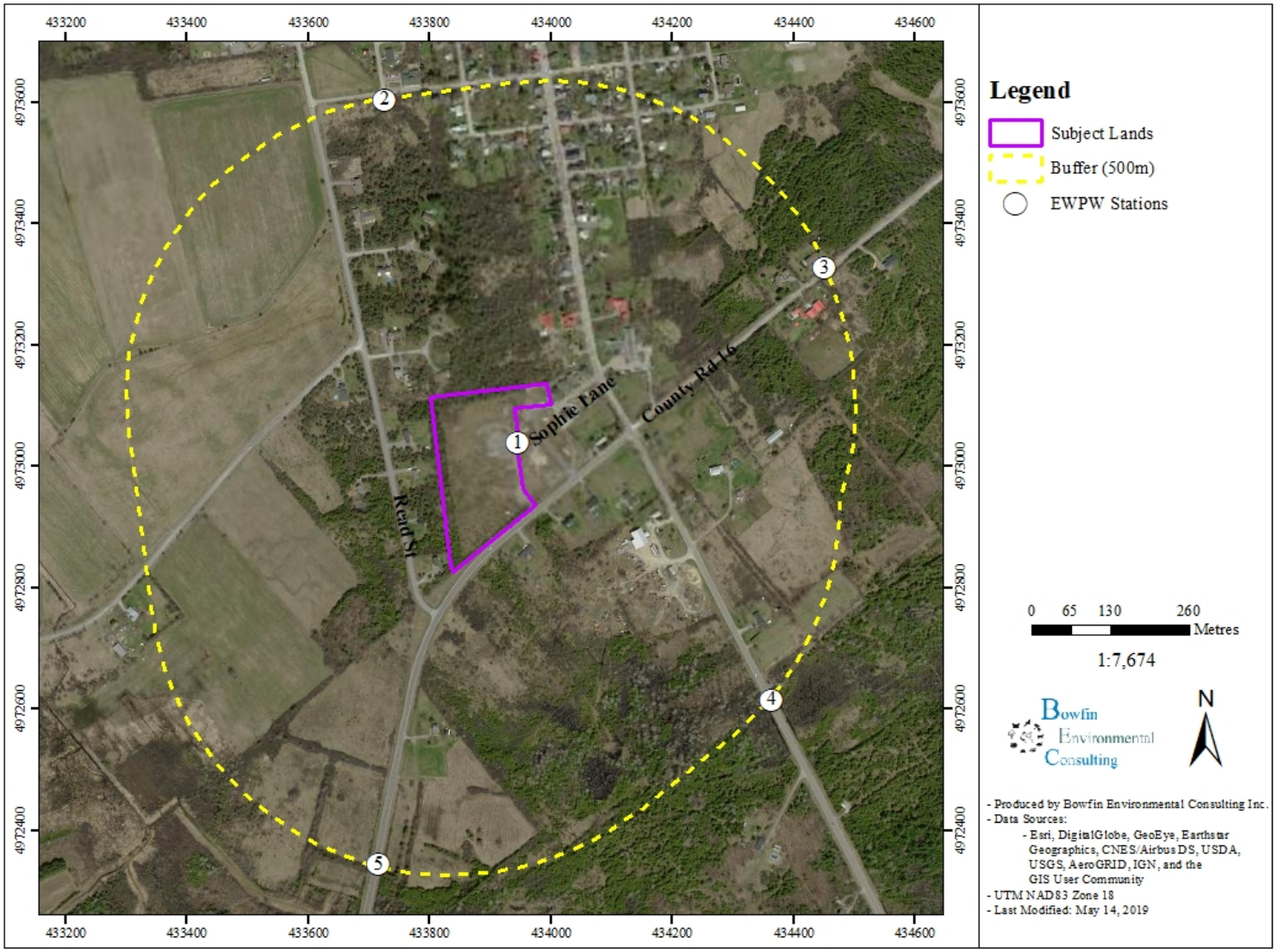
Nighttime Bird Surveys

One locally common SAR is the eastern whip-poor-will. As such, eastern whip-poor-will surveys were completed in and within 500 m of the subject lands following the MNRF *Draft Survey Protocol for Eastern Whip-poor-will (Caprimulgus vociferus) in Ontario* (OMNRF, 2014b) (Figure 5).

Outline of Monitoring Protocol:

- Three surveys were completed between May 18 and June 30 (May 23, June 12, and June 16, 2019)
- Weather was to meet the following conditions: over 10°C calm winds (less than 3 on the Beaufort scale), 50% or more visible moon face illuminated & moon over the horizon.
- Surveys were completed at night (beginning 30 minutes after sunset and ending at least 15 minutes before sunrise, if the moon is above the horizon).
- Survey points were established no further than 500 m apart within appropriate habitats (i.e. forested areas).
- The surveys consisted of a 6-min listening period at each point. If whip-poor-wills were heard, the surveyor was to record number of whip-poor-wills, their behaviour (i.e. calling, perched, flushed), movement, note whether the same bird has been heard at another point and approximate direction and distance.
- If a whip-poor-will was heard calling, then the surveyors were to walk apart until a distance of 50-60 m was established between the two surveyors and the call(s) noted from these new locations. The purpose of this step is to help triangulate nests and/or defended area.
- Additional notes on any whip-poor-wills were to be recorded in-between points.

Figure 5: Location of Eastern Whip-poor-Will Survey Stations

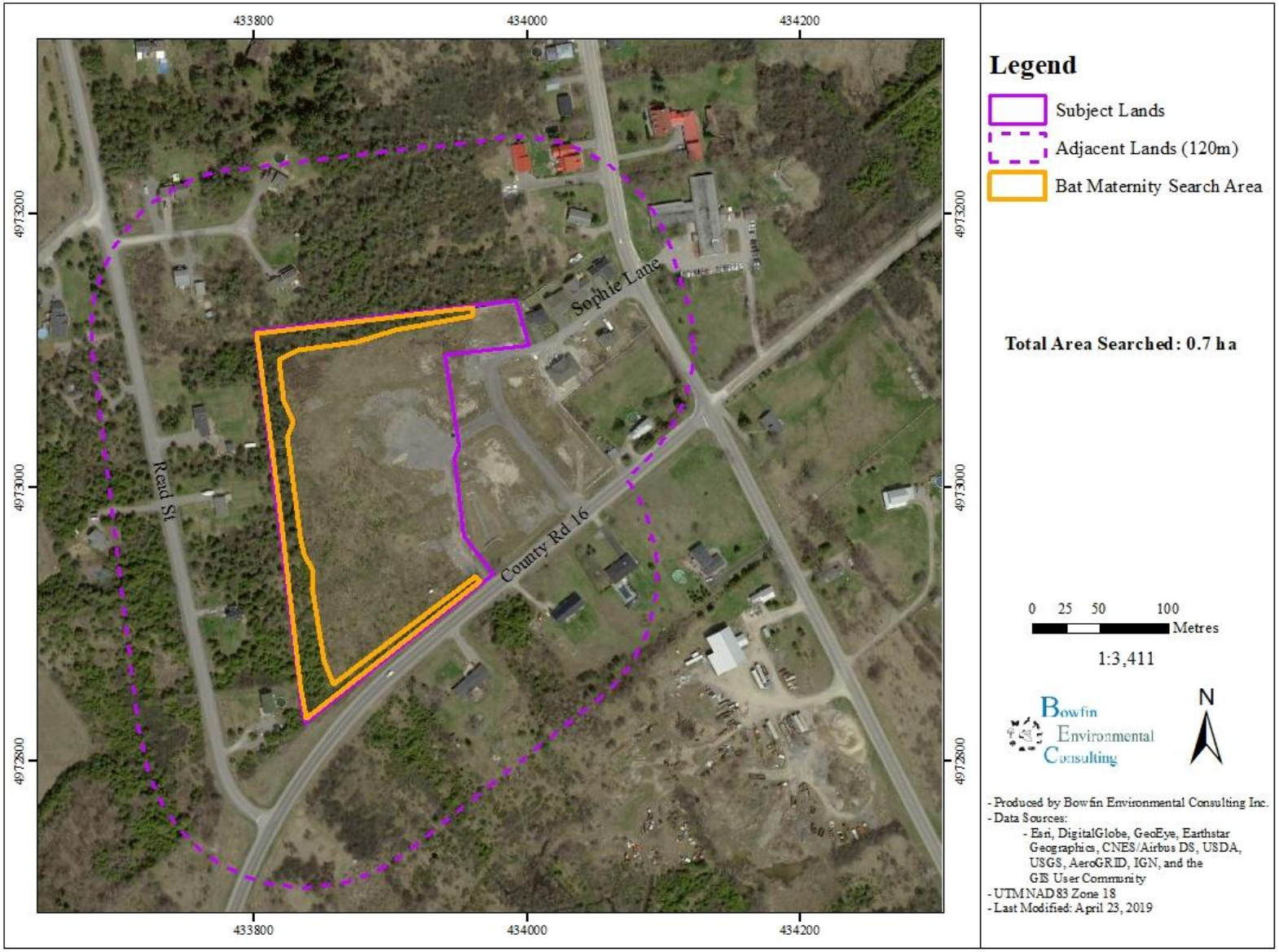


Bat Cavity Search

There are four bat species that are considered SAR in Ontario. The potential to impact these species depends on the presence/absence of critical habitat: hibernation or maternity sites. Significant hibernacula habitats are typically situated in caves. There were no caves present as such, no hibernacula surveys were completed.

The maternity sites for three bat species (little brown myotis, northern myotis and tri-colored bat) tends to be in trees. While little brown myotis and tri-colored bats may also use buildings (COSEWIC, 2013a), there are no buildings that will be impacted by this proposed expansion. The Significant *Wildlife Habitat Criteria Schedules Draft 6E* (SWHCS; OMNRF, 2015a) indicates that consideration for maternity sites should be made when the vegetation community consists of a mature deciduous or mixed forest with >10 large trees/ha [large trees are defined as having a diameter-at-breast-height (DBH) >25 cm]. MNRF's (OMNR, 2011a) bat maternity protocol states that a minimum of 10 plots of 0.05 ha must be created in areas of suitable forest habitat that are less than 10 ha in size. Most of the forested communities were situated in the adjacent lands and not in Phase 2. Because only a narrow band of vegetation was present, plots were not established. Instead, the treed areas on the south, west, and north sides were walked entirely to search for cavity trees (Figure 6). While the survey was completed during leaf-off period (May 9, 2019) to facilitate locating cavities, many of the trees were coniferous. Information collected consisted of tree species, DBH, presence/absence of cavity, description of cavity and snag class. The potential maternity sites for the eastern small-footed myotis consists of open areas with rocky habitat and much more rarely, old buildings (Humphrey, 2017). The subject lands contained no open rocky habitat or buildings. No appropriate habitat for this species was present. If the habitat is found to meet MNRF's criteria for candidate bat maternity sites, then exit surveys can be used to determine the use of the site. Exit survey must be completed during the month of June. This site did not meet the MNRF Criteria for candidate bat maternity sites, as such, no exit surveys were recommended.

Figure 6: Location of Bat Cavity Survey Area



Gray Ratsnake Surveys

Visual encounter surveys were conducted based on the *Survey Protocol for Ontario's Species at Risk Snakes* (OMNRF, 2016) to assess the presence of gray ratsnakes in the subject lands (Figure 2). Ten surveys were conducted following the protocol guidelines during the active season, with at least five surveys prior to July 1st, during appropriate weather conditions (Table 2) when temperatures were between 10-25 °C under sunny conditions and between 15-30 °C under overcast conditions. Each survey consisted of a minimum search effort of 1-2 hours per hectare. The habitat was searched walked slowly looking for basking or foraging snakes, by searching under suitable cover objects (e.g. logs, rocks), and by searching the tree canopy because this species is arboreal. The location of gray ratsnakes would be recorded with a hand-held GPS if any were found.

Incidental Fauna Observations

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

3.0 BACKGROUND INFORMATION

The subject lands are situated in a residential zone north of County Road 16 and west of County Road 15. They are bordered by treed estate residential lots to the west, forested habitat to the north, and residential to the east, and single residences and natural areas to the south of County Road 16.

3.1 Natural Heritage Features

Phase 2 is situated in the urban area of the Village of Merrickville-Wolford, as such the significant natural heritage features, for the site itself, are shown on the OP schedules B1 and B2. As this phase is situated near the edge of the urban area it is also within 120 m of the features identified on OP Schedules A1 and A2 and these schedules were used for the adjacent lands.

The B1 and B2 schedules do not depict any known natural heritage features identified within the subject lands or the adjacent lands found on these schedules.

Schedules A1 and A2 identify only one feature within the adjacent 120 m; a significant woodland. The schedule identifies the edge of this woodland as being 100 m to the west of the site, on the other side of Read Street (Figure 7).

All other features and habitats noted during the analysis of the background information were situated more than 800 m from Phase 2. These consisted of Areas of Natural and Scientific Interest (ANSI), wetlands, fish habitat, and significant wildlife habitat (SWH). Given the nature of the features, these will not be impacted by the proposed development. While the OP Schedules did not identify any known habitats of endangered or threatened species, additional species-specific studies are required to confirm their presence/absence. A summary of the known natural heritage features is provided in Table 1.

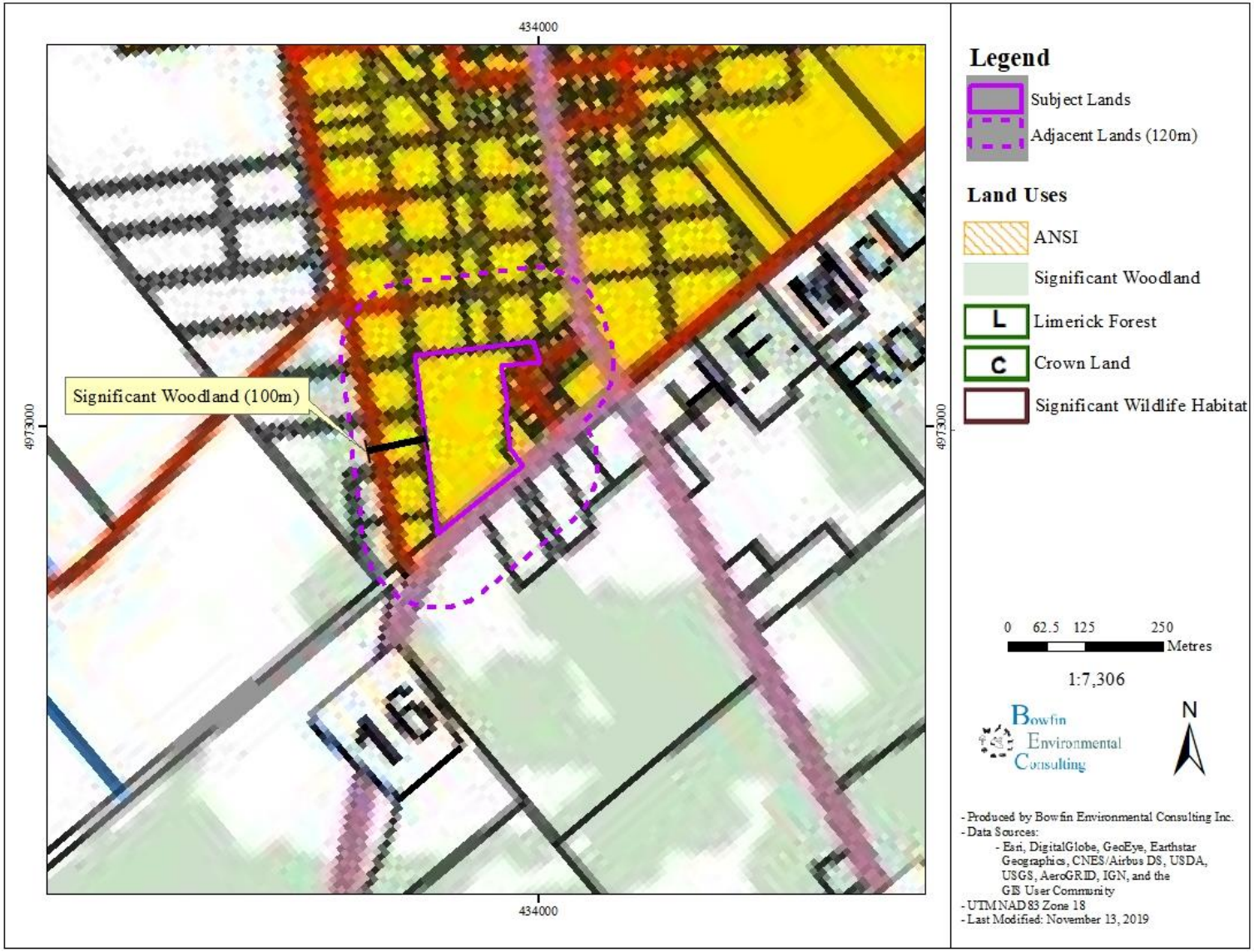
In addition, to this information, it is understood that during initial meetings with the Village, that the potential for a summer turkey vulture roost was noted in the forest area to the north of the site.

Table 1: Summary of Available Background Information on the Existing Natural Features

Natural Heritage Feature	Present within Subject Lands	Present within 120 m of Subject Lands	Present nearby (±5 km)
Provincially Significant Wetlands (PSW)	No (OP)		Merrickville Wetland (800 m, OP) Wolford Bog Complex (1 km, OP)
Areas of Natural and Scientific Interest (ANSIs)	No (OP)		Merrickville Marsh (800 m, OP); Merrickville Bog (3.5 km, OP)
Habitats or species designated by ESA (Provincial)	Species-specific surveys required to confirm presence/absence. Potential is discussed in Section 5.2		
Fish Habitat	No (OP)		Rideau River (970 m, OP); Unnamed tributary to Rideau River (1.2 km, OP); Tributary to Dale's Creek (970 m, OP)
Significant Woodlands	No (OP)	Yes (100 m to the west, on the opposite side of Read Street, OP)	Yes (150 m south, OP)
Significant Valleylands	No (OP)		
Significant Wildlife Habitat (SWH)	No (OP) Potential Turkey Vulture Summer Roost		Waterfowl staging area (1.2 km, OP); Deer Yard Stratum 1 (1.8 km and 4.2 km, OP)

Sources of background information: LIO mapping, OP (Village of Merrickville-Wolford), Google Satellite Imaging

Figure 7: Official Plan Schedule A2



4.0 SITE INVESTIGATION RESULTS

The following sections provides a summary of the site investigations carried out for this project. A list of the dates, times, conditions and purpose of each visit is provided in Table 2.

Table 2: Summary of Dates and Times of Site Investigations

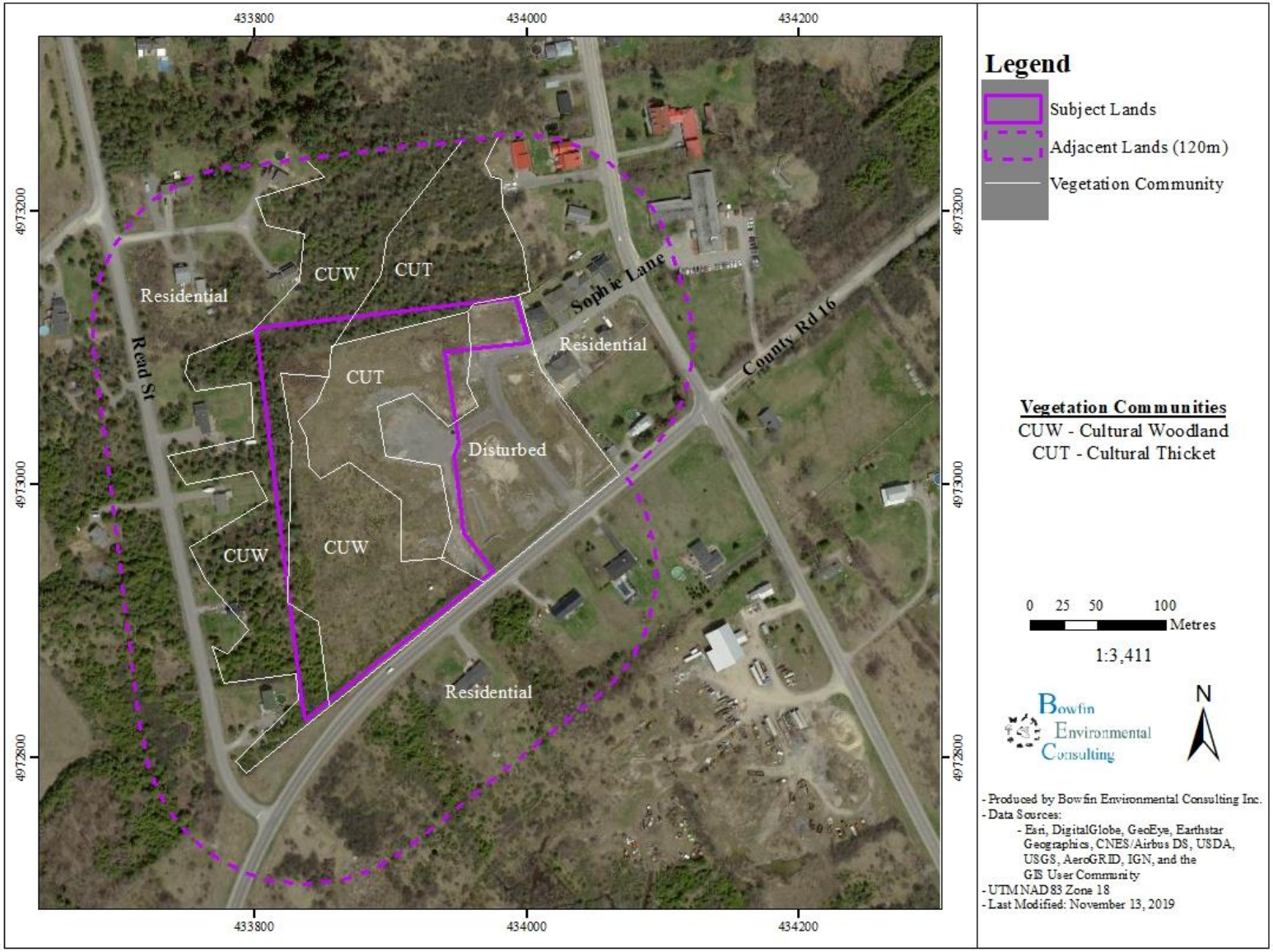
Date	Time (h)	Staff	Air Temperature (Min-Max) °C	Weather	Moon Visibility (%)	Purpose
May 9, 2019	1000-1045	C. Fontaine E. Theberge	7.0 (5.4-15.8)	Overcast, gentle breeze (3)	n/a	-Bat Maternity Survey
May 16, 2019	1545-1730	M. Brochu E. Theberge	13.0 (2.8-13.8)	10% cloud cover, light air (1) to light breeze (2) changing to 30% hazy, light air	n/a	-Snake Survey
May 17, 2019	1415-1600	E. Theberge A. Yates	15.0-16.0 (4.9-14.7)	Overcast changing to 30% cloud cover, light breeze (2) to gentle breeze (3)	n/a	-Snake Survey
May 22, 2019	1345-1530	M. Brochu E. Theberge	19.0-20.0 (2.9-19.9)	Clear skies with haze, light breeze (2) to gentle breeze (3), changing to overcast, light air (1)	n/a	-Snake Survey
May 23, 2019	0130-0245	M. Brochu E. Theberge	12.0-14.0 (10.0-20.8)	Overcast/hazy light air (1) changing to clear skies, calm (0)	68.7%	-Whip-poor-will Survey
May 29, 2019	1200-1330	M. Brochu E. Theberge A. Yates	15.0-17.0 (5.6-19.1)	Overcast, light air (1) changing to 30% cloud cover, light air (1) to light breeze (2)	n/a	-Snake Survey
June 3, 2019	0515-0600	M. Lavictoire	8.0 (6.6-16.1)	Clear skies, light breeze (2)	n/a	-Breeding Bird Survey
June 12, 2019	2100-2230	E. Theberge A. Yates	15.0-18.0 (7.0-23.4)	Clear skies, calm air (0)	79.9%	-Whip-poor-will Survey

Date	Time (h)	Staff	Air Temperature (Min-Max) °C	Weather	Moon Visibility (%)	Purpose
June 16, 2019	2315-0015	M. Brochu E. Theberge	11.0-13.0 (7.8-20.4)	Clear skies, calm air (0)	98.4%	-Whip-poor-will Survey
June 20, 2019	0515-0615	M. Lavictoire	18 (16.7-20.1)	70% cloud cover, light air (1) to light breeze (2)	n/a	-Breeding Bird Survey
June 21, 2019	0945-1130	C. Fontaine A. Yates	20.0 (14.8-23.7)	Clear skies changing to 10% cloud cover, light air (1)	n/a	-Snake Survey
June 24, 2019	1115-1315	M. Brochu E. Theberge	24.0-25.0 (10.8-27.2)	Clear skies with haze, light breeze (2)	n/a	-Snake Survey
July 3, 2019	0830-1030	C. Fontaine A. Yates	22.0 (16.2-30.6)	Clear skies, light air (1)	n/a	-Snake Survey -Butternut Inventory
August 15, 2019	0900-1100	E. Theberge A. Yates	15-21 (7.8-23.5)	Clear skies, light breeze (2), changing to gentle breeze (3)	n/a	-Snake Survey -Vegetation Descriptions
August 22, 2019	0815-1015	E. Theberge A. Yates M. Brochu	19-24 (16.5-24.6)	Clear skies changing to 50% cloud cover, gentle breeze (3)	n/a	-Snake Survey -Butternut Inventory
September 10, 2019	0900-1215	E. Theberge	10-17 (2.7-18.0)	Clear skies changing to 20% cloud cover, light breeze (2)	n/a	-Snake Survey
October 4, 2019	1030-1115	M. Lavictoire	(-0.7-11.0)	Overcast, light air (1)	n/a	-Vegetation Descriptions

M. Lavictoire – Michelle (Nunas) Lavictoire – B. Sc. Wildlife Resources and M.Sc. Natural Resources
C. Fontaine - Cody Fontaine - Fisheries and Wildlife Technologist
M. Brochu – Melissa Brochu – M. Sc. Environmental and Life Sciences and Fisheries and Wildlife Technician
E. Theberge – Elysabeth Theberge —M.Sc. Biology
A. Yates – Abby Yates – B.Sc. Env. Ecology

*Min-Max Temp Taken From: Environment Canada. National Climate Data and Information Archive Kemptville CS. Moon Visibility Taken From: Time and Date. Moonrise, Moonset, and Phase Calendar. Merrickville, Ontario. Available http://climate.weatheroffice.gc.ca/ [October 28, 2019]. The description on the wind speed is described using the Beaufort Scale descriptive term with the force in parenthesis

Figure 8: Vegetation Communities



4.1 Vegetation Descriptions

A review of the available satellite imaging shows that the site was previously cleared and is now recolonizing. Following the site visit, it was determined that apart from the disturbed area on the east side, the site was best described as a cultural thicket switching to cultural woodland. These two communities also carried through to the west and north.

Photographs of the communities are included after the descriptions. The community boundaries are based on satellite image interpretation (Figure 8). The vegetation descriptions begin with the community (>0.5 ha) followed by any inclusions (<0.5 ha) found in that polygon. The plant species are listed in order of dominance.

Cultural Thicket

While there was some cultural meadow habitat, most of this has now transitioned to one that is better described as a thicket due to the presence of >25% of woody vegetation. Patches (<0.5 ha in size) of cultural meadow remain, and these were vegetated with the same species as found in the description for the ground cover of the thicket. Within this area, there remained several spoil piles.

There was no canopy cover in the cultural thicket. The sub-canopy provided 25% cover and was 2-5 m tall. The dominant species in this layer were Tartarian honeysuckle, common buckthorn and Manitoba maple. Other species included balsam poplar, common lilac, white ash, black locust and eastern cottonwood. The understory layer (25% cover; 1-2 m tall) included common blackberry, wild red raspberry, followed by prickly ash, Manitoba maple and eastern cottonwood. The ground layer provided the most coverage at 80%. Dominant species in the ground layer were early goldenrod, viper’s bugloss, and wild carrot. Other species in this layer were: bull thistle, common tansy, chicory, common ragweed, white-sweet clover, bladder campion, cow vetch, common mullein, common gromwell, black-eyed Susan, smooth bedstraw, smooth brome, timothy, common yarrow, bird’s foot trefoil, butter-and-eggs, ox-eye daisy, rough-fruited cinquefoil, silvery cinquefoil, wild asparagus, common St-John’s wort, common wintercress, tall buttercup, and meadow goat’s-beard.

Photo 1: Cultural meadow (August 15, 2019)

Cultural Woodland

The remainder of the site was classed as a cultural woodland based on the dominance of Scot's pine and eastern white cedar. While young, these provided more than 50% cover and as such, this area has now transitioned to a cultural woodland. There was no canopy layer. The sub-canopy (50% cover; 2-3 m tall) was dominated by Scot's pine followed by common buckthorn, eastern white cedar and choke cherry. Other species included common lilac, honeysuckle species, and Manitoba maple. The understory (25% cover;1 m tall) consisted primarily of common juniper, eastern white cedar, choke cherry, and common buckthorn. Other species found in the understory layer were common blackberry, wild red raspberry, hawthorn species., prickly ash, spreading dogbane, white ash, common lilac, and honeysuckle species. The ground layer (40% cover) included: wild carrot, early goldenrod, viper's bugloss, timothy, black-eyed Susan, rough-fruited cinquefoil, field pussytoes, common milkweed, smooth brome, and bladder campion.

Photo 2: Cultural Woodland (on-site) (October 4, 2019)

Further to the west and north, the woodland contained larger trees with a maximum diameter-at-breast height (DBH) of 25 cm. It remained primarily a coniferous forest, with scattered patches of Manitoba maple and trembling aspen. The canopy layer (35% cover; 8-12 m tall) included Scot's pine followed by eastern white cedar and then trembling aspen, black cherry, black locust, white ash, Manitoba maple and black locust. The sub-canopy (70% cover; 5-7 m tall) consisted of common buckthorn, Tartarian honeysuckle, and staghorn sumac. The understory layer (10%, 1-2 m tall) consisted of common lilac, prickly ash, common buckthorn, and common juniper. The ground layer consisted of about 5% cover and was made up primarily of Virginia creeper, poison-ivy, common strawberry and garlic mustard.

Photo 3: Cultural Woodland (adjacent lands) (October 4, 2019)

4.2 Wildlife Observations and Habitats

Wildlife observations for the subject lands includes 33 species, most of which were birds. All species that were observed are common species (S4 to S5 ranking signifying that they are apparently secure to secure in Ontario). Additional details on the species-specific surveys are provided below.

4.2.1 Bird Survey Results

Raptor Nests

No raptors or their nests were observed.

Daytime Breeding Bird Survey Results

The daytime breeding bird surveys were completed on June 3 and 20, 2019, early in the morning on days with appropriate weather conditions (Table 2). One station (Station 1) was established within the subject lands (Figure 4).

Most observations consisted of calling males along with some perched and/or foraging individuals. Probable nests were indicated by a female/male pair, birds giving alarm calls, or pairs of singing males seen/heard in the same general location in suitable habitat on multiple

occasions during the breeding bird surveys. Those species with probable nests in the subject lands included song sparrow, eastern towhee, gray catbird, and killdeer.

Other species that were observed using the habitat in the subject lands during the breeding bird visits were: turkey vulture (flying), mourning dove, northern flicker, alder flycatcher, eastern phoebe, red-eyed vireo, blue jay, American crow, black-capped chickadee, American robin, , European starling (flock), yellow warbler, American redstart (foraging female), common yellowthroat, chipping sparrow, northern cardinal, and American goldfinch.

All the birds observed within the study areas are common species in Ontario and none are area-sensitive species according to the SWHCS (OMNRF, 2015a). No SAR birds (bobolink, eastern meadowlarks, chimney swift, barn and/or bank swallows) were detected within the subject lands during any of the visits.

Turkey Vulture Summer Roots

One turkey vulture was observed on June 3, during the breeding bird surveys, seven were observed on August 15, seventeen were observed on August 22, approximately thirty were observed on September 10, and three on October 4. The turkey vultures were observed flying above the subject lands, and the cultural woodlands west and north of the subject lands. No perched vultures were observed, and no roosting trees could be located during the field work.

Nighttime Breeding Bird Survey Results

The 2019 survey dates were: May 23, June 12, and June 16, 2019. Five survey stations were established (1-5) on the May 23, 2019 visit and were placed in such a way as to determine if eastern whip-poor-wills were present in or within 500 m of the subject lands (Figure 5). The weather conditions on these dates were appropriate for eastern whip-poor-will surveys. The surveys were completed over two moon phases. No eastern whip-poor-wills were ever observed or heard calling within the subject lands. Several individuals were heard on multiple occasions from the survey points. A summary of the site visits and ambient conditions during the visits is provided in Table 2. An analysis of these results is provided in the SAR section further below.

During the May 23, 2019 visit, eastern whip-poor-wills were heard calling from all points. There were three instances where only 1 individual was heard at a given moment. On two occasions 2 to 3 were heard calling from the same point at the same time indicating that a minimum of 3 individuals were present during this first visit (Figure 9).

During the June 12, 2019 visit, eastern whip-poor-wills were heard from all but points 1 and 2. The numbers decreased from the first visit. Two individuals were heard and on one occasion 2

were heard calling at the same time. As such, it was estimated that 2-4 individuals were present during this visit (Figure 10).

During the June 16, 2019 visit, the eastern whip-poor-wills were only heard from points 4 and 5 (to the south of County Road 16). On this occasion, 1 individual was heard from one point and 2 were heard calling simultaneously suggesting that 2-3 individuals were present (Figure 11).

Figure 9: Summary of EWPW Calling Locations on May 23, 2019

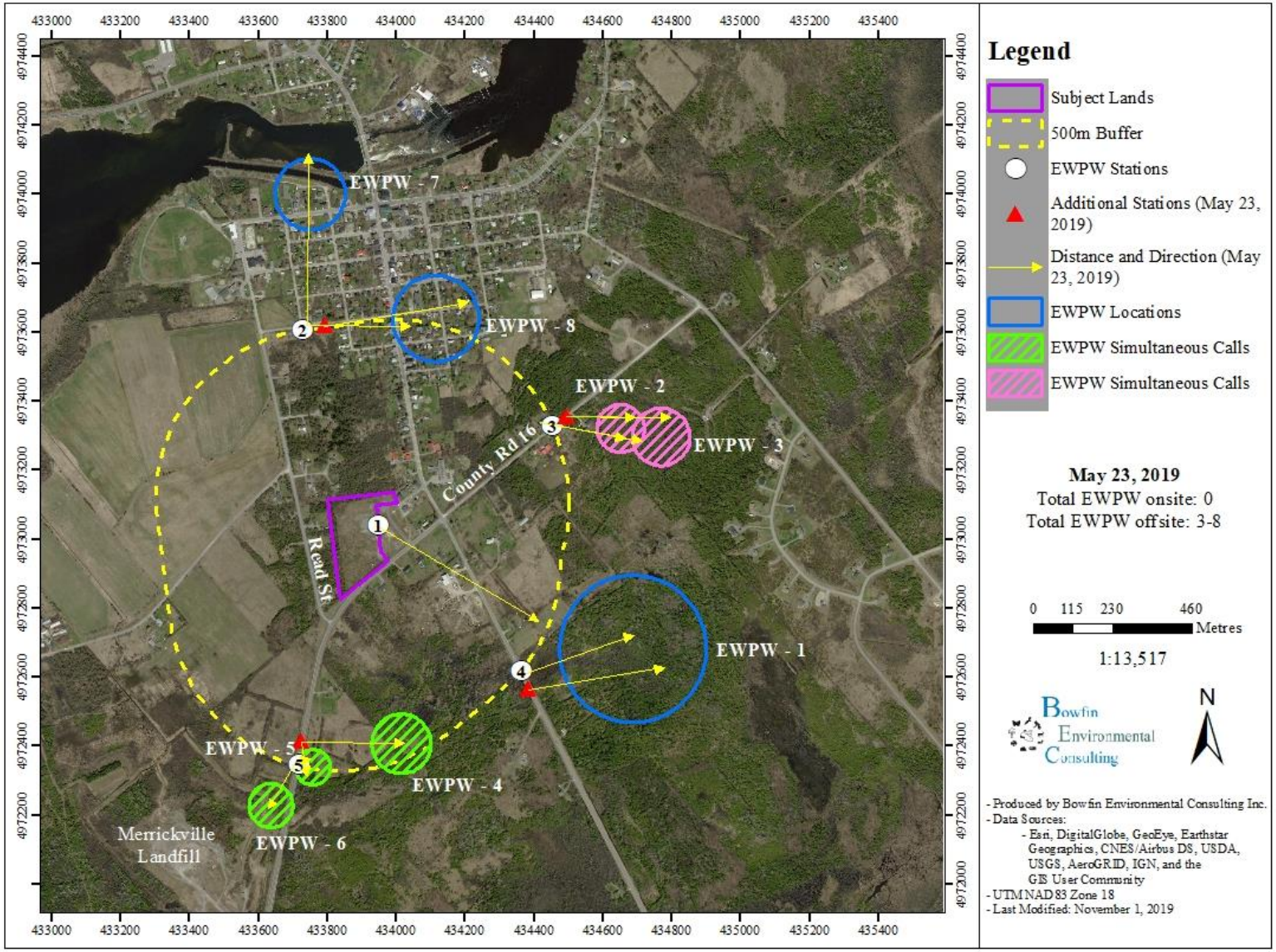


Figure 10: Summary of EWPW Calling Locations on June 12, 2019

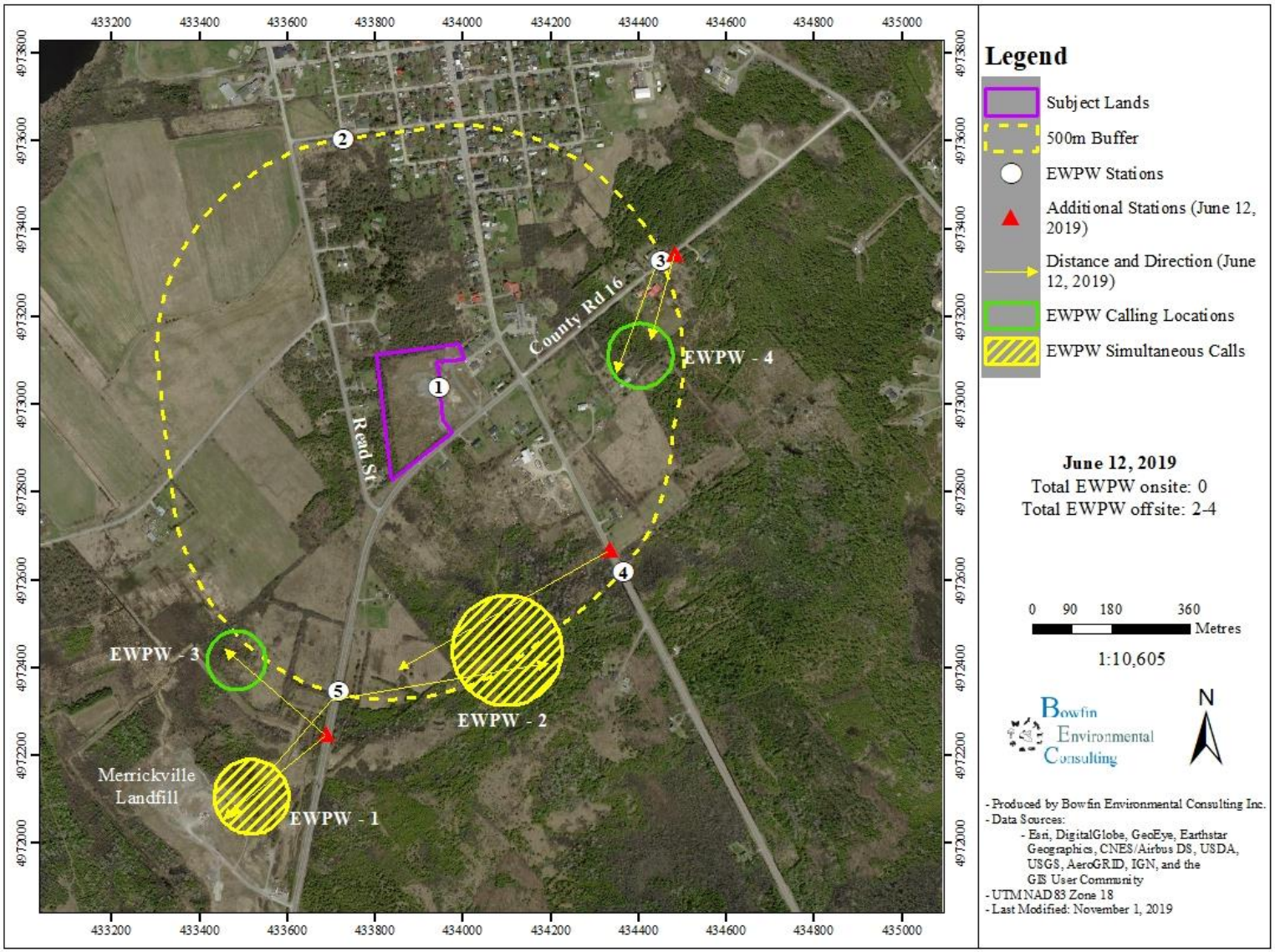
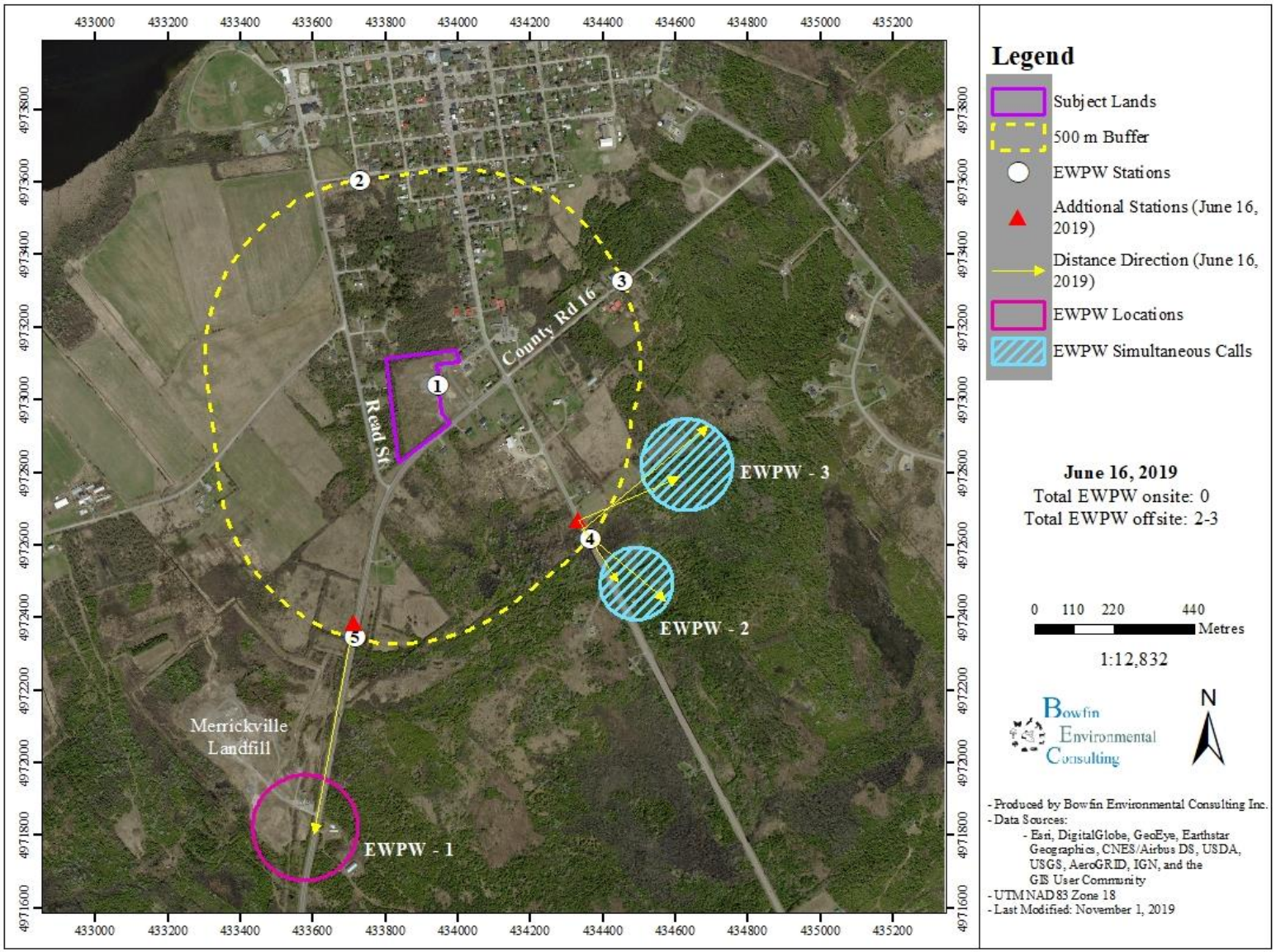


Figure 11: Summary of EWPW Calling Locations on June 16, 2019



4.2.3 Bat Survey Results

A search of appropriately sized trees with cavities was made during the leaf-off period on May 9, 2019. The forested edges of the subject lands were walked to search for cavity trees. A single, dead, unknown, cavity tree was found along the southeast edge of the subject lands. When this number is extrapolated per hectare it equates to 0.3 cavity trees with a DBH ≥25 cm/ha. As such the habitat did not meet the minimum requirements for bat maternity sites and no further studies are required.

4.2.4 Gray Ratsnake Survey Results

A total of 10 surveys were conducted within the subject lands during appropriate weather conditions (Table 2). No gray ratsnakes or evidence of gray ratsnakes were detected during any of the snake surveys or during any other site visit.

4.2.6 Incidental Wildlife Observations

Three birds (ruby-throated hummingbird, tree swallow, and brown thrasher) were observed outside of the breeding bird survey period, six mammals (eastern cottontail, red squirrel, American porcupine, coyote, red fox, and white-tailed deer), and two snakes (eastern gartersnake and smooth green snake) were noted as incidental wildlife based on the observation of these individuals and/or their tracks. All the additional species noted are common species

4.3 Plant Observations

4.3.1 General

A total of 72 plants were identified, of those, 48 % were native. Sites with more than 70% native species are generally considered to be less disturbed.

All were ranked at a value higher than S4. SRank is a method of classifying a species rarity within a jurisdiction. In Ontario those with an SRank of S4 are common to widespread.

The Co-efficient of Conservatism (CC) of the species recorded provides information on the species' tolerance to disturbance; those species with a high CC (maximum of 10) are highly sensitive. The average CC for this site was 2.4 which would categorize it as having relatively high tolerance to disturbance. All species had a CC value of 7 or lower.

All species found are common. No remnants of rare vegetation communities were encountered.

4.3.2 SAR Plants

The butternut health assessment was completed as per the BHA standards and took place during the appropriate timing window and on days with suitable weather conditions. Two different BHA assessor completed the inventory, one on July 3, 2019 and the other on August 22, 2019. It is noted on Figure 3, that portions of the adjacent lands could not be searched as they were on private lands and one small section was too thick to thoroughly search for saplings. With respect to the private lands, the nearby roads (Read Street, and County Road 16) were walked and no butternuts could be seen from the roads. For the dense thicket habitat, there were no mature butternuts and since butternuts do not like to be shaded, this is not suitable habitat for saplings. Further the lack of butternuts of any age in the remainder of the site (including disturbed areas with no shading where one expects saplings to grow), supports that it is unlikely that there are any butternuts in the thick habitat. No butternut trees were found.

5.0 EVALUATION AND ASSESSMENT OF POTENTIAL TO IMPACT NATURAL HERITAGE FEATURES

As mentioned in Section 3.0, there were no natural features identified in the site. The only features identified as significant on the OP schedules was the woodland 100 m west of the subject lands. During the pre-consultation, the potential for turkey vulture summer roosting habitat was noted. Species-specific surveys were conducted, where appropriate, and their results found that while turkey vultures were frequently seen flying near the site, particularly during the summer months, none were perched on-site and the roost could not be located indicating that it was likely further to the north/northwest. The only SAR documented was the eastern whip-poor-will. Below is a summary of the impact assessment methods. This is followed by a discussion on the potential to impact significant woodlands and all SAR, list of mitigation measures and a conclusion. Note that the mitigation measures must be read in its entirety, as some apply to more than one type of natural habitat.

5.1 Impact Assessment Methods

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

- Clearing of terrestrial vegetation
- Excavation, grading and backfilling
- Construction of buildings

The site will be fully serviced (water and sewer). For the purposes of this EIS, it is assumed that all vegetation within the area identified as the subject lands on Figure 2 will be removed and the land graded.

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 year)
    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.

5.2 Evaluation of Potential Impacts and Mitigation

5.2.1 Significant Woodlands and Other Woodlands

The OP indicated that significant woodlands are designated as such on the OP schedules. It also noted that there were no significant woodlands within the site or the urban area (Schedule B2, Appendix A), but that significant woodlands were present 100 m to the west, on the opposite side of Read Street (Schedule A2, Figure 7).

Potential Impacts, Best Management Practices and Mitigation Measures:
Given that the wooded area situated within the subject lands were not listed as significant woodlands, there is no potential to directly impact the woodland that is identified as significant.

Because the nearest significant woodland is separated by the estate lots and paved road and the subject lands are 100 m from the area deemed as significant, that area will also not be indirectly impacted by this development.

- The habitat on-site can provide habitat for species that are not SAR but are protected under other Acts and Regulations. Most birds in Ontario are also protected by the *Migratory Bird Convention Act* and/or the *Fish and Wildlife Conservation Act* (FWCA) – as such, no clearing of vegetation between April 1st and August 15th unless the area to be cleared has been walked by a biologist within 5 days prior to the planned clearing and no active nests are present. Note that clearing of trees that are more than 10 cm in dbh should also avoid the bat roosting season (see mitigation measures under SAR).
- There is the potential for ground nesters to occur within the subject lands once grading activities occur should bare soil be left (i.e. killdeer). Perform regular walks of the cleared areas looking for ground nesters. If any are present, the contact a biologist for guidance.
- Avoid clearing of vegetation during the sensitive times of the year for local wildlife (i.e. spring to early summer) when animals are bearing and nursing their young.
- When possible, work during the daytime hours to prevent light disturbances.
- Ensure that all equipment have the appropriate mufflers to reduce noise disturbances.
- 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.
- No signs, notices or posters should be attached to any trees.
- Trim branches that overhand the work area and that may be damaged accidentally from machinery. Timing of the removal of vegetation or trimming of branches should occur outside of the breeding bird window (and the active bat season – see SAR mitigation measures).

Area	Nature	Duration	Magnitude
	There is no potential to impact the identified significant woodland.		

5.2 Endangered and Threatened Species Assessment

Endangered and Threatened Species at Risk (SAR) are protected under provincial *Endangered Species Act*. The NHIC database provides information available to the public on those SAR documented as occurring within the general area. It should be noted that not all information for all species is available to the public. Furthermore, the absence of a recording does not necessarily indicate that the species is absent from the area. The purpose of the NHIC database is to serve as a guide to help determine the potential species which may occur within the project

area. The background review also included looking at the list of birds observed as part of the Atlas of Breeding Birds of Ontario (18VQ27, 18VQ36, 18VQ37) and any SAR species listed on these lists were considered as potentially occurring within the study areas. Added to this list were species that based on personal experience, often occur within the general area.

The final list included fifteen species: two reptiles (Blanding's turtle and gray ratsnake), eight birds (least bittern, eastern whip-poor-will, chimney swift, loggerhead shrike, bank swallow, barn swallow, bobolink, and eastern meadowlark), 4 mammals (all bats – little brown myotis, northern myotis, eastern small-footed myotis and tri-colored bat), and 1 plant (butternut) (Table 3).

Potential Impacts and Mitigation Measures:
The potential to impact directly or indirectly SAR is discussed below for each of the fifteen species and followed by a list of mitigation measures and/or best management practices for each group (reptile, birds, mammals and plants). Below are the mitigation measures for SAR in general.

General:

- Endangered and Threatened species are protected and cannot be harmed, harassed or killed and in some cases their habitats are also protected. These individuals will only be handled by qualified person and only if the individual is in imminent threat of harm. An authorization under the ESA 2007 would be required to handle individuals that are not in imminent threat of harm.
- If a SAR enters the work area during the construction period, any work that may harm the individual is to stop immediately and the supervisor will be contacted. No work will continue until the individual has left the area.
- Should an individual be harmed or killed then work will stop and the Ministry of Environment, Conservation and Parks (MECP) will be contacted immediately.
- Mitigation measures listed elsewhere in this report are also applicable to this section.

Reptiles

Blanding's Turtle (*Emydoidea blandingii*)

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, 2016). 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

According to NHIC make-a-map: natural heritage areas (OMNRF, 2019), Blanding's turtle sightings were recorded within 1 km to the southeast of the subject lands. There was no suitable habitat for this species on-site; no Category 1 or 2 habitat. There is also no category 3 habitat as the closest wetland (unevaluated as per OWES) to the subject lands is 280 m southeast. There is no suitable habitat for this species in and within 250 m from the subject lands. This species is considered absent.

Gray Ratsnake (*Pantherophis spiloides*)

The COSEWIC report (2007) and the recovery strategy (Environment and Climate Change Canada; ECCC, 2017) for this species' population shows the extent of its range to be within Highway 7, Highway 29, the St. Lawrence River, and Highway 38. The COSEWIC report and the recovery strategy (ECCC, 2017) both identify Merrickville as having low habitat suitability. They suggest that the home range is approximately 18.5 ha and consists of open and forest habitats. The level of protection varies with the distance from the occurrence or a hibernaculum. The *Gray Ratnsnake (Frontenac Axis) Habitat Protection Summary* (MECP, 2019a) indicates that the protected habitat for this species includes three categories:

Category 1	Hibernaculum and areas within 150 m, and egg laying, communal shedding, or basking sites and area within 30 m
Category 2	Area used for foraging, thermoregulation or hibernation conditions and the area within 1 km
Category 3	Area suitable for movement between habitats necessary to carryout life processes (e.g. hibernaculum and foraging sites) and the areas within 1 km

Surveys for this species were completed as per the *Survey Protocol for Ontario's Species at Risk Snakes* (OMNRF, 2016). No gray ratsnakes or evidence of this species were observed within the subject lands during any of the surveys. This species has a low probability of occurring within

the study area. Further, because this is a high traffic area if the species is present then it would likely be recorded by the public. There are no recent sightings of this species on iNaturalist. This species is considered absent from the subject lands.

Potential Impacts and Mitigation Measures:
Neither reptile species is present. However, education of the workers on what to do in the unlikely event that one is found on the site is provided below.

- Educate construction workers that Blanding's Turtle and Gray Ratsnake are listed as potential species in this county and that these are species that are protected from harm and injury under the provincial *Endangered Species Act*.
- Species protected by the ESA cannot be handled and MECP needs to be notified if they are encountered.
- Note that other species of reptiles are protected under the *Fish and Wildlife Conservation Act*. As such the measures below apply to both.
    - If any turtle or snake is observed, then all work that may harm the individual must stop and allow the individual to leave the area.
    - If any turtle or snake is observed on-site, the worker should notify their supervisor.
    - Try to take a photograph but do not chase the turtle in order to do so.

Area	Nature	Duration	Magnitude
Local	Negative Direct	Short	Unlikely to occur (very low potential for species to be present)

Birds

Least Bittern (*Ixobrychus exilis*)

The least bittern is a secretive species that requires marsh habitats with dense vegetation (Sandilands, 2005; COSEWIC, 2009a). This species tends to prefer to nest within cattail marshes usually along the edge or near openings (Woodliffe, 2007). However, they have also been found to nest in bulrushes, grasses, horsetails and willow (Woodliffe, 2007). The COSEWIC report for this species indicates that they must have emergent marsh communities with open water areas and stable water levels (COSEWIC, 2009a).

There is no suitable habitat in or within 120 m of the subject lands for this species. This species is considered absent.

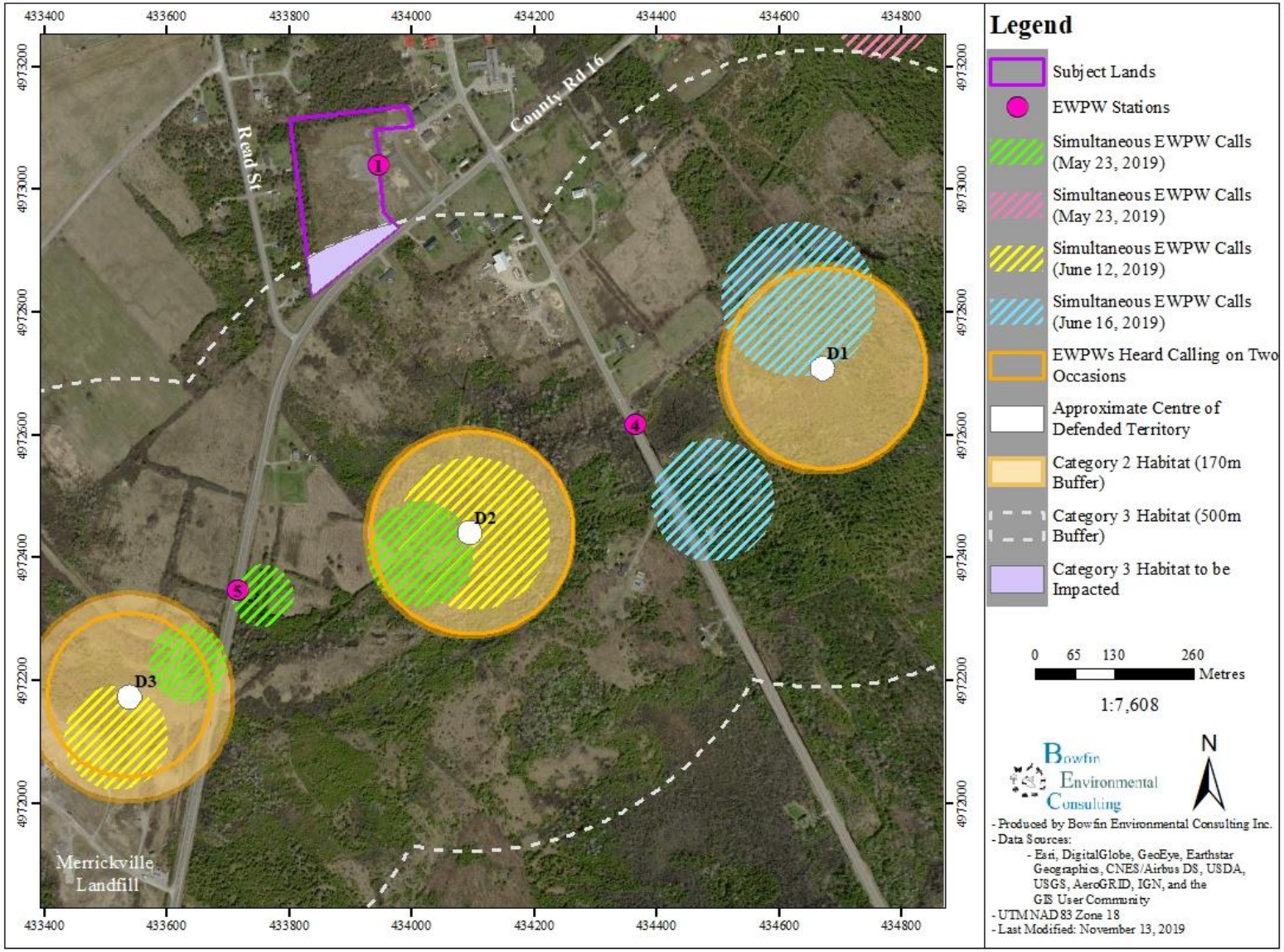
Eastern Whip-poor-Will (*Antrostomus vociferus*)

The eastern whip-poor-will is a well camouflaged species that can be found in a multitude of forest types. Its requirements consist of areas that are semi-open forests or sites with a closed forest intermixed with other open habitats. It also needs some areas with little ground cover (COSEWIC, 2009b). Its minimum habitat size requirement is 9 ha. The G*eneral Habitat Description for Eastern Whip-poor-will* (OMNRF, 2018a) indicates that the protected habitat for this species includes three categories:

Category 1	known nests and 20 m of the nest
Category 2	the area between 20 m and 170m from the nest or the approximate centre of the defended territory
Category 3	the area of suitable habitat between 170 m and 500 m of the nest or approximate centre of the defended territory

This species is recorded as a probable occurrence in this area according to the ABBO. As noted above, field investigations using the MNRF protocol for this species identified their occurrence in the adjacent lands (within 500 m) but not within the site itself. The results were analysed as per the MNRF protocol. Using this method, all single observations were removed, and probable nesting was based on the occurrence of an individual in the same general location on more than one visit. Since no nests were confirmed, there is no Category 1 habitat. The data was reviewed and the location of the centre of the defended territory was estimated. The location of the Category 2 and 3 habitats were based on this estimation. The final analysis showed there were three probable nesting sites, of which only one was estimated to be within 500 m of the subject lands (Figure 12). This approximate centre of defended territory was mapped as being 460 m to the south, on the south side of County Road 16. Roughly 0.6 ha of the Category 3 habitat overlaps with the site along County Road 16 (length of 175 m) and into the subject lands by 10-60 m. A portion of this 0.6 ha is found within the road allowance for County Road 16 which is 26 m corridor (including roadway), and this will not be impacted by this project. The remaining area (<0.6 ha) may be impacted during the clearing of vegetation and lot development.

Figure 12: Summary of Overall Category 1 and 2 EWPW Habitat



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, 2007a). ABBO suggests this species' occurrence in the area as probable. No large cavity trees were present within the subject lands. Category 1 chimney swift habitat is the nesting structure (tree or chimney) and 90 m surrounding the structure (COSEWIC, 2007a). Some of the houses present within 90 m of the subject lands had chimneys, however, no chimney swifts were observed during any of the breeding bird visits or any other site visits. This species is considered absent.

Loggerhead Shrike (*Lanius ludovicianus*)

Loggerhead shrike is a small songbird that prefers pasturelands and shrubland with dense trees and shrubs and elevated perches. This species requires approximately 2.7 to 47 ha of suitable habitat depending on the density of shrubs, dense trees, and elevated perches within the habitat (COSEWIC, 2014; Environment Canada, 2015). Our experience working with MNRF Kemptville was that loggerhead shrike surveys were only required when large tracks of hawthorn dominated thickets were present. The level of protection varies with the distance from the nesting tree. The *Loggerhead Shrike* G*eneral Habitat Description* (MECP, 2019b) indicates that the protected habitat for this species includes three categories:

Category 1	known nests and nesting tree and are within 200 m of nesting tree
Category 2	the area between 200 m and 400 m from the nesting tree
Category 3	not applicable

This species is recoded as a possible occurrence according to the ABBO. This site contained primarily cultural thicket and young cultural woodlands. While some hawthorns and prickly ash were present, they were not in any large concentrations. No loggerhead shrikes or signs of their presence were observed during the breeding bird surveys or other visits. This species is considered absent.

Bank Swallow (*Riparia riparia*)

Bank swallows are known to nest in vertical banks including those along riverbanks, and sand pits. The level of protection varies with the distance from the breeding colony. The G*eneral Habitat Description for Bank Swallow* (OMNRF, 2015b) indicates that the protected habitat for this species includes three categories:

Category 1	the bank swallow breeding colony, including the congregation of burrow sand the substrate between and around them

Category 2	the area within 50 m in front of the breeding colony bank face to allow bank swallow to enter and exit burrows
Category 3	the area of suitable foraging habitat within 500 m of the outer edge of the breeding colony

There were no vertical sandy banks present on-site. Further, no bank swallows were observed during any of the breeding bird visits or any other visit. This species is considered absent.

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 and no barn swallow were observed in the area during the breeding bird visits or during any other day-time visits at the site. This species is considered absent.

Bobolink (*Dolichonyx oryzivorus*)

This species is grassland-breeding-bird requiring a minimum of 4 ha of uncut meadow or field (McCracken, 2013). The *Bobolink* G*eneral Habitat Description* (OMNRF, 2018c) indicates that the protected habitat for this species includes three categories:

Category 1	known nests and 10 m of the nest
Category 2	the area between 10 m and 60 m from the nest or the approximate centre of the defended territory
Category 3	the area of continuous suitable habitat between 60 m and 300 m of the nest or approximate centre of the defended territory

There was no grassland habitat on-site or continuous suitable grassland habitat within 300 m of the subject lands. Further, no bobolinks were observed during any of the breeding bird survey visit or any other day-time visits to the site. This species is considered absent.

Eastern Meadowlark (*Sturnella magna*)

Like the bobolink, this species is grassland-breeding-bird requiring a minimum of 4 ha of uncut meadow or field (McCracken, 2013). The *general Habitat Description for the Eastern*

Meadowlark (OMNRF, 2018d) indicates that the protected habitat for this species includes three categories:

Category 1	known nests and 10 m of the nest
Category 2	the area between 10 m and 100 m from the nest or the approximate centre of the defended territory
Category 3	the area of continuous suitable habitat between 100 m and 300 m of the nest or approximate centre of the defended territory

There was no suitable grassland habitat on-site or continuous suitable grassland habitat within 300 m of the subject lands. Further, no eastern meadowlarks were observed during any of the breeding bird survey visit or any other day-time visits to the site. This species is considered absent.

<u>Birds</u>

- No impacts to federal SAR bird nests, or their eggs is permitted under the federal *Species at Risk Act*. If a federally listed bird species at risk nest is encountered, then work must stop, and the Environment Canada must be notified immediately for guidance.
- No impacts to provincial SAR bird nests or their eggs is permitted under the provincial *Endangered Species Act*. If a provincially listed bird species at risk is encountered, then work must stop and the Ministry of Environment, Conservation and Parks (MECP) contacted.
- Educate staff and contractors on the potential for SAR to be in the area and their significance.
- MECP will be contacted to indicate the presence of Category 3 Eastern Whip-poor-will habitat. Additional avoidance, mitigation measures or permitting may be required.
- Educate workers to inform them that Eastern Whip-poor-will are protected and could be foraging in the area. That this typically occurs at night. Nighttime activities should be avoided during the Eastern Whip-poor-will breeding period (May 1 to July 31).
- Should a nest be discovered, stop all work that may disturb the birds (i.e. that cause the adults to fly off the nest) and contact a biologist or MECP or Environment Canada, as appropriate for the species.
- Also note that most birds in Ontario are also protected by the *Migratory Bird Convention Act* and/or the *Fish and Wildlife Conservation Act* (FWCA) – as such, no clearing of vegetation between April 1st and August 15th unless the area to be cleared has been walked by a biologist within 5 days prior to the planned clearing and no active nests are present. (Also note dates listed under bats).

Area	Nature	Duration	Magnitude

Local	Negative Direct	Short Term	MECP will be contacted with respect to Eastern Whip-poor-will. All other impacts are negligible

Bats

The potential SAR bats within the general area are little brown myotis, northern myotis, eastern small-footed myotis and tri-colored. 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 bats species prefer to hibernate in caves or mines. They can hibernate in buildings but that is rare for these species (COSEWIC, 2013a). No caves or mines were present.

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 open rocky habitat present and no buildings within the subject lands. 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 southeastern Ontario. Based on this information, this species is considered to have a very low potential of occurring.

The northern myotis tends to prefer larger expanses of older forests (late successional or primary forests) and choose 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, 2015a). There was no woodland interior within the subject lands. As such, the preferred habitat was not present, and this species is considered unlikely to have maternity sites here.

The little brown myotis is one of the few bat species that can use anthropogenic structures as maternity sites. Potential suitable structures can include buildings, bridges, barns, and bat boxes. The little brown myotis can also use tall, large cavity trees that are in the early to mid-stages of decay as maternity roosts, as well as loose/raised tree bark, and/or crevices in cliffs (ECCC, 2018). This bat species occurs in higher densities in mature deciduous and/or mixed forests due to increased opportunities for large snags. However, unlike the northern myotis, the little brown myotis does not exclusively require mature forest stands in order to find appropriate maternity

roosts (COSEWIC, 2013a). There were several houses near the subject lands, however, these will not be impacted by the potential project. While this commonly observed species has the potential to utilize the edge of this site, the site did not meet the SWHCS (OMNRF, 2015a) of >10 snags (with a minimum DBH of 25 cm) / ha. This species' maternity sites are considered absent.

There remains potential for bats to use the cavity tree in the adjacent lands for day-roosting. Day-roosts are not considered critical habitat and impacts to the bats can be minimized by removing the trees outside of the day-use period.

Bats:

- Educate contractors by informing them that most bats in Ontario are protected.
- When possible, remove trees after September 30th or before May 1st. If this is not possible, conduct exit survey or shake the trees prior to cutting them down. If a bat is observed leaving the tree, then stop clearing vegetation and wait until after September 30th for any additional tree clearing (there are enough trees nearby for bats to quickly find alternative day-roost).

Area	**Nature**	**Duration**	**Magnitude**
Local	Negative Direct	Permanent Term (removal of tree)	Low potential (since no cavities were present on the site and most trees were small and less suitable to bat use)

Plants

Butternuts

Butternuts are assessed based on the amount of canker (the disease which is killing the species) and its size and health, as per the MNRF BHA protocol (OMNR, 2011b). 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.

A butternut inventory was completed on July 3 and August 22, 2019. No butternuts were found in or within 50 m of the subject lands.

While not butternuts were documented, workers should be made aware that they are a protected species.

- If a butternut is identified, establish a 50 m buffer around the individual and contact a BHA to assess the tree. Protect the buffer for each butternut with fencing (i.e. snow fencing). And workers should be informed that this individual and its buffer is protected.
- The current BHA inventory is valid for a period of two years, until August 22, 2021. Should the land not be cleared prior to this date, then a new BHA would be required.

Table 3: Summary of Potential SAR

Common Name	Scientific Name	Preferred Habitat	SRank	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status	Reference
REPTILES						
Blanding's Turtle	*Emydoidea blandingii*	Shallow water, large marshes, shallow lakes or similar such water bodies.	S3	THR	THR	COSEWIC, 2016
Gray Ratsnake	*Pantherophis spiloides*	Deciduous forest and forest edge.	S3	THR	THR	COSEWIC, 2007b; Kraus et al., 2010
BIRDS						
Least Bittern	*Ixobrychus exilis*	Freshwater marshes, ditches, creeks, rivers and lakes with tall emergent vegetation.	S4B	THR	THR	COSEWIC, 2009a
Eastern Whip-poor-will	*Antrostomus vociferus*	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.	S4B	THR	THR	COSEWIC, 2009b
Chimney Swift	*Chaetura pelagica*	Cities, towns, villages, rural, and wooded areas.	S4B, S4N	THR	THR	COSEWIC, 2007a
Loggerhead Shrike	*Lanius ludovicianus*	Open fields, including pastures, prairie, savannah, pinyon-juniper woodland, shrub-steppe and alvar, that are dominated by grasses and/or forbs, scattered shrubs or trees and bare ground.	S2B	END	END	COSEWIC, 2014
Bank Swallow	*Riparia riparia*	Variety of forest types, most common in wet, mixed deciduous-coniferous forest with a well-developed shrub layer. It is often found in shrub marshes, red maple	S4B	THR	THR	COSEWIC, 2013b

Common Name	Scientific Name	Preferred Habitat	SRank	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status	Reference
		stands, cedar stands, conifer swamps dominated by black spruce and larch and riparian woodlands along rivers and lakes. It is also associated with ravines and steep brushy slopes near these habitats.				
Barn Swallow	*Hirundo rustica*	Open or semi-open lands: farms, field, marshes.	S4B	THR	THR	COSEWIC, 2011a; Peterson, 1980
Bobolink	*Dolichonyx oryzivorus*	Primarily in forage crops, and grassland habitat.	S4B	THR	THR	COSEWIC, 2010
Eastern Meadowlark	*Sturnella magna*	Fields, meadows and prairies.	S4B	THR	THR	COSEWIC, 2011b; Peterson 1980
MAMMALS						
Little Brown Myotis	*Myotis lucifugus*	Buildings, attics, roof crevices and loose bark on trees or under bridges. Always roost near waterbodies.	S4	END	END	Eder, 2002
Northern Myotis	*Myotis septentrionalis*	Older (late successional or primary forests) with large interior habitat.	S3	END	END	COSEWIC, 2013a; Menzel et al. 2002, Broders et al. 2006, SWH 6E Ecoregion Criterion Schedule
Eastern Small-footed Myotis	*Myotis leibii*	Found within deciduous or coniferous forests in hilly areas.	S2S3	END		Eder, 2002

Common Name	Scientific Name	Preferred Habitat	SRank	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status	Reference
Tri-colored Bat	*Perimyotis subflavus*	Prefers shrub habitat or open woodland near water.	S3?	END	END	Eder, 2002
PLANTS						
Butternut	*Juglans cinerea*	Variety of sites, grows best on well-drained fertile soils in shallow valleys and on gradual slopes	S2?	END	END	COSEWIC, 2003

Status updated April 1, 2019

SRANK DEFINITIONS

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.

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.

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.

5.3 Natural Heritage Features Summary

The assessment of the potential to impact natural heritage features found that the only confirmed natural heritage feature identified in the subject lands consists of the Category 3 habitat for eastern whip-poor-will which encroaches on the southern edge of the proposed site. For all other potentially occurring species, the avoidance and mitigation measures listed above, if properly implemented, are sufficient to avoid impacts to any other species should it be present.

6.0 CONCLUSIONS AND RECOMMENDATION

The proponent is preparing for Phase 2 of the McLean Landing Subdivision. These lands are situated in part of lot 10, concession A, in the Village of Merrickville-Wolford. Phase 1 is situated to the east of Phase 2 and consists of six residential lots along Sophie Lane. The proposed Phase will consist of 43 lots that will be fully serviced. This phase of the subdivision will require the clearing of the vegetation for the development activities (construction of new sewer and water mains, roads and houses). The dry pond and oil and grit separator, previously constructed, was sized for both phases.

Following the completion of the background review, no natural heritage features were identified within the subject lands. Significant woodlands were identified in the adjacent lands, 100 m to the west of the site and separated by Read Street and existing estate lots. This feature was determined to be outside of the area of impact. The background review identified several potential SAR for the general area and the appropriate species-specific surveys were completed. These documented the presence of Category 3 habitat for Eastern Whip-poor-will in the southern edge of the subject lands (the centre of defended territory was estimated to be 460 m to the south of County Road 16). MECP will need to be contact through the submission of an information gathering form, and alternatives avoidance form. Direction on any additional mitigation measures for this species may be provided by MECP. However, given that only a small section of Category 3 habitat would be impacted and that this includes some of the existing right-of-way for County Road 16 and that the development is within an already developed area, it is anticipated that this small impact will not require any permitting under ESA.

In addition, the impact assessment section included best management practices to prevent contravening other acts (*Migratory Bird Convention Act* and *Fish and Wildlife Conservation Act*).

Clearing of vegetation has the potential to impact various species and several timing windows were included herein. The combined period during which no clearing of vegetation should take

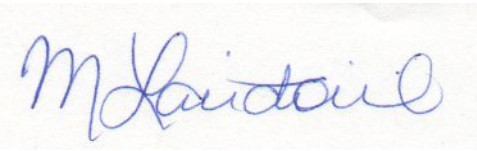
place is between April 1 to September 30 (birds and bats). Should avoidance of this period not be possible, then follow additional mitigation measures listed herein.

All the impacts can be mitigated using common mitigation measures and no residual negative impacts to the natural environment are anticipated as a result of the development. Other than waiting for confirmation from MECP with respect to the Eastern Whip-poor-will Category 3 habitat, 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

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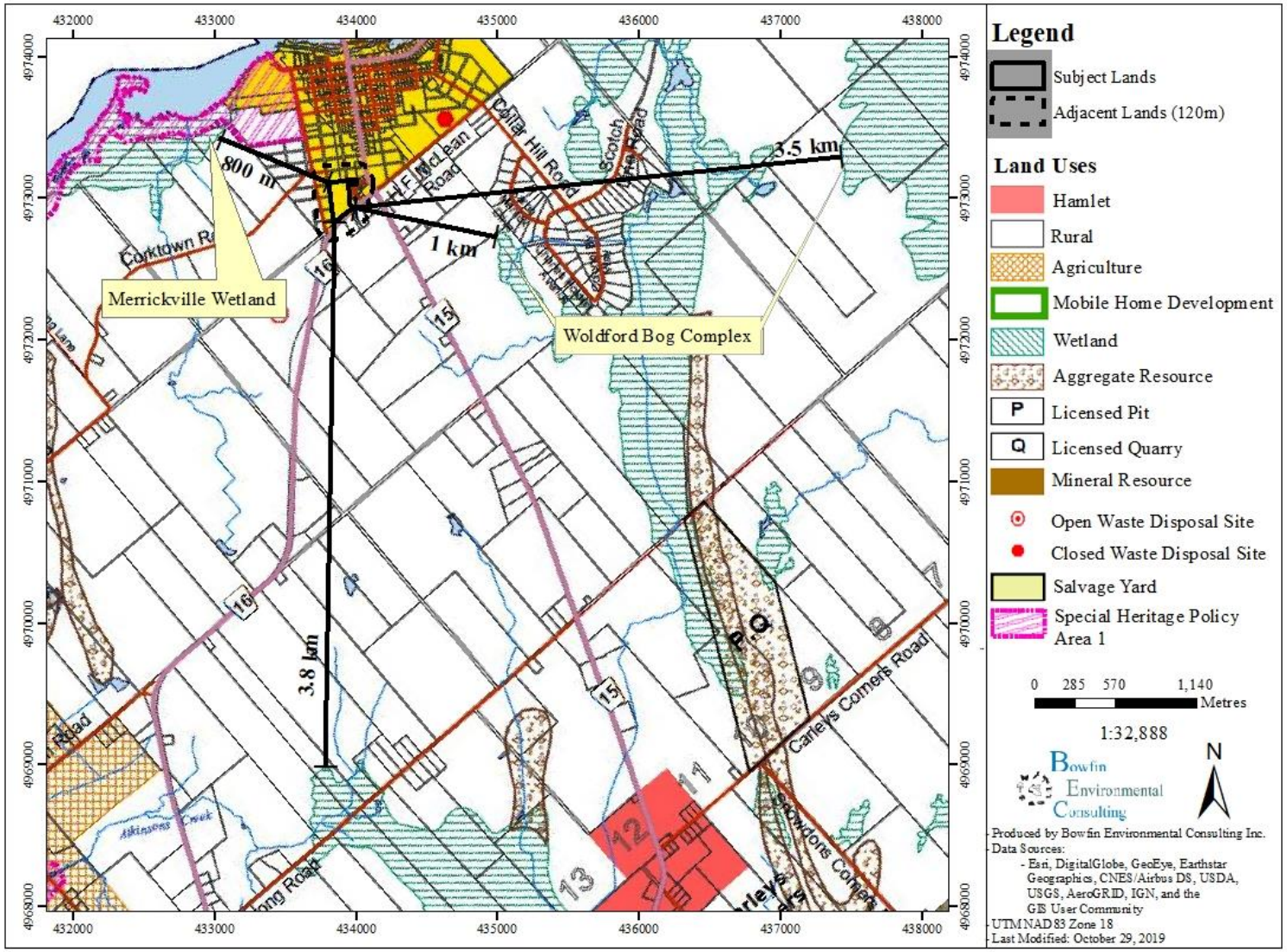
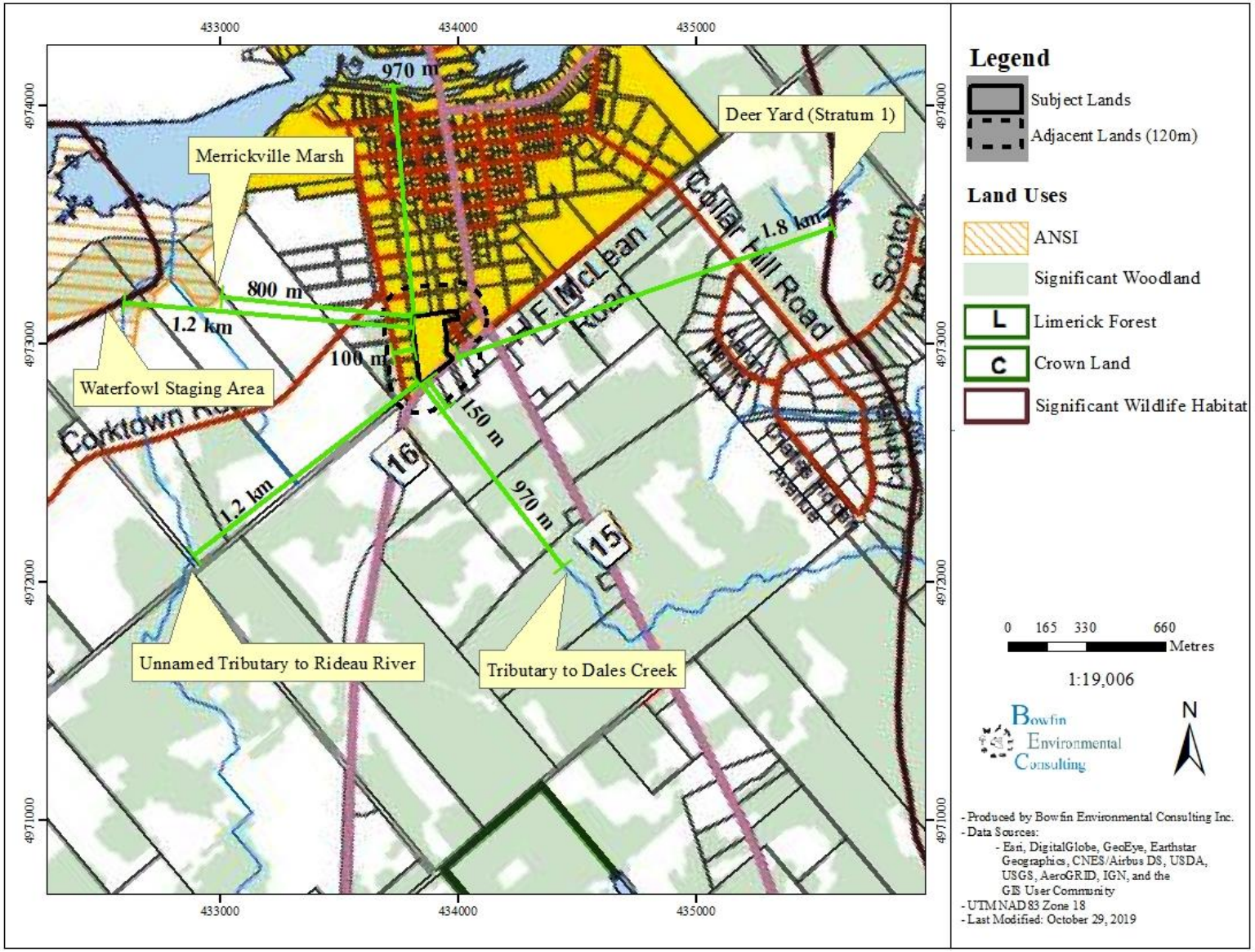
Appendix A: Other OP Maps

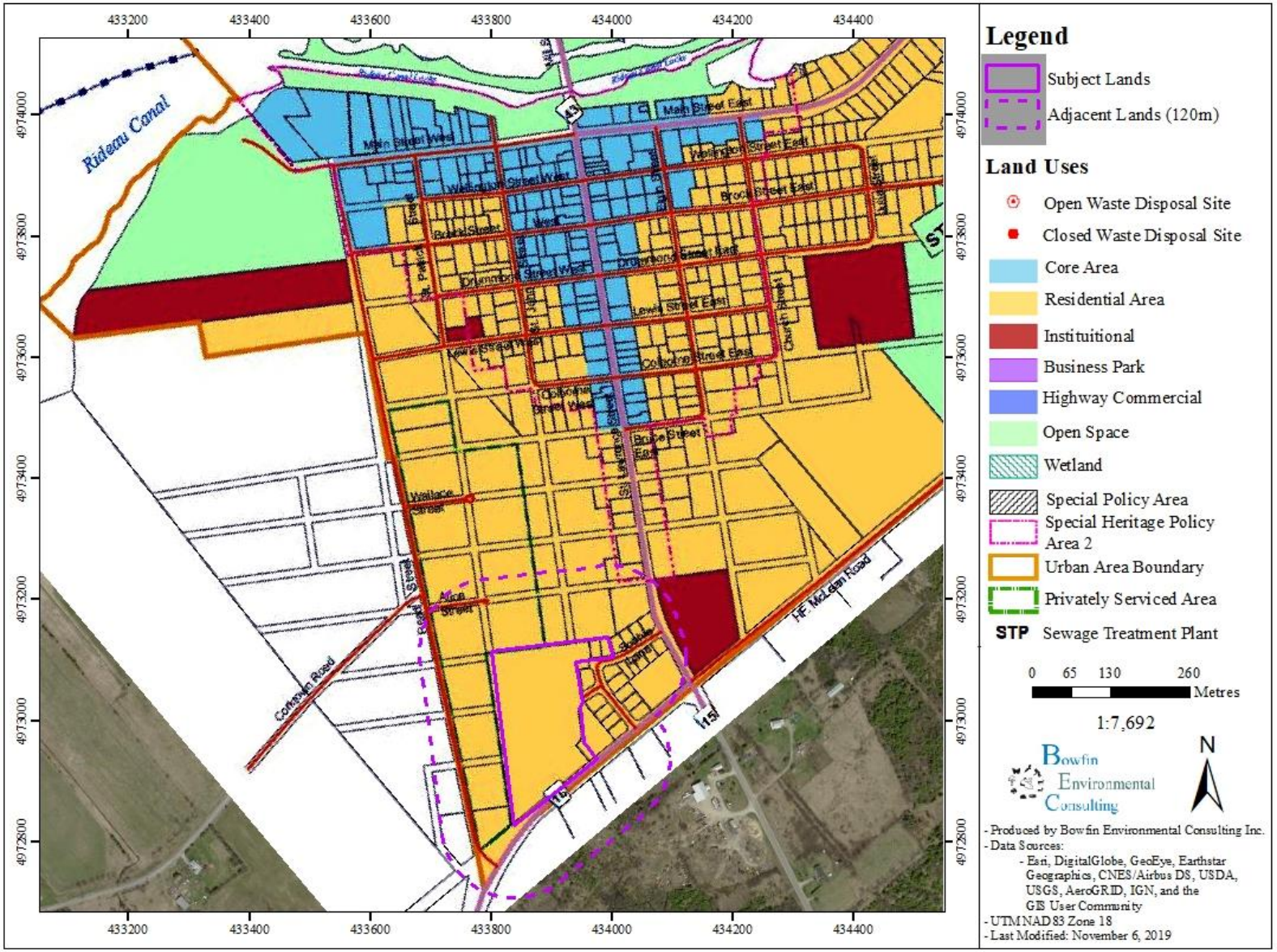
OP Schedule A1 – Rural Land Use



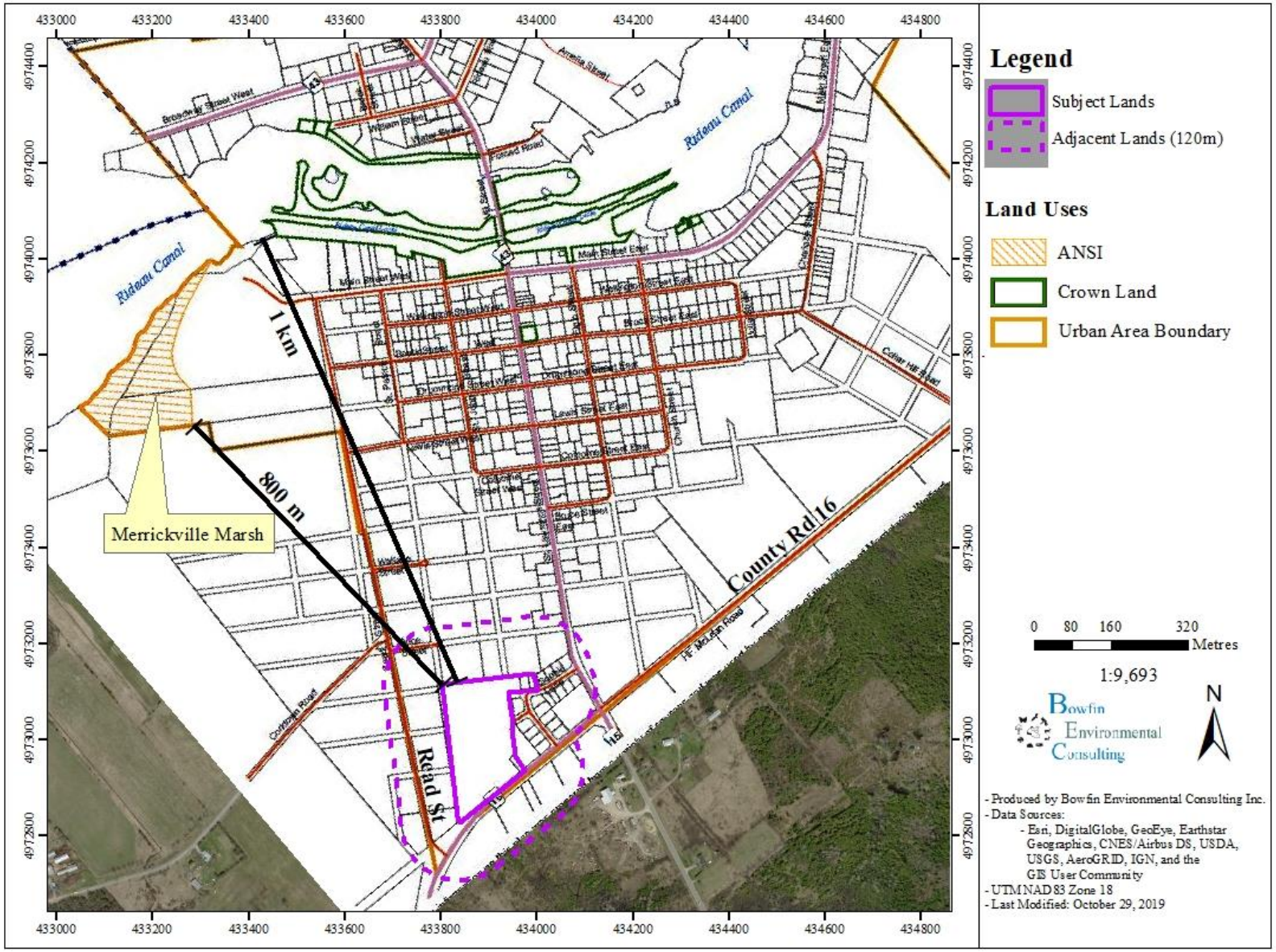
OP Schedule A2 – Natural and Cultural Heritage Features (Large Scale)



OP Schedule B1 – Urban Land Use



OP Schedule B2 – Urban Natural and Cultural Heritage Features



Appendix B: EWPWs Observed on One or Two Occasions