

ENVIRONMENTAL IMPACT ASSESSMENT:

LANSDOWNNE

DRAFT

November 5, 2021

**Prepared for Shane Kelly, and
FoTenn Planning Consultants**

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LETTER OF TRANSMITTAL

EXECUTIVE SUMMARY:

1.0 INTRODUCTION

This EIA was completed at the request of Shane Kelly and FoTenn Planning & Design. This assessment has been initiated because the proposed development has the potential to impact natural heritage features of the area, and assesses the potential impact of the proposed development on the ecological features and functions of the site, and its conformity with the Provincial Policy Statement.

The study area is a parcel of approximately 94 hectares located south of Lansdowne (Figure 1). The land has been and is currently used for agricultural purposes (hay and corn crop most recently), but also supports areas of woodland and wetland.

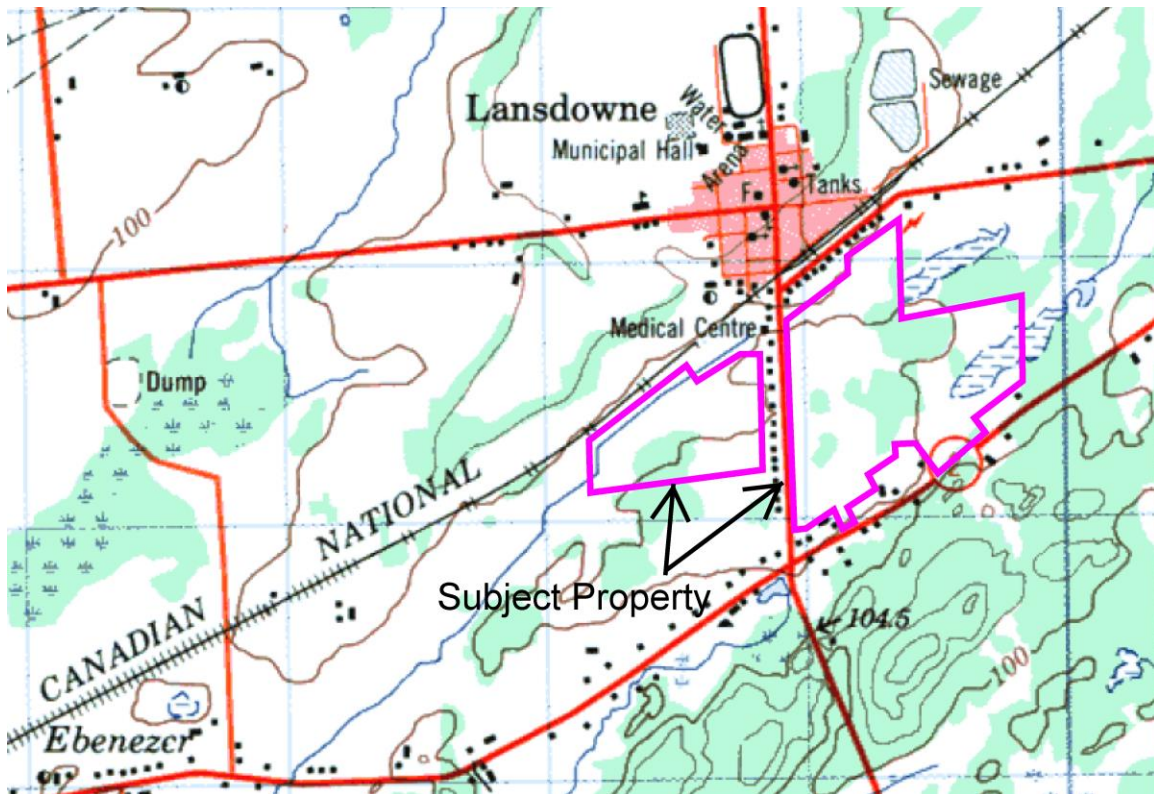


Figure 1. Location of the study area Base image is a detail from topographic map 31 C/8 (Gananoque).

The Natural Heritage Information Center (NHIC) natural heritage mapping tool shows some of these features, but provides no detail on the nature of the agricultural lands.

Statement of Purpose:

Our purpose for undertaking environmental assessment work is to determine if a proposed development will have a negative impact on natural heritage features and their associated ecological functions, as set out under provincial policy and legislation, and in municipal planning documents. All development will have some type of natural heritage impact, but for this to be relevant for the purposes of an Official Plan or the Provincial Policy Statement (PPS) those impacts must surpass pre-set thresholds, as described in the provincial Natural Heritage

Reference Manual. Development can be restricted if exceeding an impact threshold is expected, but the EIS process does allow for mitigation (e.g., design changes) or compensation (e.g., habitat improvement elsewhere) to reduce impacts in order to facilitate development approval. Initial findings were used to inform design changes through the planning of this development proposal.

1.1 Proposed Development

The development concept has changed over the course of this study effort, in response to environmental issues among other matters. The property is divided into two by County Road 3 (Prince Street), and for discussion purposes will be discussed herein as Lansdowne West and Lansdowne East. The current development concept is shown in Figures 2 and 3.

1.2 Planning Policies

The Provincial Policy Statement (PPS 2020) expresses provincial interests on several matters related to planning and development. Issued under Section 3 of the Planning Act, Policy 2.0 requires that municipalities consider natural heritage features in assessing development proposals. Natural features of potential significance occur on the subject lands, wetland patches and other surface water features, woodland areas, and potential habitat for species at risk and wildlife among them.

The policies sections that would be of most relevance to this site are as follows:

Policy 2.1.5 states that:

Development and site alteration shall not be permitted in. . . (b) significant woodlands in Ecoregions 6E and 7E . . . [or] (d) significant wildlife habitat . . . unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.

Policy 2.1.6 states that:

Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.

Policy 2.1.7 states that:

Development and site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements.

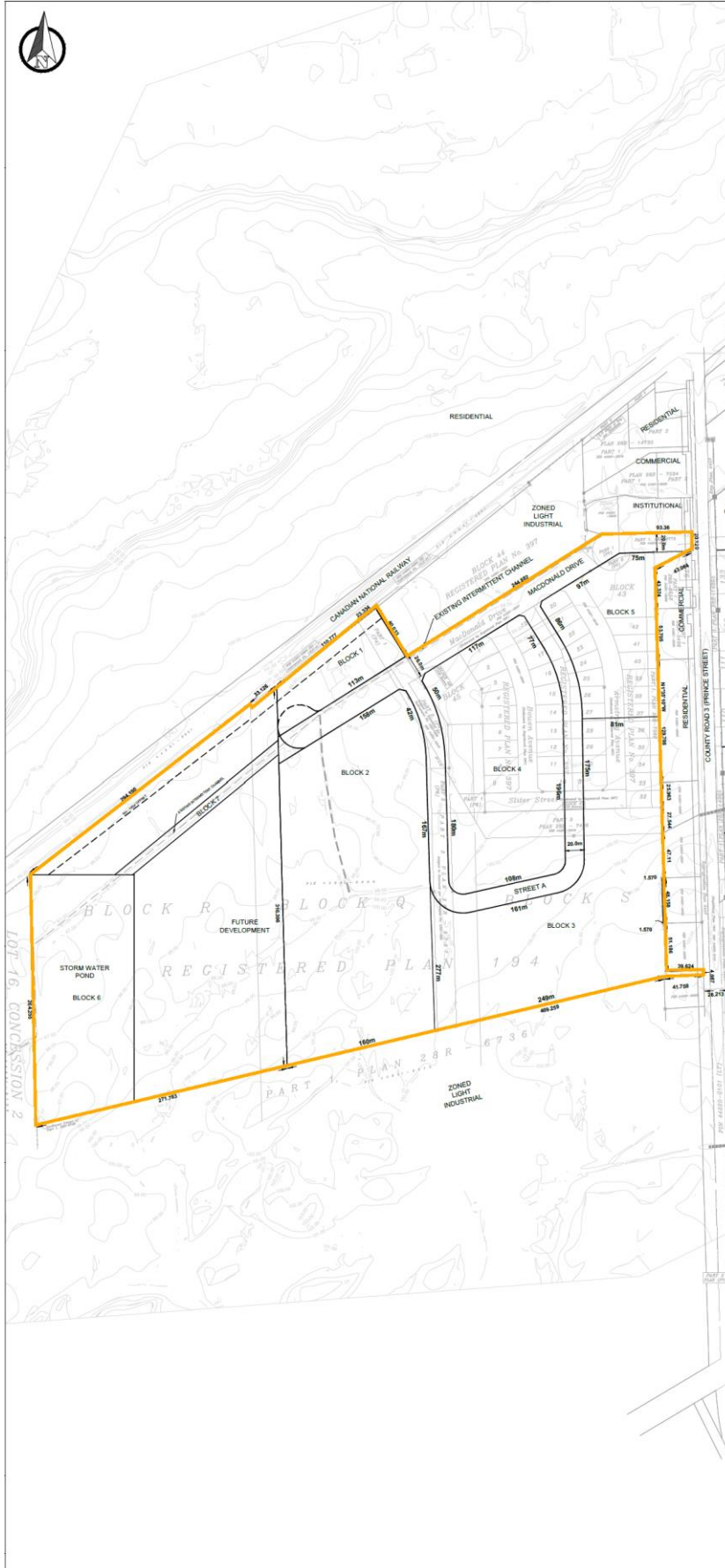


Figure 2. Development concept for the west side of the subject parcel. The orange delineates the property boundaries, but the details show the proposed development, which is restricted to the east half of this area. Base image is from the Draft Plan of Subdivision, drawing prepared by Forefront Engineering.

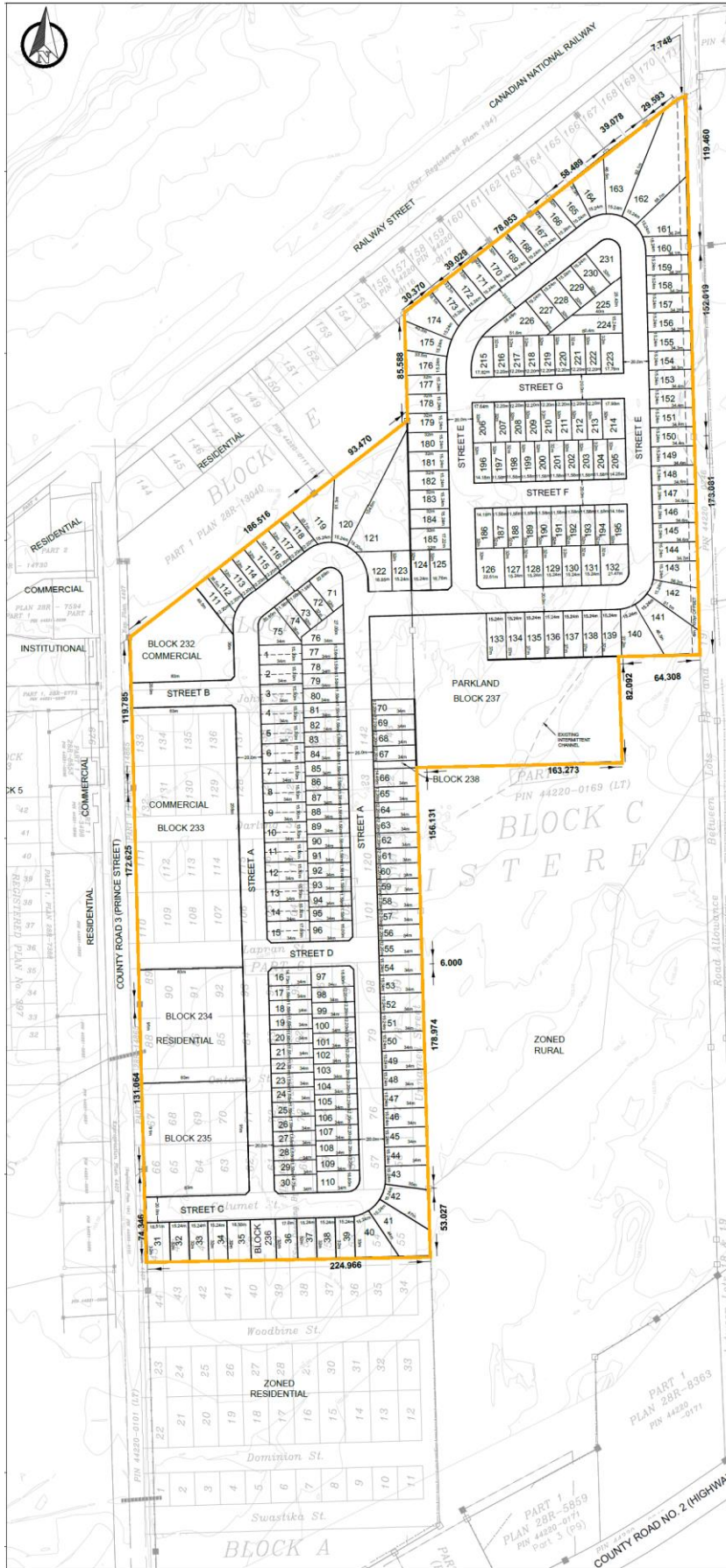


Figure 3. Development concept for the east side of the subject parcel. The orange delineates the property boundaries, but the details show the proposed development, which is restricted to the north and western portions of this area. Base image is from the Draft Plan of Subdivision, drawing prepared by Forefront Engineering.

Policy 2.1.8 adds that:

Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 2.1.4, 2.1.5, and 2.1.6 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions.

Adjacent lands are defined in the PPS. For Policy 2.1.8, adjacent lands are considered to be:

“...lands contiguous to a specific natural heritage feature or area where it is likely that development or site alteration would have negative impact on the feature or area. The extent of the adjacent lands may be recommended by the Province or based on municipal approaches which achieve the same objectives.”

Guidance on the extent of adjacent lands is provided in a Natural Heritage Reference Manual (OMNR 2010). In the case of all natural heritage features other than earth science areas of natural and scientific interest (ANSI), the recommended adjacent land width is 120 m from the habitat. Site-specific evaluations may allow for greater or lesser distances for adjacent land widths.

1.3 Municipal and County Plans

Lansdowne is located in the Township of Leeds and the Thousand Islands, in the County of Leeds and Grenville. The Township’s Official Plan (Leeds and Thousand Islands 2018) identifies most of the subject lands as part of the settlement area associated with the village of Lansdowne, such settlement areas designated as the focus of growth in the Township. Official Plan Schedule B1 identifies several land use designations within the lands, primarily light industrial on the west side of Prince Street, Residential on the east side of Prince Street, and some Highway Commercial along the road itself. The current development application does not include any part of the additional lands owned by the applicant and assessed during our work; these lie outside the identified settlement area and are designated as Rural. We note that this settlement area is excluded in other Official Plan schedules, including Schedule A3 that identifies natural heritage system woodlands.

The Township’s Zoning By-law (Leeds and the Thousand Islands 2007) is consistent with the Official Plan, showing Light Industrial zoning on the west side of Prince Street, and First Density Residential on the east (both zones with a holding restriction).

The village of Lansdowne is likewise designated as an Urban Settlement Area in the County’s Official Plan (Leeds and Grenville 2021), including Schedule , which identifies natural heritage features and areas recognized in the county.

2.0 METHODOLOGY

Ecological Services was retained to conduct the necessary field work and report preparation for this assessment. The procedures used for the EIS were directed at determining the potential impacts to the relevant ecological features and functions of the site from residential development of the area. Work was conducted in accordance with accepted methodologies during 2019, 2020, and 2021; the dates and main purpose of the site visits are detailed in Attachment 1. The scope of effort was also based on input from the Cataraqui Region Conservation Authority and the Ministry of Environment, Conservation and Parks.

Personnel who worked on this project included:

Name	Primary Tasks
Mary Alice Snetsinger, M.Sc.	Report preparation, Species at Risk (SAR), Ecological Land Classification (ELC), herpetofauna, general ecology.
Megan Snetsinger, M.Sc.	Report preparation, SAR, ELC, herpetofauna including reptile assessments, general ecology.
Kurt Hennige	Avifauna
Chris Grooms	Avifauna

Site visits for specific purposes included breeding bird surveys and marsh monitoring visits (see Attachment 1).

Ecological Services considered natural features such as fish habitat, significant wildlife habitat (SWH, as described in OMNRF 2015), and species of conservation concern when performing site investigations. This involved documenting the natural features (including wildlife habitat) and plant and wildlife species, with a focus on specific habitat indicators. Habitat communities are described following the methodology outlined in the Ecological Land Classification (ELC) for Southern Ontario (Lee et al. 1998) and where applicable, the Ontario Wetland Evaluation System (OWES) Southern Manual (MNR 2014).

To assess natural features for significance, we followed the criteria outlined in the Natural Heritage Reference Manual (OMNR 2010), Significant Wildlife Habitat Ecoregion Criteria Schedules (OMNRF 2015) and Significant Wildlife Habitat Technical Guide (OMNR 2000), and we gathered information on potential rarities from a variety of resources (see below), in addition to local knowledge of the study area.

The breeding bird surveys we ran are based on methods described in the Ontario Breeding Bird Atlas Guide for Participants (Cadman and Kopysh 2001) and the Canadian Wildlife Service Forest Bird Monitoring Program. The presence of reptiles was assessed by examining areas of appropriate habitat such as any debris piles or basking areas. The Marsh Monitoring Protocol was used to assess breeding amphibians. Other wildlife species of interest were noted as encountered from direct observation, or from other signs of their presence (tracks, scat, den sites, etc.).

Fish Habitat: surface waters were examined for any evidence of fish and fish habitat. Additional information was sought from a review of existing information sources.

eBird - an online checklist program that provides access to many bird observations made each year by citizen scientists. <www.ebird.org/content/canada/>

Fish ON-Line database. Website maintained by the Ministry of Natural Resources and Forestry, with information on fish species associated with various water bodies.
<<https://www.gisapplication.lrc.gov.on.ca/FishONLine/Index.html?site=FishONLine&viewer=FishONLine&locale=en-US>>

Google Earth - satellite imagery, which includes current and historic imagery. In the area of the subject property imagery was available for several years between 2007 and 2017, as well as some other imagery that only partially covers the site.

iNaturalist - an online citizen scientist forum that permits access to observations made and submitted. <www.inaturalist.org>

Municipal planning documents. The Official Plan (Leeds and Thousand Islands 2018) and Zoning By-law (Leeds and the Thousand Islands 2007) were reviewed, as noted above.

Natural Heritage Information Center database. Web site maintained by the Ontario Ministry of Natural Resources and Forestry, with species rarity rankings in Ontario, and information on reported element occurrences. Information was reviewed for all available natural heritage values, including information layers on wetlands, woodlands, Areas of Natural and Scientific Interest, and Species at Risk.
<http://www.gisapplication.lrc.gov.on.ca/mamnh/Index.html?site=MNR_NHLUPS_NaturalHeritage&viewer=NaturalHeritage&locale=en-US>

3.0 BACKGROUND INFORMATION

Available background information on the natural heritage resources of this region was reviewed in conjunction with information gathered on site. This review included the report on Areas of Natural and Scientific Interest for Site District 6E-10 (White 1993). Site District 6E-10 is an area of land that coincides essentially with the Frontenac Arch, and the subject property is located in the southern part of this large ecodistrict, just south of Lansdowne, Ontario. The ecodistrict supports four major landforms, and is subdivided into three biophysical subdistricts that reflect differences in geology, landform, vegetation, and climate (White 1993); in the Leeds Subdistrict extensive clay plains are described, with rocks knobs (sometimes termed a “knobs and flats” landscape). Positioned in the southern part of the site district and with proximity to Lake Ontario, this area has more benign climate, which is reflected in the flora.

The Natural Heritage Information Center (NHIC) web site was also checked, to review reported historic species occurrences and the most recent information on any identified natural heritage features on or around the subject lands, as were as other sources of data available in print or online.

3.1 Land Use History

The subject property has had a long history of cultural use, which is the strongest influence on the natural heritage values now present. Agricultural use resulted in the removal of almost all the natural vegetation on the site and, while there has been some regrowth of natural vegetation cover, the majority of the site is still cultural in nature, particularly in the rectangular fields evident in Figure 4.



Figure 4. Historical imagery of the subject property, with the approximate boundaries of the property outlined in orange. Left: 1954 imagery, from the University of Toronto Map & Data Library. Right: 2018 Google Earth satellite image.

3.2 Natural Heritage Features

The PPS considers natural heritage features such as wetlands, woodlands, wildlife habitat, areas of natural and scientific interest (ANSI), fish habitat, and habitat for significant wildlife and species at risk. A search of the NHIC database indicated several species records in the three 1-km² blocks within which the property is located (UTM blocks 18VQ1816, 19VQ 1916, and 18VQ1917). It is noted that species at risk (Endangered and Threatened species) are discussed separately from species of Special Concern, which are assessed in considering potential Significant Wildlife Habitat (SWH).

In reviewing the White (1993) and the NHIC website, we found that:

- the closest provincially significant wetland (the Ivy Lea Complex) is located approximately 2.4 km south of the subject lands;
- some woodland patches are identified on the subject lands, with the nearest extensive block of woodland being approximately 150 m south of the property, south of County Road 2;
- several species of Special Concern are identified, making assessment of potential SWH appropriate; and
- the closest provincially significant ANSI (Landon's Bay/Fitzsimmon's Mountain) is located approximately 1.9 km to the south.

4.0 DESCRIPTION OF STUDY AREA

As described in the foregoing section 3.1, the history of agricultural land use is the most significant factor influencing the vegetation characteristics of the site, and the majority of the site is cultural in nature. These areas and other vegetation communities are described in more detail in the Ecological Land Classification (ELC) mapping for the site.

4.1 Ecological Land Classification

We have used the Ecological Land Classification (ELC) system developed for southern Ontario (Lee et al. 1998) to describe the vegetative communities on the property (Figure 5). When a vegetation community in the study area does not fit into the most detailed level of the nested ELC categories, we have chosen a broader level from the ELC table, and described the composition of the polygon. It is noted that Lee et al. identifies a minimum polygon size of 0.5 hectares as a mapping unit for applying ELC; this is our general approach, but we occasionally deviate from this recommendation where showing finer detail provides more information that may be relevant to the development process. Site photographs can be found in Attachment 2.

On the west block, the land cover is predominately **Mineral Cultural Meadow Ecosite (CUM1)**, along the rear of the properties on Prince Street and extending west into the property. This cultural meadow had been ploughed when we visited the site in 2018, but sparse vegetation growth was present throughout; it has remained essentially unchanged in subsequent visits. Lee et al. describe Cultural communities as having variable site conditions and vegetation due to anthropogenic-based disturbances. The vegetation cover consists of a variety of disturbance-associated plants, e.g., Ragweed, Ox-eye Daisy, Panic-grass, Foxtail, Sow Thistle, Lamb's Quarters, Lady's Thumb, and Cinquefoil. In 2018, the far west lots had recently been in crop cover (corn). There are farm ditches, one with permanent standing water (indicated with a blue line), dividing the fields. The ditch along the west property line (end of the west block), the surrounding land appears to be somewhat riparian in nature. We observed several water-associated species (e.g., Spike-rush, Water Plantain, *Scirpus atrovirens*, Water Hemlock, Arrow-leaved Tearthumb), but these did not make up over 50% of the overall vegetation composition. In our opinion, this riparian area is not wetland, but it does experience seasonal wetness. This naturally low area is a proposed future stormwater pond area.

There is one woodland area on the west block, which may have been largely passed over for field conversion due to its somewhat rocky topography (supported by the historical image in Figure 4). The woodland is a **Deciduous Forest (FOD)** with no clear dominant; we observed White Ash, Black Cherry, Yellow Birch, American Beech, American Basswood, Red Maple, Sugar Maple, Silver Maple, White Oak, Red Oak, and Eastern Hemlock. Over 75% of the trees were deciduous, but there did not appear to be one or two species more prevalent than the others. This may be a result of the varied topography, which had high, dry areas as well as low, wet ones. Some of these low areas had small patches of wetland, which we have mapped as a **Swamp (SW) inclusion** into the forest. A corridor of thicket swamp wetland cuts across part of the woodland, running between two areas of the cultural meadow (this was the largest patch at approximately 0.43 ha). Species observed include *Spirea alba*, Bebb's Willow, and *Salix petiolaris*. Further south into the forest was a low area with little vegetation that appeared to be a



Figure 5. The Ecological Land Classification (ELC) of the subject property (outlined in white), after Lee *et al.* (1998). The ELC codes are: FOD (Deciduous Forest), FOD5-3 = Dry - Fresh Sugar Maple - Oak Deciduous Forest Type; CU (Cultural), CUM1 (Mineral Cultural Meadow ecosite), CUW1 (Mineral Cultural Woodland Ecosite), CUM1-1 (Dry – Moist Old Field Meadow Type), MA (Marsh), MAS2-1 (Cattail Mineral Shallow Marsh Type), SW (Swamp), and RBT (Treed Rock Barren). Blue lines indicate wet areas or channels. See text for discussion. Base image from Google Earth.

vernal pool (although damp to dry during our visits), which was connected by a narrow corridor of wetland vegetation (e.g., Spotted Jewelweed) to another wetland pocket within the forest (Reed-canary Grass, Sensitive Fern, *Iris versicolor*, *Spiraea alba*).

On the east block of land, a large component of the land is **Dry – Moist Old Field Meadow Type (CUM1-1)**, mainly covered with various grasses (e.g., Orchard Grass, Timothy). In 2019, we found the area had been ploughed, but remained grass-dominated (Timothy and Brome), and this has not changed in subsequent field visits. The large field with frontage on Prince Street was being used to pasture cattle when we walked through the area on July 2 and 11, 2018 though they had not yet been put onto pasture on June 28, 2018; we understand that the area has served this purpose for many years, and the observed condition of the lands supports this report. In 2019 and 2021, we did not observe pastured cattle, so this practice may now have been discontinued. Within this field were small two patches (0.33 and 0.69 ha) of **Mineral Cultural Woodland Ecosite (CUW1)**, with varying compositions of deciduous trees (e.g., Shagbark Hickory, Red Oak, American Basswood, and Sugar Maple). Cultural Woodland is a treed community type with between 35-60% tree cover. From direct and indirect evidence, it was apparent that cows use or have used these patches for shelter.

There are some other treed patches visible from satellite imagery. We have differentiated these patches as **Treed Rock Barren (RBT)** rather than as cultural woodland, because they are situated on elevated mounds of sometimes-exposed rock; it is unknown if these are naturally-formed rock piles, or the result of clearing the surrounding land by farmers. Some of the trees we observed on the mounds include Sugar Maple, White Oak, Hop-hornbeam, American Elm, Basswood, and Bur Oak. One of the treed barrens is in a CUM1-1 field, two others are in one of the grass-dominated fields, and a fourth is adjacent to one of the **Mineral Cultural Meadow Ecosite (CUM1)** fields (along a roadside). The CUM1 fields are overgrown with various different disturbance-tolerant species (e.g., Goldenrod, Queen Anne's Lace, Bird's-foot Trefoil, Common Milkweed).

There are two types of woodland on the east block. The smaller is a **Dry – Fresh Sugar Maple – Oak Deciduous Forest Type (FOD5-3)**, with Sugar Maple and Red Oak as clear dominants, as well as some Hickory, Hop-hornbeam, White Pine, and American Elm. FOD forest types are characterized by tree cover over 60%, with deciduous tree species forming over 75% of the canopy cover. In earlier site visits, we observed several horse droppings in this woodland, indicating that it may have recreational or agricultural-related use.

The larger woodland polygon is a mosaic of land cover, which we have identified as a complex of **Mineral Cultural Woodland Ecosite (CUW1)** containing patches of **Treed Rock Barren (RBT)**; these two ecotypes are too intermingled to map accurately. This section of woodland is topographically elevated, with visible exposed rock. There are some areas with consistent tree coverage (e.g., Sugar Maple, American Elm, Hop-hornbeam) and fewer instances of exposed rock. There are also intermittent patches of relatively open cover (some Red Cedar, Gray Dogwood, etc.) where the rocky substrate is more visible. There are also old apple trees throughout much of the area, suggesting that it may have been an orchard at some point.

We also found several wetland patches and adjacent wet areas on the east block, mostly around the perimeter. We found several small depressions at the north end of the cow pasture, two of which supported open water during some of our site visits. In the east block

We found several depressed areas that we mapped as **Marsh (MA)**. These were along the northern boundary, the largest of which had open water (approximately 0.15 ha in area), and supported calling frogs in the spring (detailed in Attachment 3). The other patches had no open water at the time of our field inspections, but supported wet-associated species (including *Typha angustifolia*, Reed Canary Grass, and *Scirpus atrovirens*), *Salix petiolaris*, with Common Winterberry and Downy Arrowwood, suggesting that they are slow to dry out in the spring. The ponds appeared to be regularly accessed by the cows (when present), and showed poor natural wetland characteristics as a result. At the east end of this MA area we found mainly Reed-canary Grass, but there are also several tree and shrub species, nearing 25% cover (e.g., Trembling Aspen, *Salix petiolaris*, Nannyberry, Downy Arrowwood, Bebb's Willow, and Shining Willow). Some other marsh species include Narrow-leaved Cattail and *Scirpus atrovirens*. The largest block of MA was observed along the western boundary of the east block, adjacent to Prince Street. This patch was approximately 0.42 ha in size and was wet field with grasses (e.g., Timothy) and a significant presence of sedge species (*C. bebbii*, *C. vulpiniodea*).

Finally, there is a large **Cattail Mineral Shallow Marsh Type (MAS2-1)** at the east end of the property. Approximately 5.42 hectares in total, the MAS2-1 area also continues off the property to the east; the western approximately 3.05 ha of the wetland area is on the subject property. The wetland is a dense, monotypic, *Typha angustifolia* marsh. A few other plants were noted (Reed Canary Grass, bedstraw species, Purple Loosestrife, sedges), but were low in number. The soil was damp, with no visible water.

As on the west block, there were a few channels that appeared to have been farm ditches, including one partially cutting through the MAS2-1 marsh that also runs through a CUM1-1 field to the south, and may support seasonal some ponding. As with the ditches on the west block, their borders appear to be riparian in nature, but would not be characterized as wetland.

Site Alterations

Our field work was conducted as authorized (affected by COVID and other factors). Over the course of this period, there were changes to land use, as well as modifications of the development proposal in response to natural heritage matters among other considerations. To the best of our ability, this report shows and discusses the natural heritage features present on the site.

5.0 ASSESSMENT OF NATURAL HERITAGE FEATURES

To better understand the potential for negative impact on the natural heritage features present, we have broken the ELC mapping into West and East blocks, and added the boundary of the proposed development area, which is entirely within the recognized Settlement Area (Figures 6 and 7).

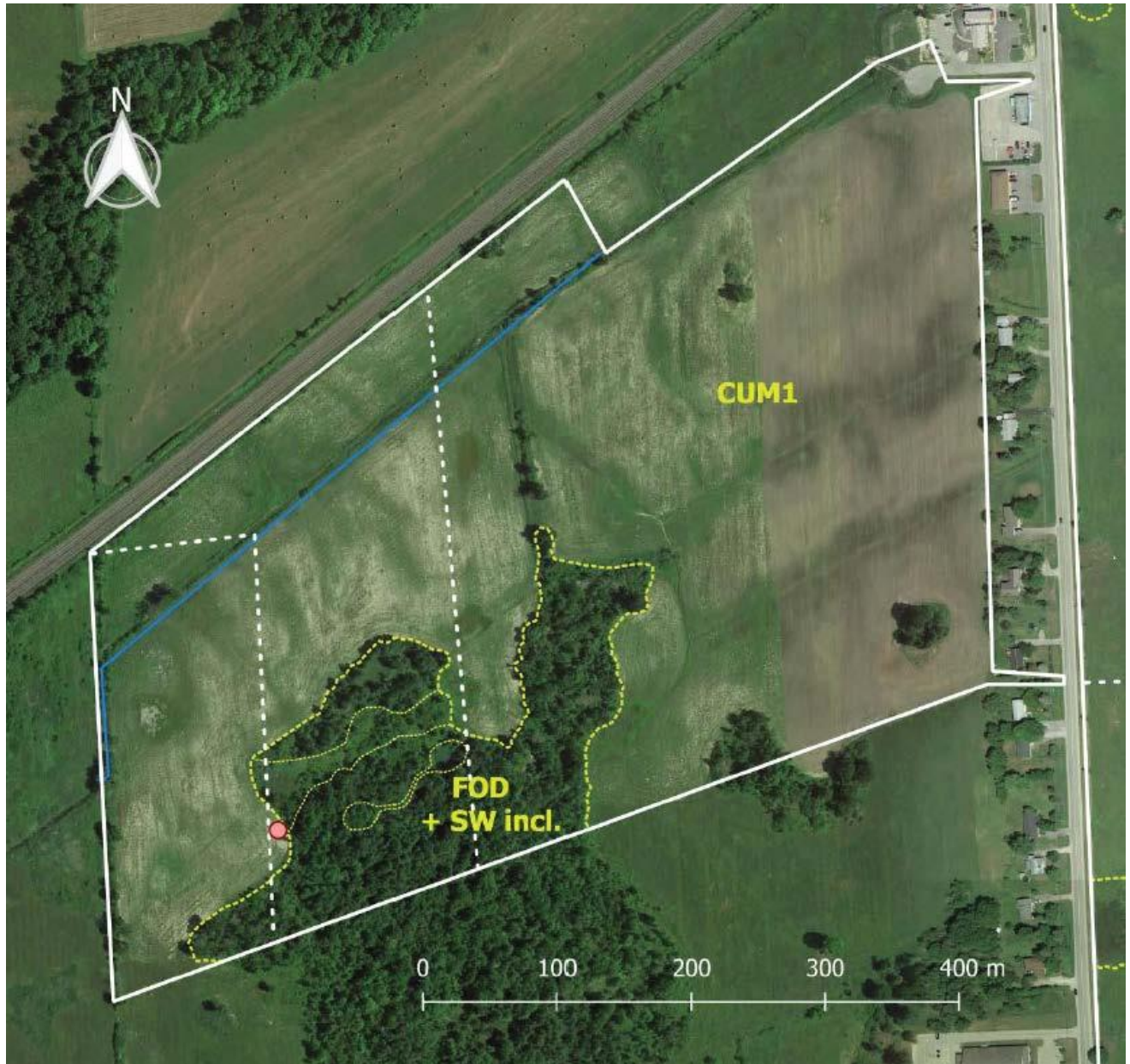


Figure 6. The Ecological Land Classification (ELC) of the West Block of the subject property (outlined in white), ELC codes after Lee *et al.* (1998). Blue lines indicate wet areas or channels. The proposed development is confined to the east portion of the site (see broken line), but the block at the far west has been flagged as a stormwater pond area. The fine-dotted yellow lines depict areas that showed evidence of being wet. The red dot indicates the location of an Eastern Ribbon Snake. See text for discussion. Base image from Google Earth.

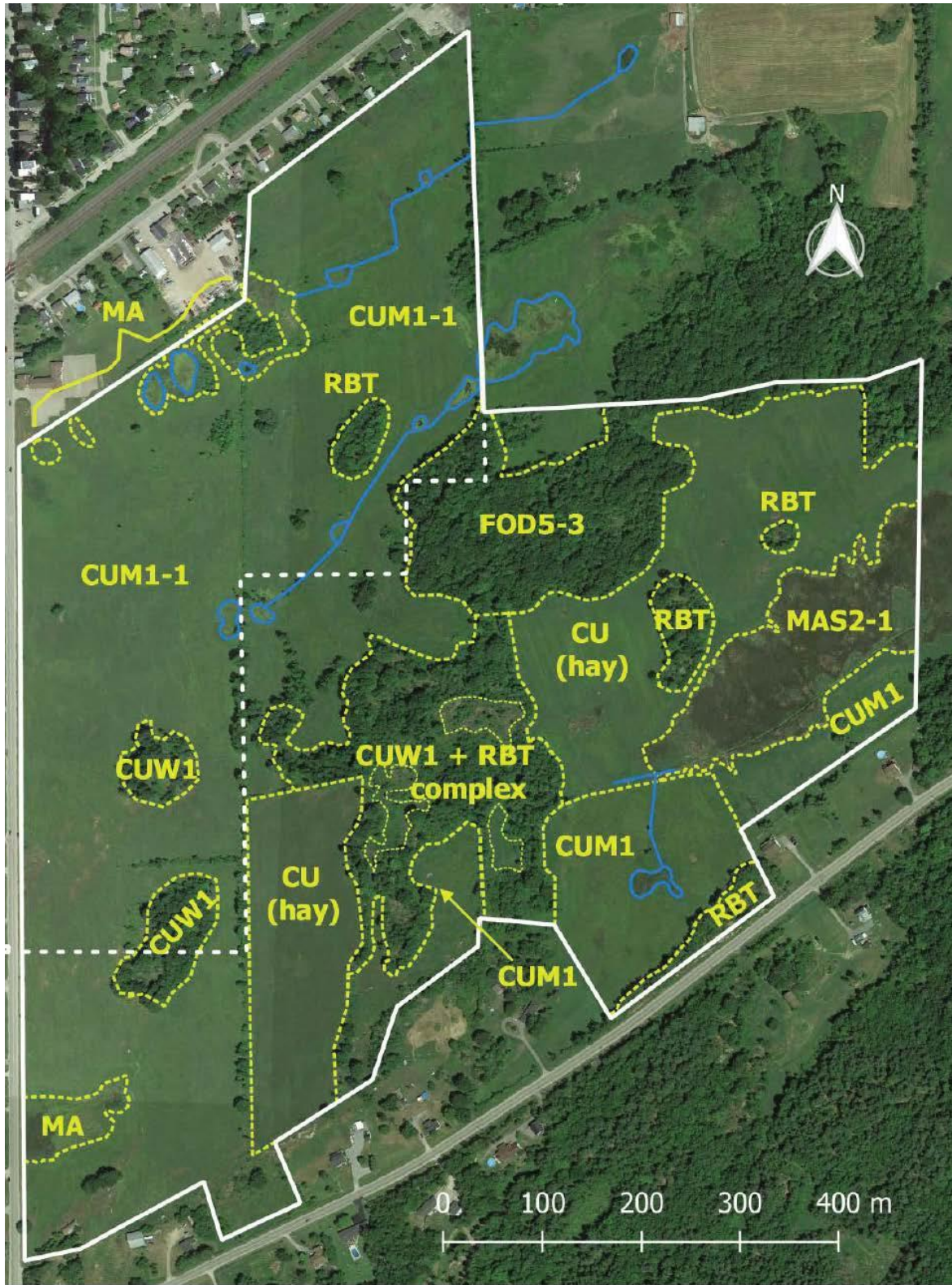


Figure 7. The Ecological Land Classification (ELC) of the East Block of the subject property (outlined in white), ELC codes after Lee *et al.* (1998). Blue lines indicate wet areas or channels. The proposed development is confined to the west and north portions of the site (see broken line). Base image from Google Earth.

5.1 Wetlands

Wetlands are areas of land that are permanently or seasonally flooded, causing the underlying soils to be saturated with water (hydric soils) and supporting plants that thrive in wet conditions (wetland plants). These wetland habitats can provide important benefits, such as preventing flood damage, improving water quality, and providing wildlife habitat. Wetlands can be effective at improving water quality by taking up nutrient loads, particularly nitrogen and phosphorus (Knox 2008, Uuemaa et al. 2018). They may also have economic or social benefits.

5.1.1 Provincially Significant Wetland

The PPS restricts development not be permitted in or adjacent to significant wetlands. There is no PSW identified in the study area, or within 120 m of it. The closest Provincially Significant Wetland (PSW) appears to be the Waterton Marsh, which is located approximately 3.2 km to the ENE.

5.1.2. Regionally Significant Wetland

The Official Plan of Leeds and the Thousand Islands also recognizes the presence of regionally significant wetland in the municipality, but does not identify any in the Village of Lansdowne or nearby. The Official Plan for the United Counties of Leeds and Grenville focuses on provincially significant and coastal wetlands, recognizing other wetland only where it may form a natural corridor that connects two or more natural heritage features or may be subject to regulation by a Conservation Authority. It does not recognize any wetland in or adjacent to Lansdowne, which it recognizes as an Urban Settlement Area.

5.1.3 Other Wetland

Wetlands that are not designated as significant may still provide important ecological functions. The Official Plan for Leeds and the Thousand Islands sets a 30 m setback from identified water features. Part of our assessment process is to identify such features, and assess their ecological significance. The NHIC database identifies a few small patches of potential wetland.

West Block

In the west block, we recognized some small swamp inclusions within an irregular area of FOD woodland. The terrain in this area was irregular, and remnant tree cover can be seen here in the 1954 aerial photo (Figure 4) when almost all natural vegetation cover had otherwise been removed for agricultural purposes. These small patches are of insufficient size for mapping for ELC purposes (the largest of them being just under 0.5 ha) or for the purposes of wetland evaluation (OWES requires a minimum size of 2.0 ha). They supported a limited range of wetland plants (sedge species, Blue Flag, Water Plantain, *Typha latifolia*, and *Scirpus atrovirens*); the only wetland-associated animal observed was an Eastern Ribbon Snake in the field (former corn field), approximately 5 m from the wet area. The majority of the vegetation cover, however, was a moist deciduous woodland (White Birch, Trembling Aspen, White Oak, American Elm, and American Beech, Red Oak, Eastern Hemlock, and Yellow Birch, with no

apparent dominant species). It is noted that the development is proposed in the eastern part of the west block, and will not include these wet patches.

The channel that runs parallel to the railway line along the northern part of the west block is a fairly deep, dug channel, which had open water when we visited. While the channel itself supported water-associated vegetation (e.g., Joe-Pye Weed, Arrowhead, Burreed, Starry Sedge, and Canada Anemone), and Green Frogs were observed in the deep ditch, these were in close association with the ditch only. We consider this to be a riparian corridor, rather than a wetland.

The wetland areas consist of small patches that do not achieve threshold sizes for either OWES or ELC mapping. As well, the development proposal will not affect the wetland patches. We conclude that there will be no impact to wetland.

East Block

In the east block we found several depressed areas that we mapped as Marsh (MA). While these MA patches were small, all will be impacted by the proposed development. There were several small patches along the northern boundary, the largest of which had open water (approximately 0.15 ha in area), and supported calling frogs in the spring (detailed in Attachment 3). These patches were loosely connected, and it appears that this area of the site is slightly lower in elevation. We also noted an indistinct channel that continued in line with these MA patches and continued off site. There is no riparian channel identified here in the NHIC database or in the Official Plan (Schedule B1) that identifies water features. Overall, there was no distinct channel observed here, and we observed few natural heritage features in association with it (other than calling frogs in the spring, which will be discussed under Wildlife Habitat, Section 5.3 below). In our opinion, these MA patches are of modest natural heritage value and do not require protection. Site alteration should not be conducted during the breeding season for amphibians, however, as this is a vulnerable life stage. We recommend that no site alteration be made to the MA patches between March 15 and June 30.

In further reference to Official Plan Schedule B1 (Leeds and the Thousand Islands 2018), there is a channel and 30 m setback shown to cut through the east block, running south along the eastern boundary, then westerly to Prince Street. This somewhat agrees with our observations in the field (Figure 7), but we found no evidence of the water crossing the field immediately east of Prince Street, and no ELC community reflecting such flows. It appears that there may be seasonal water on the fields, and we found an indistinct “channel” on a portion of the property, although we never observed any flows. We do note that at the far east end, beyond the property boundary, there appear to be a larger wetland patch or patches. Again, as for the MA areas discussed above, there was no evidence of a watercourse that connected with any creek or river system; rather, this appears to be a low area of elevation, possibly enhanced for agricultural purposes. We found no significant natural heritage features associated with this water feature.

The development proposal would impact a portion of these areas. There would be no impact to wetland or other natural heritage values here, but drainage must be addressed during the development planning stages.

Also found on the eastern block, was an MA on western border (adjacent to Prince Street) and a large block of MAS2-1 that will not be affected by development proposal. The patch of MA (approximately 0.45 ha in size) demonstrated no significant natural heritage values, and fell below the threshold size for ELC or OWES purposes. However, the MAS2-1 area was approximately 3.05 ha in size (with a further 2.37 ha on adjacent lands), and was found to support breeding amphibians during spring field work (Attachment 3). Future development proposed would have to demonstrate that it would have no impact on this wetland area.

5.2 Woodlands

The PPS states that: “Development and site alteration shall not be permitted in ... (b) significant woodlands in Ecoregions 6E and 7E ... unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.” We found some remnant or regrowth woodland patches in the study area. Historic disturbances have affected the woodland habitat substantially. We generally found that the patches were associated with rocky areas that had low value for agricultural purposes, so areas that could not be cleared for crops were used as pasture lands. To be considered significant woodlands for purposes of the PPS, a site must meet specific criteria related to its habitat (set out by OMNR 2010).

The subject lands are located within Site District 6E-10, within which 83% of the ecodistrict remains as natural cover, primarily forest. Till plain forest complex comprises 58% of the remaining natural cover, and ten percent of the remaining natural cover is wetland, primarily marsh and swamp (Henson and Brodribb 2005). OMNR (2010) directs that where forest cover is greater than 60%, a minimum size is not recommended, but other factors should be considered. We also reviewed the data from Cataraqui Conservation (Holly Evans, personal communication). Lansdowne sits on the border between the LaRue Mills Creeks watershed, and that of the St. Lawrence River (CRCA 2021), at 33.6 and 46.3 percent forested area, respectively. Taking the most conservative value, OMNR (2010) directs that where forest cover is between 30 and 60%, woodlands 50 hectares in size or larger should be considered significant.

The forest areas on the subject property are small, remnant and recovering patches, of approximately. On the West Block, there is a woodland block conservatively estimated at 18.90 ha, of which 4.41 ha are on the subject property; and on the East Block, the woodland block is conservatively estimated at 10.97 ha, of which 4.61 ha are on the subject property. These woodland patches are not significant for size.

We therefore considered the following Ecological Functions of woodlands (as directed by OMNR 2010):

Woodland Interior: the forest is assessed using the 100 m edge limit and 20 m break limit criteria described in OMNR (2010). We estimate that there may be approximately 0.57 ha of interior woodland in the woodland associated with the East Block, though none on the subject property itself, and that there is no interior woodland habitat woodland associated with the West Block. It is our opinion that these woodlands are not significant for interior habitat for the purposes of the PPS.

Proximity to other Woodlands or Habitats: woodlands that overlap, abut or are close to other natural heritage features or areas should be considered more valuable than those that are not. There are fairly extensive woodlands in the region, notably south of County Road 2. However, these are not within 30 m, nor does the woodland meet the minimum area threshold, as specified by OMNR (2015). With respect to proximity, therefore, it is our opinion that these woodland patches are not significant for the purposes of the PPS.

Linkages: linkages are important connections providing for movement between habitats. Woodlands should be considered significant if they are in a defined natural heritage system or if they provide a connecting link between two other significant features. We found that the woodland patches on the subject lands do not provide important linkages within 120 m and do not meet the minimum area thresholds. It is our opinion that the woodlands patches are not significant for the purposes of the PPS.

Water Protection: woodlands that are located within a sensitive or threatened watershed or within 50 m of a sensitive groundwater discharge, sensitive recharge, sensitive headwater area, watercourse or fish habitat, *and* meets minimum threshold areas should be considered significant. The woodlands patches on the subject lands do not meet these criteria. Based on water protection, it is our opinion that this woodland is not significant for the purposes of the PPS.

Woodland Diversity: woodlands should be considered significant if they have a naturally occurring forest composition that has declined significantly or a high native diversity, *and* that meets minimum area thresholds. The woodlands patches on the subject lands do not meet these criteria. Based on diversity, it is our opinion that this woodland is not significant for the purposes of the PPS.

Uncommon Characteristics and Economic and Social Functional Values: we found that the woodland had a common species composition for southern Ontario, and that none of the species were unusual. We found nothing to suggest a high productivity of economically valuable products, a high value in special services (e.g., air quality improvement), or an important identified appreciation, education, cultural or historic value of the woodlands.

Based on the above-noted criteria, it is our opinion that the woodland areas on the subject property are not significant woodland for the purposes of the PPS.

We note that the woodland patches on the subject lands may still provide wildlife habitat for native species, particularly for songbirds. It is recommended that no clearing of trees or shrubs be undertaken between April 15 and September 15, that is during the breeding and nesting seasons, in order to protect these animals during sensitive life stages and to ensure compliance with the Migratory Birds Convention Act.

5.3 Wildlife Habitat

The PPS states that: “Development and site alteration shall not be permitted in ... (d) significant wildlife habitat ... unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.” As the site demonstrated a significant lack of natural habitats, the property lacked extensive wildlife habitat. To be considered significant wildlife habitat (SWH) for purposes of the PPS, a site must meet specific criteria related to its habitat, including: habitats supporting seasonal concentration of animals, rare vegetation communities, specialized habitats for wildlife, habitat for species of conservation concern, and animal movement corridors (set out in OMNR 2000 and OMNR 2015).

5.3.1 Seasonal Concentration Areas of Animals:

OMNR (2015) defines these as follows: “At certain times of the year, some species of wildlife are highly concentrated within relatively small areas.” Examples include critical spring and fall stopover areas for migratory birds, winter deer yards, and hibernation sites for snakes. OMNR (2015) provides specific guidance for Ecodistrict 6E, including ELC codes and defining criteria. We have considered all the SWH criteria, and list each of them below, with discussion of those that may be relevant in the study area. For the purposes of this discussion, we are using 120 m as “adjacent” lands, as directed by the Natural Heritage Reference Manual (OMNR 2010).

1. Seasonal Concentration Areas of Animals	
Waterfowl Stopover and Staging Areas (Terrestrial)	● Fields with spring sheet water, and SWH confirmation requires studies finding aggregations of ≥ 100 individuals.
	Present? No Adjacent? No
Waterfowl Stopover and Staging Areas (Aquatic)	● Water areas (ponds, marshes, lakes, etc.) used during migration, with large food supplies. Studies confirm aggregations of ≥ 100 individuals for 7 days (i.e., >700 use days).
	Present? No Adjacent? No
Shorebird Migratory Stopover Area	● Shorelines of lakes, rivers, wetland, beaches, etc. Studies confirm presence of 3 or more listed species and $>1,000$ shorebird use days.
	Present? No Adjacent? No
Raptor Wintering Area	● Habitat combination of fields and woodlands of a combined >20 ha size. Studies must confirm use by Short-eared Owls (SEOW) or Bald Eagles, or ≥ 2 of the listed raptor species and 10 individuals, and a minimum of 20 use days.
	Present? Not found in studies. Adjacent? No
	Between the forest and the cultural ecosites, the size requirement for this SWH is met of the property. Many such sites exist in the region with a combination of woodland and open habitat, and many with apparently more appropriate amounts of forest, particularly south of County Road 2. We reviewed the eBird database: 2012 work by Kurt Hennige reported two SEOW close to the subject property in the winter of 2012, but later searches revealed no others. Studies in the study by Chris Grooms in 2018, and by Kurt Hennige in 2020 and 2021 found none. There are many options for wintering raptors

	in the region, and no evidence that the subject property is being used by a large number of these birds. SWH criteria are not met.	
Bat Hibernacula	● Caves, abandoned mine shafts, underground locations. SWH confirmation requires studies showing the presence of hibernating bats.	
	Present? No	Adjacent? No
Bat Maternity Colonies	● Cavity trees, snags are preferred, with a large diameter (>25 cm dbh), with a density of >10/ha. SWH confirmation requires studies showing maternity use by a minimum number of bats (variable by species).	
	Present: No	Adjacent: Possible
	<p>Due to the history of the forest, most of the trees were fairly young, with the exception of a few larger trees in rocky areas. The required density of cavity trees was not met, and this does not meet the criteria for SWH.</p> <p>From acoustic work we have conducted over the past several years, we find bats in all sites, whether urban core, recreational park, cemetery, quarry, field, farm, or forest. While the SWH criteria are not met, it is likely that there is some maternity use on the development property (a portion of the FOD in the West Block, and a small corner of FOD5-3 in the East Block would be affected by the development proposal). We recommend that to avoid direct harm to bats during the maternity use season, there be no tree clearing from April 15 to September 15.</p>	
Turtle Wintering Areas	● Permanent water bodies or large wetlands, with sufficient water depth not to freeze and soft mud bottoms. SWH confirmation requires studies showing use by a minimum number of turtles (number required varies by species).	
	Present? No	Adjacent? No
Reptile Hibernaculum	● No ELC habitats directly related, but existence of rock piles, stone fences or old foundations would indicate candidate SWH, but must provide access below the frost line; observation of congregations of ≥5 snakes in the spring or fall; and site considered significant if any Special Concern species are present.	
	Present? Yes, SC species seen.	Adjacent? Possible
	<p>Extensive surveying was undertaken for snakes on the property, with particular concern for Gray Ratsnakes (a Species at Risk, discussed in Section 4.5 below), which is known from the region. One (dead) Eastern Garter Snake (<i>Thamnophis sirtalis</i>) and one Eastern Ribbon Snake (<i>Thamnophis sauritus</i>) were observed in the West Block in 2018, the latter at the edge of a corn field.</p> <p>In general, we found a low likelihood of snakes, due to the nature and land use of the site, and observed only two individuals (two species) over the course of the work, despite the number of hours</p>	

	<p>spent surveying. The observation of one Eastern Ribbon Snake, however, confirms the presence of SWH, as it is a species of Special Concern.</p> <p>As discussed in Section 3.0, the topography of the study area is fairly flat, with a few “knobs” of rock in places. However, we did not find any south-facing rocky slopes that would be favourable as potential hibernacula. We did not encounter any snake congregations during our spring surveys. Overall, the site did not meet the criteria for SWH, with the exception of the presence of the Ribbon Snake.</p> <p>The Eastern Ribbon Snake is listed as a Special Concern species under the Endangered Species Act (ESA), and the Great Lakes population is also listed as a Special Concern species under the federal Species at Risk Act (SARA). They are well known to be closely associated with water, and this is usually where they are observed. In their radio tracking study, Bell et al. (2007) found that these snakes spent most of their time within 5 m of a water body from June to September. The area where the snake was observed was a small wet pocket within a cornfield, which itself does not provide appropriate habitat conditions, but it was also within 5 m of one of the wet inclusions in the FOD area. Potential hibernaculum sites for this species would most likely occur within the FOD area, close to water. This area will not be affected by the proposed development, but we note that the future stormwater area may affect that part of the property or closely adjacent land. With no details about the design, extent, or location of the stormwater pond, we recommend that SWH be assessed specifically once those designs have been prepared, and that the presence of SWH be considered in the preparation of those designs.</p>		
<p>Colonial-Nesting Bird Breeding Habitat (Bank and Cliff)</p>	<p>● Exposed soil banks, undisturbed or naturally eroding. Studies confirm presence of 1 or more nesting sites with ≥8 Cliff Swallow pairs and or Bank Swallow pairs during spring breeding season.</p> <table border="1" data-bbox="488 1436 1395 1472"> <tr> <td data-bbox="488 1436 940 1472">Present? No</td> <td data-bbox="940 1436 1395 1472">Adjacent? No</td> </tr> </table>	Present? No	Adjacent? No
Present? No	Adjacent? No		
<p>Colonial-Nesting Bird Breeding Habitat (Trees/Shrubs)</p>	<p>● Nests in live or dead standing trees in wetland, lakes, etc. SWH confirmed by studies finding ≥5 active nests of Great Blue Herons or other listed species.</p> <table border="1" data-bbox="488 1583 1395 1619"> <tr> <td data-bbox="488 1583 940 1619">Present? No</td> <td data-bbox="940 1583 1395 1619">Adjacent? No</td> </tr> </table>	Present? No	Adjacent? No
Present? No	Adjacent? No		
<p>Colonial-Nesting Bird Breeding Habitat (Ground)</p>	<p>● Rocky islands or peninsulas within a lake or large river, nesting colonies of gulls and terns. SWH is confirmed the presence of a specified number of active nests (number depending upon species).</p> <table border="1" data-bbox="488 1730 1395 1766"> <tr> <td data-bbox="488 1730 940 1766">Present? No</td> <td data-bbox="940 1730 1395 1766">Adjacent? No</td> </tr> </table>	Present? No	Adjacent? No
Present? No	Adjacent? No		
<p>Migratory Butterfly Stopover Areas</p>	<p>Rare habitats within 5 km of Lake Ontario, minimum 10 ha in size.</p> <table border="1" data-bbox="488 1810 1395 1845"> <tr> <td data-bbox="488 1810 940 1845">Present? No</td> <td data-bbox="940 1810 1395 1845">Adjacent? No</td> </tr> </table>	Present? No	Adjacent? No
Present? No	Adjacent? No		
<p>Landbird Migratory</p>	<p>● Woodlot located on shorelines, and located within 5 km of Lake</p>		

Stopover Area	Ontario; woodlands must be >10 ha in size.	
	Present? No	Adjacent? No
Deer Yarding Areas	● Criteria for deer yarding areas are primarily snow seasonal snow depth and winter temperatures. Deer yards have been mapped by OMNRF district offices.	
	Present? No	Adjacent ? No
Deer Winter Congregation Areas	● Woodlots >100 ha, though smaller lots can be considered significant based on OMNRF studies. SWH confirmation is managed by the OMNRF, and they map deer winter congregation areas considered significant.	
	Present? No	Adjacent? No

5.3.2 Rare Vegetation Communities or Specialized Habitat for Wildlife:

a) **Rare Vegetation Communities**

OMNR (2015) defines these communities as follows: “. . . often contain rare species, particularly plants and small invertebrates, which depend on such habitats for their survival and cannot readily move to or find alternate habitats.” We have considered all the SWH criteria, and list each of them below, with discussion of those that may be relevant in the study area.

Cliffs and Talus Slopes	● Cliffs are vertical/near vertical bedrock >3 m in height. Talus Slopes are rock rubble at cliff bases made up of rocky debris. Most occur along the Niagara Escarpment.	
	Present? No	Adjacent? No
Sand Barren	● Sand Barrens are typically sparsely-vegetated, due to lack of moisture, periodic fires and erosion. SWH sand barrens are >0.5 ha.	
	Present? No	Adjacent? No
Alvar	● Alvars are level, mostly unfractured calcareous bedrock features overlain by a thin veneer of soil. The hydrology alternates periods of inundation and drought. Vegetation is usually specialized to the conditions. SWH alvars are >0.5 ha.	
	Present? No	Adjacent? No
Old Growth Forest	● Old Growth Forests have a multi-layered canopy in a mosaic of gaps of varied ages due to heavy mortality/turnover, with abundant snags/woody debris. SWH old growth forests are >30 ha, with ≥10 ha interior woodland habitat.	
	Present? No	Adjacent? No
Savannah	● Savannahs are tallgrass prairies with 25-60% tree cover. No minimum size.	
	Present? No	Adjacent? No
Tallgrass Prairie	● Tallgrass Prairies are dominated by prairie grasses and have <25% tree cover. No minimum size.	
	Present? No	Adjacent? No
Other Rare	● Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps.	

Vegetation Communities	Present? No	Adjacent? No
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b) Specialized Habitats for Wildlife

OMNR (2015) defines specialized habitat for wildlife as: “a community or diversity-based category, therefore the more wildlife species a habitat contains, the more significant the habitat becomes to the planning area. The largest and least fragmented habitats within a planning area will support the most significant populations of wildlife.” We have considered all the SWH criteria, and list each of them below, with discussion of those that may be relevant in the study area.

Waterfowl Nesting Area	<ul style="list-style-type: none"> ● A wetland >0.5 ha and the upland area extending 120 m from such a wetland or a cluster of <0.5 ha wetlands within 120 m of each other, where waterfowl nesting is known to occur. SWH confirmation requires studies showing the presence of a minimum number of the listed waterfowl (variable by species). 	
	Present? No	Adjacent? No
Bald Eagle and Osprey Nesting, Foraging, and Perching Habitat	<ul style="list-style-type: none"> ● An active nest tree associated with lake, pond, river or wetland shorelines. Man-made nests are not SWH. SWH confirmation requires studies finding 1+ active nests in the area. 	
	Present? No	Adjacent? No
Woodland Raptor Nesting Habitat	<ul style="list-style-type: none"> ● Natural or conifer plantation woodland/forest stands >30 ha, with >10 ha of interior habitat (200 m from the forest edges). SWH confirmation requires studies finding 1+ active nests from the listed species. 	
	Present? No	Adjacent? No
	Woodland patches are present on the property, but this SWH requires >10 ha of interior habitat that is over 200 m from the edges. This is not present, nor were any stick nests observed. May be present south of County Road 2.	
Turtle Nesting Areas	<ul style="list-style-type: none"> ● Sand/gravel in open, sunny areas away from roads (municipal/provincial road embankments are not SWH) and near water. SWH confirmation requires studies finding a minimum number of turtle nests (variable by species). 	
	Present? No	Adjacent? No
Seeps and Springs	<ul style="list-style-type: none"> ● Any forested area within the headwaters of a stream or river system. SWH confirmation requires studies finding 2+ seeps/springs in a site. 	
	Present? None observed	Adjacent? None observed
	No seeps or springs were observed during site visits. There is no clear source to the wet patches observed on site, however; it is assumed that they are merely the natural result of low-lying areas of terrain, but we cannot confirm no groundwater flows to the surface.	
Amphibian Breeding Habitat (Woodland)	<ul style="list-style-type: none"> ● A wetland, pond or vernal pools >500 m² within or adjacent to a woodland. SWH confirmation requires studies finding a minimum number of breeding individuals (variable by species). 	
	Present? No	Adjacent? No

Amphibian Breeding Habitat (Wetlands)	<ul style="list-style-type: none"> Wetlands >500 m² with standing water, typically >120 m from woodland. The presence of shrubs, logs or other calling structures may be important for some species. SWH confirmation requires studies finding a minimum number of breeding individuals (variable by species), including 2 or more of the listed species with Call Level Codes of 3. 	
	Present? No	Adjacent? No
	Spring surveys for calling amphibians were conducted in 2021 and the results are summarized in Attachment 3. None of the listed species was heard at the Call Code 3 level during any of the visits. This does not meet the criteria for SWH.	
Woodland Area-Sensitive Bird Breeding Habitat	<ul style="list-style-type: none"> Forests >30 ha with interior habitat ≥200 m from the edges, usually mature forests. SWH confirmation requires studies showing presence of nesting or breeding pairs of 3+ of the listed species. 	
	Present? No	Adjacent? No

5.3.3 Habitat of Species of Conservation Concern:

OMNR (2015) defines these as follows: “Habitats . . . include wildlife species that are listed as Special Concern or rare, that are declining, or are featured species.” They do not include habitats of Endangered or Threatened species. We have considered all the SWH criteria, and list each of them below, with discussion of those that may be relevant in the study area.

Marsh Bird Breeding Habitat	<ul style="list-style-type: none"> Wetland habitat with shallow water and emergent aquatic vegetation present. SWH confirmation requires studies showing use by a minimum number of the listed birds (variable by species). 	
	Present? No	Adjacent? No
	Breeding bird surveys were conducted during 2018, 2020, and 2021. The results, along with incidental observations, are provided in Appendix 4. The only marsh-associated bird observed in any significant number was the Red-winged Blackbird. The only listed species found during our surveys was one (2018) observation of an American Bittern. None of the threshold numbers required for SWH were found. Additionally, we note that the largest cattail marsh area (MAS2-1) that might provide appropriate habitat for marsh breeding birds lies well outside the area proposed for development.	
Open Country Bird Breeding Habitat	<ul style="list-style-type: none"> Large grasslands > 30 ha, includes natural and cultural types. SWH confirmation requires studies showing nesting/breeding presence of 2+ of the listed species. 	
	Present? Yes	Adjacent? Possible
	Two of the listed species were observed. Many Savannah Sparrows were observed, and they were seen in each year of observation – breeding was confirmed (feeding young). One Grasshopper Sparrow was observed on each of June 14 and June 28, 2021. Possible breeding was noted (singing bird on June 14), but breeding was not confirmed. As field studies must confirm the presence of nesting or	

	breeding of 2 or more of the listed species, the criteria are not met for SWH.	
Shrub/Early Successional Bird Breeding Habitat	<ul style="list-style-type: none"> Large fields >10 ha succeeding to shrubs/thicket. SWH confirmation requires studies finding nesting/breeding of ≥ 1 indicator species and ≥ 2 common species, or any SAR. 	
	Present? Yes	Adjacent? Possible.
	<p>One indicator species was observed (Brown Thrasher), and two common species (Eastern Towhee and Willow Flycatcher), almost exclusively on the West Block of the site, so this SWH factor was considered carefully. Brown Thrasher was observed on several different visits; breeding was confirmed on June 28, 2021 (feeding young). Eastern Towhee were observed three times (one and two individuals) and no evidence of breeding was confirmed. Willow Flycatcher was only observed once (2 birds in 2018) and no evidence of breeding was confirmed. Criteria include large field areas (>10 ha in size) succeeding to shrub and thicket habitat, and the presence of nesting or breeding of one indicator species and at least two of the common species. The habitat does not meet criteria for SWH.</p>	
Terrestrial Crayfish	<ul style="list-style-type: none"> Wet meadows and edges of shallow marshes within Southwestern Ontario. SWH confirmation requires studies showing the presence of 1+ individuals of the listed species. 	
	Present? No	Adjacent? No
Special Concern and Rare Wildlife Species	<ul style="list-style-type: none"> When element occurrences of Special Concern or provincially rare species occur within a 1 or 10 km grid, then ELC ecosites providing suitable habitat for those species would be candidate SWH. To confirm, inventory studies should be conducted when the species is most likely to be present or easily identifiable. 	
	Present? Yes, found in studies	Adjacent? Possible
	<p>There were a few listings of rare or Special Concern (SC) species within the UTM blocks covering the property (18VQ1916, 18VQ1917, and 18VQ1816): Black Tern, Red-headed Woodpecker, Eastern Milk Snake (though considered Not at Risk in Ontario, it is SC under SARA), and Midland Painted Turtle (though unranked under the ESA, it is SC under SARA). None of these species were observed on the property. Our bird observations are summarized in Attachment 4, and are posted in the eBird database. We did observe two other SC species during our field work. All species are discussed below.</p> <p>Black Tern (<i>Chlidonias niger</i>) is designated a species of Special Concern (SC) under the Endangered Species Act (ESA), but is designated ‘Not at Risk’ under the Species at Risk Act (SARA). This bird is a small tern, a long-distance migratory bird that nests in Ontario. They are found in wetland habitats, with a preference for shallow cattail marshes. This species was reported from the two UTM blocks on the east side of the site, possibly associated with the MAS2-1 wetland block or the sewage lagoons northeast of</p>	

<p>Lansdowne. The NHIC no longer provides the dates of its reports, but these are potentially old sightings. They were never observed on the property despite multiple bird surveys, and eBird shows no reports in the area in its database. It may be that the wetland habitat has become too dense with cattail growth to suit these birds. Regardless, the shallow cattail marsh area will not be impacted by the proposed development, and it is our opinion that the proposed development will have no impact on this species or its habitat.</p> <p>Red-headed Woodpecker (<i>Melanerpes erythrocephalus</i>) is listed as an SC species under the ESA, and as Endangered under SARA. This species has shown long-term declines, estimated at a 70% decrease in the population over the past 40 years. In Ontario, however, they are considered to be of Special Concern, as they are widespread across the southern part of the province, but rare. These birds are flexible in their habitat types (e.g., open oak and beech forests, grasslands, forest edges, orchards, pastures, riparian forests, roadsides, urban parks, golf courses, cemeteries, as well as along beaver ponds and brooks), but in the winter depend mainly on open, mature woodlands, such as oak stands, oak-hickory stands, maple stands, ash stands and beechwoods. Declines in Ontario are believed to be due to habitat loss due to forestry and agricultural, and the removal of dead trees in which they nest is also believed to be a threat to these birds. The property lacks the supporting woodland types and, as noted above, the NHIC no longer provides the dates of its reports, so these are potentially old sightings. eBird has no reports in this area of Ontario. These birds were never observed on the property despite multiple bird surveys. It is our opinion that the proposed development will have no impact on this species or its habitat.</p> <p>The Eastern Milk Snake (<i>Lampropeltis triangulum</i>) was assessed in 2015 and deemed Not at Risk by the Committee on the Status of Species at Risk in Ontario, and it is no longer listed under the ESA. We note, however, that it is still considered to be an SC species under SARA. This snake lives in a wide range of habitats, especially old fields and farm buildings where rodents are common. It is widespread and locally common in southern Ontario, but is considered to be rare to uncommon in the province (S3).</p> <p>As discussed above, extensive surveying was undertaken for snakes on the property. In general, we found a low likelihood of snakes, due to the nature and land use of the site, and observed only two individuals (two species) over the course of the work, despite the number of hours spent surveying. As this is not an SC species and it was not found during our survey work, it is our opinion that the</p>

	<p>proposed development will have no impact on this species or its habitat.</p> <p>Midland Painted Turtle (<i>Chrysemys picta marginata</i>) is designated as Special Concern under SARA (but is not listed under the ESA) due to the decline of the species from threats such as road mortality, nest predation, and habitat loss and degradation. These turtles are found in relatively shallow and well-vegetated wetlands and water bodies with abundant basking sites and organic substrate.</p> <p>There was a report in the NHIC database for one of the three UTM squares, 18VQ1917, and is most probably associated with the Lansdowne sewage lagoons. We surveyed for turtles on the property to the best of our ability, in accordance with the Blanding's Turtle survey protocol (OMNRF 2015b), but the lack of open water areas made surveys for basking turtles impossible. Despite many hours spent on site, we never found any turtles or any evidence of use by turtles (e.g., nesting). We are satisfied that the subject property does not provide any Midland Painted Turtle habitat. It is our opinion that the proposed development will have no impact on these animals.</p> <p>The Eastern Ribbon Snake (<i>Thamnophis sauritus</i>) was added as an SC species in 2008, and is also listed as an SC species under SARA. As noted above, they are well known to be closely associated with water. Bell <i>et al.</i> (2007) found that these snakes spent most of their time within 5 m of a water body from June to September. We observed one Eastern Ribbon Snake in a small wet pocket within a corn field on the West Block (see Figure 6). While this appeared to be very marginal habitat, it was within 5 m of the FOD area with wet inclusions. The presence of this SC snake means that this area of the site should be considered to be SWH.</p> <p>We note that the wet inclusions in the FOD + SW area will not be affected by the proposed development concept, which should protect this snake species. However, we have no details on the design specifics of the stormwater pond block, which is in immediate proximity to the spot where the snake was observed.</p> <p>We conclude that there is SWH associated with this area of the West Block. The swamp (SW) inclusion areas will not be impacted by the proposed development, but we recommend that the area within 5 m of those wet areas also be protected, and that may affect the Stormwater Block. We further recommend that the location, extent, and design of the stormwater pond be assessed in the planning stages with respect to potential impact to Eastern Ribbon Snakes.</p>
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	<p>Monarch (<i>Danaus plexippus</i>) is designated as SC under both the ESA and SARA. In Ontario, this butterfly lay eggs where milkweed is growing in open meadows (where the caterpillars are found), and uses a variety of wildflowers as a source of nectar to feed upon as adults. This species is most threatened by the loss of habitat in central Mexico where it overwinters, as well as by pesticide use throughout its range. The ecosites on the property did not offer significant milkweed production, but Monarchs were observed in both 2018 and 2019. It is out opinion that this species is unlikely to be impacted the proposed development.</p>
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5.3.4 Animal Movement Corridors:

OMNR (2015) states that these are habitats with “distinct passageways or [that] rely on well-defined natural features for movement between habitats required by the species to complete its life cycle.” They do not include habitats of Endangered or Threatened species. We have considered all the SWH criteria, and list each of them below, with discussion of those that may be relevant in the study area.

Amphibian Movement Corridors	Associated with Amphibian Breeding Habitat (Wetlands) – see discussion in section 5.3.2 b) – and usually with water-associated habitat. SWH confirmation requires studies conducted during amphibian migration.	
	Present? Not found in studies.	Adjacent? No
	Movement corridors are important for the SWH category Amphibian Breeding Habitat (Wetlands) because such habitat is typically surrounded by open land (>120 m from woodlands), and amphibians are more vulnerable over open ground (e.g., to predation, to road mortality, etc.). We found limited area of open water, the site is not SWH for Amphibian Breeding Habitat (Wetlands), and woodland cover for other life cycles stages is very limited on the property. It is possible that some frog species are using the various wetland communities to move through, but the criteria for the movement corridor SWH are not met.	
Deer Movement Corridors	This SWH would be associated with Deer Wintering Habitat. SWH confirmation requires studies conducted during deer migration.	
	Present? No	Adjacent? No

The SWH categories that are probably applicable are Reptile Hibernaculum and Special Concern and Rare Wildlife Species (both due to the observation of an Eastern Ribbon Snake). The current development design does not propose development on this part of the site, but development is proposed immediately east of the wet areas of concern in the West Block, and a Stormwater Pond is proposed immediately west, and actually encompassing a small area of SW. Our recommendation regarding a minimum setback of 5 m from any of the wet patches in this area should be used to inform planners in the detailed design phase.

5.3.5 Conclusion:

In conclusion, the subject lands provide limited wildlife habitat, due to their history of cultural (agricultural) land use. However, there are some remnants patches and areas that are in the early stages of re-naturalization. We found that conditions are such that the criteria are met for two of the SWH types set out in the criteria schedules for Ecoregion 6E (OMNR 2015), therefore this property may be considered to support significant wildlife habitat. The affected area is limited in size, and there is no development proposed to directly affect the area, but within close proximity.

Furthermore, we found that the site provides songbird habitat, and has ecological value in this regard. Many of the birds observed or heard on the site are common and insensitive species, but the site provides temporary or permanent habitat for many of the birds protected under the *Migratory Birds Convention Act*.

We offer the following recommendations:

1. Removal of trees or shrubs should take place outside of the breeding season (April 1 to September 15) for birds to ensure compliance with the Migratory Birds Convention Act.
2. If there is any exception to the exclusion period for cutting woody vegetation, surveys of every individual tree must be undertaken shortly beforehand to ensure that there are no active bird nests. If nests are present, cutting is not permitted.
3. The location, extent, and design of the stormwater pond area of the West Block should be assessed in the planning stages with respect to potential impact to Eastern Ribbon Snakes, and that the protection of SWH be considered in the preparation of those designs.
4. No development should occur within the swamp areas that provide Significant Wildlife Habitat for Eastern Ribbon Snakes.
5. No development or site alteration should occur within 5 m of those wet areas of SWH that are supporting Eastern Ribbon Snakes.

5.4 **Habitat for Species at Risk**

The PPS states that: “Development and site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements.” We reviewed the Natural Heritage Information Center (NHIC) database of element occurrences, and found a total of five species reports from the three 1-km² blocks within which the subject lands lie (18VQ1916, 18VQ1917, and 18VQ1816): Henslow’s Sparrow, Piping Plover, Eastern Meadowlark, Bobolink, and Blanding’s Turtle. These species, along with other observed or potentially present species at risk are discussed below.

Henslow’s Sparrow (*Ammodramus henslowii*) is designated an Endangered species under both the *Species at Risk Act* of Canada (SARA) and Ontario’s *Endangered Species Act* (ESA). The NHIC no longer provides observation dates, but it is assumed that this observation dates back to

the middle of the last century. This bird lives in open fields with tall grasses, flowering plants, and a few scattered shrubs, and is considered to be extirpated as a breeding species in Ontario, though a few migratory birds are seen in migration hotspots each spring. eBird observations show numerous sightings in northern New York, particularly around the Perch River State Game Management Area, but there are no sightings north of the St. Lawrence River in Ontario. Comparable results were found on iNaturalist. It is our opinion that the proposed development will have no impact on these birds.

Piping Plover (*Charadrius melodus*) is designated an Endangered species under both SARA and the ESA. Again, the NHIC no longer provides observation dates, but it is assumed that this observation dates back to the late 1800s. Although the Piping Plover was once common along sandy beaches in the Great Lakes area, overharvesting in the 19th century, and habitat disruption of their nesting beaches in the 20th century have extirpated this species from the Great Lakes, as well as other areas within North America (Weir 2008). eBird observations show several sightings at the east end of Lake Ontario in northern New York, but the closest sighting in Ontario is west of Kingston, at the Amherstview sewage lagoons (coincidentally, submitted in 1985 by Kurt Hennige, who did most of the bird surveys for this project). Comparable results were found on iNaturalist. It is our opinion that the proposed development will have no impact on these birds.

Eastern Meadowlark (*Sturnella magna*) is designated as a Threatened species under both SARA and the ESA. This grassland bird breeds primarily in moderately tall grasslands, such as pastures and hayfields, but also in alfalfa fields, weedy borders of croplands, roadsides, orchards, airports, shrubby overgrown fields, or other open areas. Small trees, shrubs or fence posts are used as elevated song perches. Threats include habitat loss and degradation, changes in farming practices, overgrazing of pasturelands, reforestation, and the use of pesticides. Eastern Meadowlarks were observed during the birding work and incidentally during other field work (Attachment 4), and breeding was confirmed on site.

It is our opinion that the site offers breeding habitat for Eastern Meadowlarks and, as such, development can only be permitted in accordance with provincial and federal requirements. As previously recommended for this site (Ecological Services 2019), we again recommend that the proponents seek advice from the Province through the Ministry of Environment, Conservation, and Park (MECP). We recommend that an Information Gathering Form be submitted to MECP to initiate the process.

Bobolink (*Dolichonyx oryzivorus*) is designated as a Threatened species both SARA and the ESA. This is a grassland bird species, populations of which have declined significantly since the 1960s, particularly in its range in eastern Ontario. Threats include “incidental mortality from agricultural operations, habitat loss and fragmentation, pesticide exposure and bird control at wintering roosts.” Bobolinks are found in grassy or weedy meadows, preferring habitat with moderate to tall vegetation, moderate to dense vegetation, and moderately deep litter, and without the presence of woody vegetation. They occur in native and cultural grasslands, hayfields, lightly to moderately grazed pastures, no-till cropland, small-grain fields, old fields, wet meadows, and planted cover. Bobolinks were observed during the birding work and incidentally during other field work (Attachment 4), and breeding was confirmed on site.

It is our opinion that the site offers breeding habitat for Bobolinks and, as such, development can only be permitted in accordance with provincial and federal requirements. As previously recommended for this site (Ecological Services 2019), we again recommend that the proponents seek advice from the Province through the Ministry of Environment, Conservation, and Parks (MECP). We recommend that an Information Gathering Form be submitted to MECP to initiate the process.

Blanding's Turtle (*Emydoidea blandingii*) is designated as a Threatened species under both SARA and the ESA. Blanding's Turtles can be found throughout southern, central and eastern Ontario. They live in shallow water, usually in large wetlands and shallow lakes with lots of water plants. The most significant threats to the Blanding's Turtle are loss or fragmenting of habitat, motor vehicles, and egg predation.

There was a report in the NHIC database for one of the three UTM squares, 18VQ1916. This area encompasses the MAS2-1 polygon in the East Block, but we note that there is extensive natural cover, including watercourses and open water patches on lands to the south of County Road 2. We surveyed for turtles on the property to the best of our ability, in accordance with the Blanding's Turtle survey protocol (OMNRF 2015b), but the lack of open water areas made surveys for basking turtles impossible. Despite many hours spent on site, we never found any turtles or any evidence of use by turtles (e.g., nesting). Additionally, the proposed development will not affect the MAS2-1 area. We are satisfied that the subject property does not provide any Blanding's Turtle habitat. It is our opinion that the proposed development will have no impact on these animals.

Barn Swallow (*Hirundo rustica*) is designated as Threatened under both the SARA and the ESA. They are so-named as they often inhabit old barns, where they build their nests in the rafters. Other nesting locations include bridges and culverts. Although there have been losses in the number of available nest sites such as open barns and in the amount of foraging habitat in open agricultural areas, the causes of the recent population declines are not well understood. These are aerial insectivores, and declines may be related to the use of pesticides and declining insect populations, among other factors (Nebel et al. 2010).

Barn Swallows were observed to be flying over the property on several occasions (Attachment 4), but a complete lack of appropriate structures means there is no nesting habitat on the property. This means, as set out in MECP (2021) that there is no Category 1 or Category 2 habitat on the property. We cannot demonstrate that there is no nesting within 200 m of the property, but we note that Category 3 habitat (the area between 5 and 200 m from a nest) has a high tolerance to alteration. Barn Swallows are highly tolerant of human activity, so if present, are unlikely to be impacted by the proposed activity. It is our opinion that the proposed development will have no impact on these birds.

The **Gray Ratsnake (*Pantherophis spiloides*)** is designated as a Threatened species under both SARA and the ESA. Also known as a Black Rat Snake or Eastern Ratsnake, the Great Lakes – St. Lawrence population of this species uses edge habitats, particularly old fields next to deciduous forest, and can often be found in hollow logs or rock crevices, or basking on bedrock outcrops. Threats include habitat loss and fragmentation and persecution by people, as well as motor vehicles and destruction of suitable hibernation sites. It is known to occur on the

Frontenac Axis/Canadian Shield areas, so was considered as a potential constraint to development on the subject lands.

We did not observe Ratsnakes on the subject property at any time between 2018 to 2021. However, we are aware that Ratsnakes are observed further south and southeast on a regular basis. As discussed above, extensive surveying was undertaken for snakes on the property, the effort expended largely due to the potential presence of Gray Ratsnakes. In general, we found a low likelihood of snakes, due to the nature and land use of the site, and observed only two individual snakes (Eastern Garter Snake and Eastern Ribbon Snake) over the course of the work, despite the number of hours spent surveying.

Of particular importance to these animals are their communal hibernacula and suitable nesting habitat, both for critical life stages:

Hibernacula:

The ratsnake populations in eastern Ontario represent the furthest northern reach of this species, which faces thermal challenges in order to survive. Surviving the Canadian winters is a particular challenge, and hibernacula (communal overwintering sites) are critical to that survival. OMNR (2012) notes that sites must be located below the frost line, but underground sites must also have the necessary moisture regime to keep snakes from desiccating during winter dormancy. The importance of hibernacula is also noted in the Gray Ratsnake Recovery Strategy by Kraus et al. (2010). Prior (1977) noted that preferred hibernacula sites are south facing, sloped rock walls with fracturing, with some sun exposure to provide emergent snakes the necessary thermoregulation to get over winter dormancy. This was also suggested by Prior and Weatherhead (1996) who found all of the hibernacula they discovered facing south. We found no such appropriate areas on the subject property. Nevertheless, it is well acknowledged that finding actual hibernacula entry points can be very difficult, which is why we additionally rely on the presence of spring congregations to indicate the presence of hibernacula.

During the spring and fall, Gray Ratsnakes emerge from their hibernacula and will stay within the immediate vicinity for several days to bask in the trees (Prior 1997) before foraging outwards, and Prior and Weatherhead (1996) noted that large partially dead trees were preferred. In this way they are not difficult to observe and we have observed several emergent congregations in this region. According to Blouin-Demers et al. (2000) peak spring emergence in this region occurs in early May with more emerging on hot days. Emergence can also occur over several weeks as not all snakes will emerge from a hibernacula at the same time, which increases the probability of discovering emergent snakes. With this in mind we looked for evidence of emergence congregations from early May onwards, also looking for evidence of these snakes during all visits. (These site visit days also involved early morning bird surveys, resulting in double coverage for snakes.) Throughout all other site visits between 2019 and 2021 we watched for Gray Ratsnakes. It would be reasonable to conclude that hibernacula were present if emergence congregations were observed on site, but no congregations were found and the only snake species observed on the property were an Eastern Garter Snake and an Eastern Ribbon Snake. The historical use of the property may also be relevant to the lack of Gray

Ratsnake sightings, as it has been mostly denuded of trees and used for agriculture and cattle grazing, which would not have been favorable to Gray Ratsnakes.

Nesting:

Egg laying sites may be typically found in rotting logs or compost piles, or under rocks. Gray Ratsnakes will typically return to use these sites for a number of years. The Leeds-Grenville Stewardship Council has had some success in building artificial nesting sites that are essentially large compost-filled structures.

The woodlands on the property are remnant patches that showed evidence of use by grazing animals. We did not observe any suitable sites that appeared to offer the necessary characteristics for nesting.

In summary, we found no Gray Ratsnakes on the subject lands during numerous site visits over several years, and we found no suitable habitat features for key life stages, including hibernacula or egg laying sites. It is our opinion that the proposed development will have no impact on these snakes.

6.0 RECOMMENDATIONS

1. No site alteration to marsh patches on the East Block between March 15 and June 30 in order to protect breeding amphibians during this critical life stage.
2. No removal of trees or shrubs should occur during the breeding season (April 1 to September 15) for birds to ensure compliance with the Migratory Birds Convention Act; and

No removal of trees or shrubs should occur between April 15 and September 15) to avoid direct harm to bats during the maternity use season; therefore

No removal of trees or shrubs should occur between April 1 and September 15 to avoid impact to woodland-using species that are protected by legislation.

3. If there is any exception to the exclusion period for cutting woody vegetation, surveys of every individual tree must be undertaken shortly beforehand to ensure that there are no active bird nests. If nests are present, cutting is not permitted.
4. The location, extent, and design of the stormwater pond area of the West Block should be assessed in the planning stages with respect to potential impact to Eastern Ribbon Snakes, and the protection of Significant Wildlife Habitat be considered in the preparation of those designs.
5. No development should occur within the swamp areas that provide Significant Wildlife Habitat for Eastern Ribbon Snakes.
6. No development should occur within 5 m of those wet areas of Significant Wildlife Habitat that are supporting Eastern Ribbon Snakes.

7. An Information Gathering Form should be completed and submitted to the Ministry of Environment, Conservation and Parks to seek compliance with government requirements regarding habitat for the Eastern Meadowlarks and Bobolinks, species at risk present on the site.

7.0 IMPACT STATEMENT

7.1 Wetland

Key Question: will the proposed development of the subject property cause impact to significant wetland in contravention of the Provincial Policy Statement?

No Loss of Significant Wetland: there is no Provincially Significant Wetland (PSW) on the property. As there will be no development in PSW, it is our opinion that the proposal will be consistent with the PPS.

No Site Alteration within Adjacent Lands: OMNR (2010) defines ‘adjacent lands’ for the purposes of the PPS as 120 m of land adjacent to PSW. As there is no PSW on the property or within 120 m of the property, the proposal will be consistent with the PPS.

In our opinion, the proposed development is consistent with policies 2.1.4 and 2.1.8 of the PPS.

We discuss the presence of other wetland areas in this report. In the West Block, we found small wetland (swamp) inclusions, which we deem to be Significant Wildlife Habitat, and have recommended protection and setbacks from this area (see below). In the East Block, we found a large patch of MAS2-1 wetland; the proposed development will not affect that wetland or the lands within 120 m. Additionally, we found a number of small wetland patches (MA). All of these patches were very small and demonstrated low ecological value. We have no objection to the loss of these patches, which will be lost to the proposed development, but we have made recommendations with respect to timing of this work, in order to avoid impacts to breeding amphibians.

7.2 Significant Woodlands

Key Question: will the proposed development of the subject property cause impact to significant woodlands in contravention of the Provincial Policy Statement?

Loss of Significant Woodlands: it is our opinion that there is no significant woodland on the property based on the criteria established by OMNR (2010). As there will be no development in significant woodlands, it is our opinion that the proposal will be consistent with the PPS.

No Site Alteration within Adjacent Lands: OMNR (2010) defines ‘adjacent lands’ for the purposes of the PPS as the area within 120 m of an identified significant woodland. As no development is proposed within 120 m of the woodlands on the property, the proposal will be consistent with the PPS. We note that the woodlands south of County Road 2 may be significant woodland, but there are no such candidate areas within 120 of the proposed development.

We note that the woodland areas, even if not significant for the purposes of the PPS, may still provide valuable ecological features and/or functions, such as nesting habitat for songbirds and summer maternity habitat for bats. On the East Block, a portion of the woodland block will be affected by the proposed development, and we have made recommendations with respect to timing the removal of any woody vegetation to minimize potential impacts; we also note that the portion of that woodland with the swamp inclusion patches will not be affected by the proposed development concept, and that minimum setbacks have been proposed to protect significant wildlife habitat therein (see below). In our opinion, the proposed development is consistent with policies 2.1.5 b) and 2.1.8 of the PPS.

7.3 Significant Wildlife Habitat

Key Question: will the proposed development of the subject lands cause any impact to significant wildlife habitat in contravention of the Provincial Policy Statement?

No Impact to Significant Wildlife Habitat: the site supports a very limited amount of significant wildlife habitat (SWH), as set out in the criteria established by the Ministry of Natural Resources and Forestry (OMNR 2010). Our identification of SWH is based on the presence of one species of conservation concern. The development concept will not affect that area of the property; therefore, there will be no direct impact to SWH. It is our opinion that the development proposal will be consistent with the intent of the PPS.

Potential Site Alteration within Adjacent Lands: OMNR (2010) defines ‘adjacent lands’ for the purposes of the PPS as the area within 120 m of identified significant wildlife habitat. We found a species of conservation concern in an area of the property closely adjacent to the proposed development on the West Block, thus within adjacent lands.

The PPS does permit development within and adjacent to significant wildlife habitat if it can be demonstrated that there will be no negative impacts on the natural features or their ecological functions. We have identified areas where, in our opinion, setbacks are required, and we have made recommendations in this regard. Assuming implementation of our recommendations, it is our opinion that the development will be consistent with the PPS.

In our opinion, the proposed development is consistent with policies 2.1.5 d) and 2.1.8 of the PPS.

As well, other areas were noted to have value for wildlife, although they did not meet the criteria to be deemed SWH. We have identified areas where, in our opinion, mitigation measures are required, and we have made several recommendations in this regard.

7.4 Significant Habitat of Endangered and Threatened Species

Key Question: will the proposed development of the subject property cause impact to significant habitat of endangered and threatened species in contravention of the Provincial Policy Statement?

Potential Loss of Significant Habitat: it is our opinion that there is habitat on the property for two Threatened species at risk, based on the criteria established by the Ministry of Natural Resources and Forestry (OMNR 2010). The PPS provides that development in such habitat may be permitted if it is in accordance with provincial and federal requirements. We have recommended that, as the property supports significant habitat for these snakes, the proponents must successfully obtain the necessary permits from the Province in order to be consistent with the PPS.

We are unable to find compliance with the PPS with respect to policy 2.1.7. The proponents must work with the Ministry of Environmental, Conservation and Parks to achieve compliance with policy requirements in order to make this determination.

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Attachment 1: Summary of site visits on the subject lands.

Date of Survey	Starting Time	Surveyors	Main Purpose of Visit
2018.06.28	09:45	Mary Alice Snetsinger Megan Snetsinger	First survey, bird assessment, ELC
2018.07.02	06:20	Chris Grooms	Bird survey
2018.07.11	10:15	Mary Alice Snetsinger Megan Snetsinger	ELC, snake survey
2018.09.27	10:30	Mary Alice Snetsinger Megan Snetsinger	ELC, wetland areas
2018.10.19	10:00	Mary Alice Snetsinger Megan Snetsinger	ELC, snake survey
2019.07.08	07:00	Mary Alice Snetsinger Megan Snetsinger	ELC, snake survey
2020.05.24	07:30	Kurt Hennige	Bird survey, snake observation
2020.06.07	08:30	Kurt Hennige	Bird survey, snake observation
2020.07.04	07:55	Kurt Hennige	Bird survey, snake observation
2021.04.12	21:30	Mary Alice Snetsinger Megan Snetsinger	Marsh Monitoring Survey
2021.05.19	20:00	Mary Alice Snetsinger Megan Snetsinger	Marsh Monitoring Survey
2021.06.24	14:45	Mary Alice Snetsinger Megan Snetsinger	ELC, wetland boundary work
2021.06.24	22:15	Mary Alice Snetsinger Megan Snetsinger	Marsh Monitoring Survey

Attachment 2: Site photographs taken by report author on various dates.

Attachment 3. Summary of marsh monitoring in Spring 2021.

Record of amphibian call surveying carried out by Mary Alice Snetsinger and Megan Snetsinger, following the Bird Studies Canada protocol for Marsh Monitoring. Call Level Code definitions: (1) Individual can be counted, calls no simultaneous (2) Some simultaneous calling, calls distinguishable, and number can be estimated; and (3) Full chorus; calls continuous and overlapping, cannot be accurately counted. Call code levels recorded for each listening period. (Actual number of individuals calling in brackets, if appropriate.)

Codes:	Common Name:	Scientific Name:
SPPE	Spring Peeper	<i>Pseudacris crucifer</i>
NLFR	Northern Leopard Frog	<i>Lithobates pipiens</i>
CHFR	Chorus Frog	<i>Pseudacris triseriata</i> & <i>P. maculata</i>
AMTO	American Toad	<i>Anaxyrus americanus</i>
GRTF	Gray Tree Frog	<i>Hyla versicolor</i>
GRFR	Green Frog	<i>Lithobates clamitans</i>

Results of Sampling:

Date	Stn.	Survey Time	Survey Temp.	SPPE	NLFR	CHFR	AMTO	GRTF	GRFR
2021.04.12	1	21:32	10° C	3	1	1 (1)	* ¹	-	
	2	22:04	10° C	3 * ²	-	2 (10 – 15)	1 (1)	-	
	3	21:40	10° C	1	-	-	1	-	
2021.05.19	1	21:16	18° C	2 (~6)	-	1	-	2 (~12)	
	2	20:29	18° C	2 (3 – 4)	1 (1)	-	1 (1)	2	
	3	21:24	18° C	-	-	-	-	-	
2021.06.24	1	22:18	21° C	-	-	-	-	-	1 (2)
	2	22:37	21° C	-	-	-	-	-	
	3	22:26	21° C	-	-	-	-	-	

Notes:

Station 1: N 44° 24.140', W 76° 00.995

Station 2: N 44° 23.896, W 76° 00.543

Station 3: N 44° 24.065', W 76° 01.156

2021.04.12: sunset 19:45; overcast, very light wind; rained earlier in the day.

2021.04.12, Station 1: *¹ AMTO heard calling from west side of Prince Street; added Stn. 3.

2021.04.12, Station 2: *² SPPE calling far in the distance, beyond the target wetland.

2021.05.19: sunset 20:29, no wind or precipitation.

2021.06.24: sunset 20:52, no precipitation, light wind.

Attachment 4. Summary of bird species observed during breeding bird surveys on the Lansdowne property during 2018 through 2021.

A – KH, May 24, 2021; B – KH, June 14, 2021; C – KH, June 28, 2021; D – KH, May 24, 2021; E – KH, June 14, 2021; F – KH, June 28, 2021; G – KH, May 24, 2020; H – KH, June 7, 2020; I – KH, July 4, 2020; J – CG, July 2, 2018, West Block; K – CG, July 2, 2018, East Block; L – miscellaneous observation, various observers during other field work, between 2018 and 2021.													
Species (Common Name)	West Block			East Block							W	E	
Survey Date:	A	B	C	D	E	F	G	H	I	J	K	L	
American Bittern				2	1						1		
American Crow	3	4	6	8	1	5	2	3	2	5	1	•	
American Goldfinch	5	11	10	2	3	5	3	3	1	12	6	•	
American Kestrel	1												
American Redstart					1						1		
American Robin	1	4	6	6	4	6	2	4	3	8	2	•	
Baltimore Oriole		1	1	1		1	1				1	•	
Barn Swallow			3			4		5	5	5	1	•	
Black-and-white Warbler							1						
Black-capped Chickadee										8	2		
Bobolink	2	5	2			2	1	3	3	20	27	•	
Blue Jay		3	2	7		2	3			1		•	
Brown-headed Cowbird			2	1	2	10					4		
Brown Thrasher	3	2	7	4	1	2	3			1			
Canada Goose				6									
Cedar Waxwing	1				5					2	2		
Chestnut-sided Warbler	1							1		1			
Chipping Sparrow		2						1		2	4	•	
Common Grackle	4	18	6	2	12	7	2	2	9	3	9	•	
Common Raven	1	2		2	2				2				
Common Yellowthroat	3	2	1	3	2	2	2	2	1	8	7	•	
Dark-eyed Junco												•	
Downy Woodpecker						1							
Eastern Kingbird		2	2	2	2	4	2	1	1	4	1	•	
Eastern Bluebird										1			
Eastern Meadowlark	2	5	7			1	1	2	4	2	7	•	
Eastern Phoebe	2	1	1					1				•	
Eastern Towhee		1			1					2		•	
European Starling	5	35	20	10	10	17	3	2	95	2	44		
Grasshopper Sparrow					1	1							
Gray Catbird		2	1			1	1	1	1	1	2	•	
Great Blue Heron	1		1	2	2	1					1		
Great-crested Flycatcher	1	1		2	1	1		2		1			
Green Heron				2		1							
House Sparrow						1				2			
House Wren		3				1				1	4	•	
Indigo Bunting	1									2			
Killdeer	1		1					1					
Mourning Dove	3	1	2	2	3	4	2	1	1	4	3		
Northern Cardinal				1					1	1			

Northern Flicker	1		1		4	2		1			1	
Northern Harrier					1							
Osprey	1											
Pileated Woodpecker					1							
Red-eyed Vireo	2	1		2	2	1	1	1		5	1	•
Red-winged Blackbird	15	20	19	20	20	24	6	6	13	45	46	•
Red-tailed Hawk	1											
Ring-billed Gull					1					2	2	
Rose-breasted Grosbeak	1			2						2		
Ruby-throated Hummingbird	1											
Ruffed Grouse							1					
Savannah Sparrow	3	9	7	1	2	5		2	6	2	29	•
Song Sparrow	11	13	6	8	6	4	4	5	8	38	14	•
Spotted Sandpiper							1			1		
Swamp Sparrow				2	5	2					2	
Tree Swallow	1			1				2		1		•
Turkey Vulture	1	2	3			1				2		
Warbling Vireo	1	3	1		1	2				1	1	
White-breasted Nuthatch										2		
Wild Turkey	1						1					•
Willow Flycatcher										2		
Wilson's Snipe				1			1					
Yellow Warbler	4	3			1	2	1	3		3	2	•

Notes:

- A. Eastern Meadowlark, breeding confirmed; Bobolink, breeding possible.
- B. Eastern Meadowlark, breeding confirmed.
- C. Eastern Meadowlark, breeding confirmed.
- D. Breeding confirmed Red-winged Blackbird, Common Grackle; breeding possible American Bittern.
- G. Eastern Meadowlark, breeding possible; Bobolink, breeding possible.
- H. Bobolink, breeding probable.
- I. Eastern Meadowlark, breeding confirmed; Bobolink, breeding confirmed. Breeding confirmed Savannah Sparrow.
- J. Eastern Meadowlark, breeding probable; Bobolink, breeding confirmed.
- K. Bobolink, breeding confirmed.

Attachment 5: Curriculum vitae of report author; those of other surveyors available on request.

CURRICULUM VITAE OF MARY ALICE SNETSINGER

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Employment

1993 - present: Environmental Consultant

Specializing in the preparation of strategic planning documents, natural areas management plans, environmental impact assessments, fish habitat assessments, and floral and faunal resource inventories.

2001 - 2002: Fish Habitat Biologist. Fisheries and Oceans Canada. Prescott, Ontario.

Reviewed referrals for works affecting fish habitat, preparing letters of advice and Authorizations under the Fisheries Act.

1993 - 1997: Ecosystem Management Coordinator. Parks Canada, St. Lawrence Islands National Park. Mallorytown, Ontario.

Coordination of ecosystem management pilot project for Ontario region. Responsible for project coordination, contract development and supervision, and liaison with federal, provincial/state, and local governments (Canadian and American), and with non-government organizations such as land trusts. Prepared an Ecosystem Conservation Plan to guide the park in the conservation and management of natural and cultural resources from an ecosystem perspective.

1981 - 1993: Biologist, Environmental Planner, and Planning Supervisor. Cataraqui Region Conservation Authority. Kingston, Ontario.

Positions of increasing responsibility, with a focus on environmental land use planning from 1984 to 1993. Held position of Planning Supervisor from 1990 to 1993. Developed a Conservation Strategy to guide the Authority in its natural resource conservation actions.

Education

M. Sc., Biology, Queen's University. Kingston, Ontario.

B. Sc., Biology, Queen's University. Kingston, Ontario.

Affiliations

Land Conservancy for Kingston, Frontenac, Lennox & Addington – Vice-President (2006 to present).
Ontario Land Trust Alliance – Past Governor on Board of Directors (2010 to 2014).