Natural Heritage Evaluation Report and Oak Ridges Moraine Conformity Evaluation

FINAL REPORT - UPDATE

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Sign-off Sheet

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Executive Summary

Stantec Consulting Ltd. (Stantec) was retained by S. Larkin Developments to undertake the necessary natural environment investigations to support a proposed site redevelopment and construction of additional buildings at 5435, 5455, and 5475 Old Brock Road, Pickering, Ontario. The City of Pickering requires a site plan application to address building expansion on the subject property, including the submission of a Natural Heritage Evaluation (NHE). This report satisfies the requirement for an NHE.

Under the ORMCP, the purpose of a NHE is: *"to provide guidance for assessing the impact of development and site alteration in Key Natural Heritage Features, and demonstrating how the requirements of Section 23 of the Oak Ridges Moraine Conservation Plan can be met"* (MNR, 2004). Our work plan was based on a review of the existing information available for this area, and was designed to address the objectives of Section 23 outlined in the ORMCP and technical papers.

Under the *Greenbelt Plan*, "The requirements made under the ORMCP (*Ontario Regulation 140/02)*, made under the *Oak Ridges Moraine Conservation Act*, 2001, continue to apply and the Protected Countryside policies do not apply with the exception of section 3.3." Therefore, this NHE also satisfies the requirements of the Greenbelt Plan.

Based on the information obtained through the various agencies, records review and site investigations, the following key natural heritage features (KNHFs) were identified in or within 120 m of the subject property:

- Glen Major Wetland Complex Provincially Significant Wetland
- A small unevaluated wetland area (meadow marsh)
- Significant Woodlands

Future development on the subject property must identify and assess any potential impacts on these natural heritage features and associated ecological functions to demonstrate compliance with polices outlined in the ORMCP as described in the scope of this report. This report demonstrates how the proposed development will have no adverse effects on the KNHFs or related ecological functions; identifies planning, design and construction activities that will maintain and/or improve the health and diversity of the KNHFs; and provides mitigation to support the maintenance and restoration of natural self-sustaining vegetation within the vegetation protection zone.

1.0 INTRODUCTION

Stantec Consulting Ltd. (Stantec) was retained by S. Larkin Developments Inc. to complete a Natural Heritage Evaluation Report (NHE) as required under the Oak Ridges Moraine Conservation Plan 2017 (ORMCP) for a development project. The proposed development is located at 5435, 5455, and 5475 Old Brock Road in the City of Pickering (the "subject property", Figure 1[1]). The purpose of the proposed development is to build new infrastructure that will provide services to the community, including a new gas station, industrial buildings, and associated parking. The City of Pickering (2010) requires a site plan application to address building expansion on the subject property, including the submission of a NHE.

1.1 SCOPE OF THE STUDY

This Natural Heritage Evaluation addresses the requirements of the ORMCP, specifically sections 20, 21, 22, 23, 26, 28, 29 and the Part III Table describing the minimum area of influence and minimum vegetation protection zones. Under Section 22 (3) of the ORMCP, an application for a proposed development that is within the minimum area of influence (which is generally 120 m) of a key natural heritage feature shall require a Natural Heritage Evaluation. This applies to the subject property.

Under the ORMCP, the purpose of a Natural Heritage Evaluation is "to provide guidance for assessing the impact of development and site alteration in Key Natural Heritage Features, and demonstrating how the requirements of Section 23 of the Oak Ridges Moraine Conservation Plan can be met" (MNR, 2004).

In accordance with Section 23(1) of the ORMCP, the following specific objectives are addressed in this NHE:

a) demonstrate that the proposed development will have no adverse effects on the key natural features or on related ecological functions

b) identify planning, design and construction practices that will maintain and, where possible, improve or restore the health, diversity and size of the key natural heritage features

c) determine whether the specified dimensions of a minimum vegetation protection zone are sufficient and, if it is not sufficient, specify the dimensions for the required minimum vegetation protection zone and provide for the maintenance and, where possible, improvement or restoration of natural self-sustaining vegetation within the vegetation protection zone

Under the *Greenbelt Plan*, "The requirements made under the ORMCP (*Ontario Regulation 140/02)*, made under the *Oak Ridges Moraine Conservation Act*, 2001, continue to apply and the Protected Countryside policies do not apply with the exception of section 3.3." Therefore, this NHE also satisfies the requirements of the Greenbelt Plan.

[1] Figures referenced throughout this report are provided in Appendix A.

The limits of the subject property for the proposed development are shown on Figure 1. Natural area designations on and adjacent to the subject property are shown on Figure 2, including the Glen Major Wetland Complex Provincially Significant Wetland (PSW). Adjacent features were considered as part of the study to determine any potential environmental impacts within 120 m of the proposed development (the "adjacent lands"), as required under the ORMCP.

1.1.1 Hydrological Evaluation

Under the ORMCP, the purpose of a Hydrological Evaluation (HE) is to provide *"guidance to assist municipalities, landowners, developers and their consultants in planning, developing and implementing the provisions of Section 26 of the ORMCP"* (MOE, 2005).

In accordance with Section 26(4) of the ORMCP, the following specific objectives should be addressed in a HE:

a) demonstrate that the development or site alteration will have no adverse effects on the key hydrologic feature or on related hydrological functions;

b) identify planning, design and construction practices that will maintain and, where possible, improve or restore the health, diversity and size of the key hydrologic features and with key natural heritage features;

c) determine whether the minimum vegetation protection zone whose dimensions are specified in the Table to this Part is sufficient, and if it is not sufficient, specify the dimensions for the required minimum vegetation protection zone and provide for the maintenance and, where possible, improvement or restoration of natural self-sustaining vegetation within it; and

d) in the case of an application relating to land in a Natural Core Area, Natural Linkage Area or Countryside Area, demonstrate how connectivity within an between key natural heritage features and key hydrologic features will be maintained and, where possible, improved or restored before, during and after construction.

A separate Functional Servicing and Stormwater Management Report (FSR) was prepared to assess the current and proposed hydrological condition (Stantec, 2019). The FSR will be referenced in this report to summarize the findings with respect to key hydrological features.

1.1.2 The Endangered Species Act, 2007

The provincial *Endangered Species Act, 2007* (ESA) received Royal Assent on May 17, 2007. With some minor exceptions, the Act came into force on June 30, 2008. The purposes of this Act are:

To identify species at risk based on the best available scientific information, including information obtained from community knowledge and aboriginal traditional knowledge.

To protect species that are at risk and their habitats, and to promote the recovery of species that are at risk.

To promote stewardship activities to assist in the protection and recovery of species that are at risk.

The legislation is the first in Canada to combine mandatory habitat protection with a science-based approach to listing species for protection. Species thought to be at risk are assessed by the Committee on the Status of Species at Risk in Ontario (COSSARO). COSSARO is an independent body that reviews species based on the best available science, including community knowledge and Aboriginal Traditional Knowledge.

Once species are classified "at risk", they are added to the Species at Risk in Ontario (SARO) list in one of four categories (extirpated, endangered, threatened and special concern). Extirpated, endangered and threatened species on this list receive legal protection under the ESA. In addition to protection of species (Section 9), protection of species' habitat (Section 10) is written into the ESA. A permit may be issued for activities that interact with a protected species or habitat, if the activity will result in an overall benefit to the species within a reasonable time (Section 17.2.c.).

Relevant regulations under ESA are identified as follows:

- **O. Reg. 230/08** lists species that are afforded protection under the ESA (2007).
- **O. Reg. 176/13 (amending 242/08)** contains several exemptions that remove the requirement for the ESA permitting for certain activities. Instead of permitting, the Regulation introduces a new compliance process **for some species**, which involves registering activities with the Ministry of Natural Resources and Forestry (MNRF) on an online registry. The registration process is proponent driven, and it is the proponent's responsibility to ensure the activity is eligible for one of the exemptions and that all requirements are met.

This report is also prepared to identify site specific requirements of the ESA (Section 6.3).

2.0 METHODOLOGY

2.1 BACKGROUND DATA REVIEW

A review of background information pertaining to the subject property and immediate adjacent lands was completed. Materials reviewed included:

- Ontario Natural Heritage Information Centre database (NHIC) (NHIC, 2015)
- Land Information Ontario Online database (LIO, 2015)
- Orthophotography (2011)
- Oak Ridges Moraine Guidance Documents (MOE, February, 2004)
- Oak Ridges Moraine Technical Papers (MNR, 2004)
- Oak Ridges Moraine Conservation Plan (May, 2017)
- City of Pickering Official Plan, Edition 8, and Schedules (2018)
- Township of Uxbridge Official Plan and Schedules (2014)
- Durham Regional Official Plan and Schedules (2017)
- The Living City Policies (Toronto and Region Conservation Authority, 2014)

Details regarding known species records and background information were available through the MNRF online database.

2.1.1 Toronto and Region The Living City Policies

The Living Cities Policies (TRCA, 2014) contains the “principals, goals, objectives and policies approved by the TRCA Board for the administration of TRCA’s legislated and delegated roles and responsibilities in the planning and development approvals process.”

Section 7.3.1.2 of the Living City Policies protects natural features development and site alternation, including “valley and stream corridors, wetlands, fish habitat, woodlands, wildlife habitat, habitat of endangered and threatened species, species of concern, Areas of Natural and Scientific Interest, key natural heritage features as per Provincial plans, [and] Environmentally Significant Areas.” Valley and stream corridors are defined as “the greater of the long-term stable top of slope/bank, toe of slope, Regulatory flood plain, meander belt and any contiguous natural features plus an applicable buffer.”

Section 7.3.1.4 of the Living City Policies provides direction for delineating natural features and buffers, including a 10 m buffer on valley and stream corridors and wetlands, and a 30 m buffer on Provincially Significant Wetlands (PSWs).

Section 8.2 of the Living City Policies provides requirements for development within areas that are regulated under O. Reg. 166/06, including valley and stream corridors, hazardous lands, watercourses, wetlands, and areas where development could interfere with the hydrologic function of wetlands.

Section 8.4.8 of the Living City Policies provides development setbacks to regulated areas, including 10 m from valley and stream corridors and wetlands, and 30 m from PSWs, and wetlands on the Oak Ridges Moraine; however, Section 8.4.9 of the Living City Policies states that "in recognition of the redevelopment and intensification trends within existing urbanized areas…development may be set back distances other that those listed in Section 8.4.8" provided conditions 8.4.9 a-b are met.

The development setbacks recommended in the Living City Policies are either consistent with or less conservative than the minimum vegetation protection zones described in the ORMCP (MMAH, 2017); therefore, this report will evaluate conformity with ORMCP minimum vegetation protection zones (Section 5).

2.2 SITE INVESTIGATIONS

To supplement the existing background information, site specific field investigations were conducted in 2016 to confirm and refine the boundaries, characteristics and significance of the natural features that may be affected by the proposed development (**Table 1**).

Table 1: Field Investigations

Purpose of Field Investigation	Date	Field Personnel
Wildlife Surveys		
Breeding bird	May 31, 2016	A. Taylor
	June 13, 2016	R. Wood
	June 28, 2016	D. Cameron
Vegetation Surveys		
Summer vegetation, Ecological Lands Classification, and Significant Wildlife Habitat	July 28, 2016	M. Straus
Fall vegetation, including assessment of bat roost trees	October 14, 2016	S. Spisani

2.2.1 Vegetation Communities and Flora

Vegetation community characterization and vascular plant surveys were completed in the summer and fall of 2016. The subject property was systematically covered on foot to ensure a complete inventory of plant species and vegetation communities potentially impacted by the proposed development. Access was not available to adjacent lands and they were observed from the road right-of-way.

Vegetation surveys included Ecological Land Classification (ELC) of vegetation communities and a floristic survey of the subject property and adjacent lands. Vegetation communities were delineated on aerial photographs and checked in the field; community characterizations were then based on the ELC system (Lee *et al.*, 1998). Botanical nomenclature largely follows Brouillet *et al.* (2010+). English colloquial names generally follow Newmaster *et al.* (1998).

Natural heritage information collected from the subject property was evaluated to confirm potential significance. Provincial significance of vegetation communities was based on the draft rankings assigned by the Natural Heritage Information Centre (Bakowsky, 1996). The provincial status of all plant species is based on Newmaster *et al.* (1998), with updates from the database of the Natural Heritage Information Centre (NHIC, 2014). Identification of potentially sensitive plant species is based on assignment of a coefficient of conservatism value (CC) to each native species in southern Ontario (Oldham *et al.*, 1995). The value of CC, ranging from 0 (low) to 10 (high), is based on a species' tolerance of disturbance and fidelity to a specific natural habitat. Species with a CC value of 9 or 10 generally exhibit a high degree of fidelity to a narrow range of habitat parameters.

Results of vegetation surveys are discussed in Section 3.3 and shown on Figure 3.

2.2.2 Wildlife and Wildlife Habitat

Observations of wildlife were noted during all site investigations and added to all pertinent species list, including both direct (visual, audible) and indirect (scat, brose, tracks) observations. A complete list of wildlife species identified during the various surveys is provided in Appendix C.

2.2.2.1 Breeding Birds and Bobolink

Two breeding bird surveys were conducted within the subject property and adjacent lands in 2016, including one early season (June 13), and one late season (June 28) survey using methods in accordance with the Forest Bird Monitoring Program (Cadman, 1998).

Breeding bird surveys were conducted by traversing the subject property on foot, recording all species of birds that were heard or seen. A conservative approach to determining breeding status was taken; all birds seen or heard in appropriate habitat during the breeding season were assumed to be breeding. Observations were separated into four different areas delineated primarily by vegetation type which included an area of existing development (farm buildings, Area 1), a grassy hill (Area 2), open (predominantly meadow, marsh, and row crops, Area 3), and a forested area (Area 4) adjacent to west side of the property (Figure 4).

Area 2 (Figure 4) was identified as potential Bobolink habitat. Point count surveys were conducted at one location in Area 2 (Figure 4) on May 31, June 13, and June 28, for a total of three (3) point count surveys.

Field work was undertaken early in the morning and under favourable weather conditions on May 31, 2016 at 09:10, on June 13, 2016 between 07:35 and 09:10 hrs, and on June 28, 2016 between 06:00 and 07:15 hrs. Weather conditions on the May 31st survey had an approximate temperature of 22^{O}C, with a wind of 1 (Beaufort scale) and a 20% cloud cover. The June 13th survey had approximate temperatures of 12°C, with a wind of 2 (Beaufort scale) and 30% cloud cover. The June 28th survey had approximate temperatures of 15°C, with no wind and 10% cloud cover. There was no precipitation during any of the surveys.

2.2.2.2 Wildlife Habitat

The MNR's Significant Wildlife Habitat Technical Guide (MNR, 2000) and SWH Ecoregion 7E Criterion Schedule (MNRF, 2015) defines Significant Wildlife Habitat in four categories: (1) seasonal concentrations of wildlife such as deer wintering areas, (2) rare vegetation communities or specialized habitat for wildlife such as vernal pools or snake hibernacula, (3) habitat for species of conservation concern, and (4) wildlife movement corridors. Field documentation of wildlife habitat occurred during the summer ELC and botanical field visit. The SWH Ecoregion 7E Criterion Schedule (MNRF, 2015) was applied to identify candidate and confirmed Significant Wildlife Habitat using ELC, habitat and wildlife observations. See 3.4.3 of this study for results.

In addition to application of SWH Ecoregion 7E Criterion Schedules, trees on the subject property were assessed to identify suitable roost trees for bats using *Bats and Bat Habitats Guidelines* (MNR 2011).

3.0 EXISTING CONDITIONS

3.1 BACKGROUND DATA REVIEW

The background review did not identify any Key Natural Heritage Features or Key Hydrologic Features within the subject property, including Provincially Significant Wetlands, Areas of Natural and Scientific Interest (ANSI), significant woodlands, and rare vegetation communities. A review of Species at Risk (SAR) records from the MNRF's Natural Heritage Information Centre (NHIC) database identified Henslow's Sparrow and Redside Dace within 1 km of the subject property. The Henslow's Sparrow record is from 1970 and is considered to be historical. The background review did not identify any watercourses or fish habitat on the subject property, and Fisheries and Oceans SAR mapping does not identify Redside Dace or Redside Dace critical habitat on or adjacent to the subject property (DFO, 2018).

The background review identified two Key Natural Heritage Features that are known to occur within 120 m of the subject property. These features are listed below and shown in Figure 2:

- The Glen Major Wetland Complex PSW (MNRF, 2016) occurs east of Brock Road.
- The City of Pickering (2017) designates significant woodlands west of Old Brock Road, and east of Brock Road.
- The Township of Uxbridge (2014) designates significant woodlands northeast of the subject property (north of Uxbridge Pickering Townline).

The background review did not identify known occurrences of other features:

- No ANSIs occur within 120 m of the subject property.
- No valleyland features meeting the criteria established by the province in the Natural Heritage Reference Manual (MNR, 2009) occur in or within 120 m of the subject property.
- No rare vegetation communities were identified in or within 120 m of the subject property (NHIC, 2015).

3.2 SITE INVESTIGATIONS

The purpose of the site investigations is to supplement the existing background information to confirm and refine the boundaries, characteristics and significance of the natural features that may be affected by the proposed development. The results of the site investigations are presented below.

3.3 VEGETATION COMMUNITIES AND FLORA

The vegetation community types delineated within the subject property are based on the Ecological Lands Classification (ELC) system, as shown of Figure 3. Within the subject property boundary, land use was variable and contained large sections of light industry and rural properties. Existing transportation routes abut the north, east, and west sides of the property boundary. All vegetation communities on the

subject property were disturbed due to historic and present day impacts associated with anthropogenic land use. Only two natural vegetation community types occurred within the subject property, mixed meadow and meadow marsh community types. Additional vegetation community types were recorded within 120 m of the subject property as part of the adjacent lands, including swamps and forest community types and small pockets of shallow and mineral marsh. All vegetation community types recorded for the subject property and adjacent lands are described in Table 2.

Table 2: Ecological Land Classification (ELC) Vegetation Types

ELC Type	Community Description
Meadow (ME)	
Mixed Meadow (MEM)	
MEMM3 Dry-fresh Mixed Meadow	One parcel of mixed meadow was encountered within the subject property. Various grasses and forbs dominated the area, including: awnless brome, fescue species, and redtop. Bird's-foot trefoil, wild carrot, and goldenrod species were also present as common forbs.
Forest (FO)	
Deciduous Forest (FOD)	
FODM8-1 Fresh-Moist Poplar Deciduous Forest	This community unit occurred to the west of Old Brock Road and was observed from the right-of-way. The canopy and sub-canopy was dominated by trembling aspen. The understorey and ground layer could not be observed due to limited access.
Swamp (SW)	
Deciduous Swamp (SWD)	
SWDM4-2 White Elm Mineral Deciduous Swamp	This community unit occurred to the west of Old Brock Road and was observed from the right-of-way. The canopy was abundant with white elm with associates of trembling aspen. Balsam poplar was occasionally present in the sub-canopy with scattered white elm. The edge of the swamp's understorey was lined with eastern white cedar. The understorey and ground layer could not be observed due to limited access.
SWDM4-5 (A and B) Poplar Mineral Deciduous Swamp	Both community units were present to the west of Old Brock Road and were observed from the right-of-way. The canopy in **SWDM4-5 (B)** was sparse due to an abundance of snag trees and rare occurrences of white elm were scattered throughout. The canopy in **SWDM4-5 (A)** had a higher abundance of trembling aspen. Both units contained balsam poplar in the sub-canopy, while willow species followed by common buckthorn were present in the understorey. The ground layer visible from the right-of-way consisted of broad-leaved cattails.
SWDM4-5 (C) Poplar Mineral Deciduous Swamp	This community unit was present to the east of Brock Road and was observed from the right-of-way. Trembling aspen was dominant in the canopy with associates of eastern white cedar. Rare occurrences of white pine extended beyond the height of the canopy layer. The sub-canopy and understorey consisted of eastern white cedar with sparse amounts of trembling aspen. The ground layer could not be observed due to access limited to the right-of-way.

ELC Type	Community Description
Marsh (MA)	
Meadow Marsh (MAM)	
MAMM1-3 Reed-canary Grass Graminoid Mineral Meadow Marsh	This community unit occurred on the subject property immediately west of Brock Road. It was dominated by reed-canary grass with horsetail species and panicled aster scattered throughout. A small area of broad-leaved cattails was also present. This is a small unevaluated wetland that corresponds with a topographic low on the subject property. It appears to receive runoff from Brock Road and agricultural (OAGM1) / industrial (CVC_2) areas of the subject property.
MAMM1-3 (B) Reed-canary Grass Graminoid Mineral Meadow Marsh	This small parcel of meadow marsh occurred to the west of Old Brock Road and was observed from the right-of-way. It was dominated by reed-canary grass and contained rare occurrences of spotted joe-pye-weed.
Shallow Marsh (MAS)	
MASM1-1 Cattail Mineral Shallow Marsh	One parcel of shallow marsh occurred to the east of Brock Road and was observed from the right-of-way. Rare occurrences of trembling aspen represented the sub-canopy and trees were scattered throughout the vegetation community. The marsh was dominated by narrow-leaved cattail.

None of the vegetation communities listed above is considered rare in the province.

During the botanical inventory, all observed and identifiable vascular plants were recorded. A total of 55 species of vascular plants were recorded from the area of investigation. 64% were native and 100% of the native plants have a rank of S5, indicating they are common and secure within Ontario. No SAR were documented during field investigations. None of the species observed had a CC of 9 or 10.

One species observed is locally rare in Site District 7E-4 (Varga, 2000):

- Tamarack (*Larix laricina*) – an R6 species, observed in the Poplar Mineral Deciduous Swamp (SWDM4-5(B)) vegetation community, west of the subject property.

No nationally or provincially rare, threatened or endangered species were found. A complete list of vascular plant species recorded from the property is included in Appendix B.

The wetland was delineated by an Ontario Wetland Evaluation System (OWES) certified Stantec biologist. The TRCA may determine the final wetland boundaries.

3.4 WILDLIFE AND WILDLIFE HABITAT

Terrestrial habitats on and adjacent to the subject property included deciduous forest, mixed meadow, swamp, meadow marsh and shallow marsh. These communities provide a range of habitats for a variety of flora and fauna species. A complete list of flora and fauna species observed during site investigations is provided in Appendix B and Appendix C, respectively.

3.4.1 Breeding Birds

In total, 28 species of birds were observed; of which 25 are likely to be breeding on the subject property. One species (Barn Swallow) was confirmed to be breeding on the subject property (refer to Section 6.3 of this report). Of the species observed, Turkey Vulture, Northern Rough-winged swallow, and Ring-billed Gull are not likely to be nesting on the subject property. All species observed are ranked S5 (Secure; common and widespread), or S4 (Apparently secure; uncommon but not rare).

Two SAR breeding birds were recorded during breeding bird surveys (Bobolink and Barn Swallow) and are discussed below. A complete list of birds observed is provided in Appendix C.

3.4.1.1 Bobolink

The Bobolink is generally referred to as a “grassland species”. It nests primarily in forage crops with a mixture of tall grasses and broad-leaved forbs, predominantly hayfields and pastures, but may also occur in old field meadows with suitable vegetation structure. Preferred ground cover species include grasses such as Timothy and Kentucky bluegrass and forbs such as clover and dandelion (COSEWIC 2010). Bobolink is an area-sensitive species, with reported lower reproductive success in small habitat fragments (Kuehl and Clark 2002; Winter et al. 2004).

Bobolink were observed breeding in the hayfield to the south of the subject property during the May 13 bird survey. Although no evidence of Bobolink breeding on the subject property was observed during the May 13 survey, old field meadow habitat was observed at Area 2 (Figure 4); therefore, the two additional breeding bird surveys were conducted. The old field meadow in Area 2 is small and isolated, and is only connected to the hay field to the south at one location (approximately 25 m wide). It includes short grass and forbs and does not resemble natural grassland or older pastures that are preferred by Bobolink (McCracken *et al.* 2013). No evidence of Bobolink breeding on the subject property was observed in either of the two subsequent surveys. See section 5.2 and 6.4 for conclusions of Bobolink observation.

3.4.1.2 Barn Swallow

Barn Swallow was observed during all three bird surveys and evidence of probable breeding activity (carrying nesting materials, and visiting probable nest site) was observed during the June 28 breeding bird survey. Barn Swallow nests on walls or ledges of barns as well as other human-made structures such as bridges, culverts or other buildings. It feeds on aerial insects generally while foraging in open habitat such as meadows, hay, pasture, and manicured areas. Barn Swallow is designated a Threatened species by COSWEIC and COSSARO. See section 6.0 and 6.4 for mitigation measures of Barn Swallow.

3.4.2 Incidental Observations of Wildlife

No additional species of wildlife were identified during the ELC fieldwork, and no incidental observations of other groups of wildlife (e.g. mammals) occurred during the breeding bird surveys.

3.4.3 Wildlife Habitat

The assessment of Significant Wildlife Habitat is presented under separate header for the following categories: (1) seasonal concentration areas, (2) rare or specialized habitat, (3) habitat for species of conservation concern, and (4) animal movement corridors. Candidate and confirmed habitat types were identified using the SWH Ecoregion 7E Criterion Schedule (MNRF, 2015).

3.4.3.1 Seasonal Concentration Areas

Seasonal concentration areas are those sites where large numbers of individuals or species congregate at one time of the year. Background data review and field did not identify any seasonal concentration areas in the subject property or adjacent lands. Deciduous Forests, and Deciduous Swamps (FOD, and SWD areas, Figure 3) may qualify as a candidate bat maternity colony (BMC); however, these features are located outside of the subject property and will be retained by the proposed development. The proposed development is separated from candidate habitats by existing roads (Old Brock Road and Brock Road) which are considered sufficient setbacks to protect the features. No further assessment of candidate bat maternity colonies is recommended.

Bats may also use buildings and open grown trees as summer roosts. Although these features do not qualify as SWH, some species are protected by the ESA. Trees were assessed and lacked roosting structures such as cavities and loose bark and are not considered suitable for bats. MNRF may require further assessment to determine presence absence of protected bats in the existing buildings (see Section 6.4).

3.4.3.2 Rare or Specialized Habitat

Rare or specialized habitats are two separate components of significant wildlife habitat. Rare habitats are those with vegetation communities that are considered rare in the province. It is assumed that these habitats are at risk and that they are also likely to support additional wildlife species that are considered significant. No rare vegetation communities were identified for the subject property or adjacent lands.

Specialized habitats are microhabitats that are critical to some wildlife species. The SWHTG (MNR 2010) identifies a number of habitats that could be considered specialized habitats, such as habitat for area sensitive species, forests providing a high diversity of habitats, amphibian woodland breeding ponds, turtle nesting habitat, highly diverse sites, seeps, and springs. None of these specialized habitats were observed on the subject property. The significant woodlands identified by the City of Pickering (2011), adjacent to the subject property, to the north and east are considered SWH. No other specialized habitats were identified for the subject property or adjacent lands.

3.4.3.3 Habitat of Species of Conservation Concern and Special Concern Species

Habitat for Species of Conservation Concern (HSCC) includes habitat for those species not covered under the *ESA* and includes those species classified as S1-S3 (S1; Critically Imperiled, S2; Imperiled, and S3; Vulnerable) or Special Concern (SC). No Species of Conservation Concern of Special Concern Species were identified on site.

3.4.3.4 Animal Movement Corridors

Animal Movement Corridors are well-defined natural features between habitats required by a species to complete its life cycle. There are two types of animal movement corridors in Ecoregion 7E, amphibian and deer movement corridors. As per the Ecoregion Criterion Schedule, movement corridors must connect candidate or confirmed Significant Wildlife Habitat features, including amphibian breeding habitat, deer yarding, or deer winter congregation areas. No animal movement corridors are present on the subject property or adjacent lands.

4.0 OAK RIDGES MORAINE CONSERVATION PLAN (ORMCP)

The subject property is located within a Rural Settlement area, which is part of the Countryside Areas. As per the ORMCP: "*Country Side Areas are areas of rural land use such as agriculture, recreation, residential development, Rural Settlements, mineral aggregate operations, parks and open space. Rural Settlements, which form part of Countryside Areas and are existing hamlets or similar existing small communities, generally long-established and identified in official plans*" (Part II, Land Use Designations).

Section 13 (4) states that "*with respect to land in a Rural Settlement, the following uses are permitted, subject to Parts III and IV, in addition to the uses listed in subsection 3:*

1. *Residential development in accordance with paragraphs 3 and 4 subsection 15(1).*
2. *Small-scale commercial, industrial, and institutional uses as described in section 40, but not subject to clauses (1) (a), (1) (c) or (2) (a) of that section.*"

Section 19 (2) of the ORMCP identifies provisions that apply with respect to land in Rural Settlement, and reads as follows:

> "*Sections 20 to 26, subsections 27 (1) and (2), sections 28 and 29, subsections 30 (1) to (12) and the Table to this Part apply with respect to land in the Natural Core Areas, Natural Linkage Areas and Countryside Areas.*"

Section 31 (3) of the ORMCP identifies provisions that apply with respect to land in Rural Settlement, and reads as follows:

> "*The following provisions for the Part apply to land in the Countryside Areas:*
>
> 1. *Sections 32 to 34*
> 2. *Subsections 35 (1), (4), (5) and (6).*
> 3. *Sections 36 to 40.*
> 4. *Subsections 41 (1), (4), (5) and (6)*
> 5. *Sections 42 to 47.*"

The provisions relating to key natural heritage features and key hydrologic features that are of specific relevance to the subject property are reproduced verbatim below.

"***Supporting connectivity***

20. Every application for development or site alteration shall identify planning, design and construction practices that ensure that no buildings or other site alterations impede any hydrological functions or the movement of plants and animals among key natural heritage features, key hydrologic features, and adjacent land within Natural Core Areas and Natural Linkage Areas.

Minimum area of influence and minimum vegetation protection zone

21. (1) For the purposes of this Part,

(a) the minimum area of influence that relates to a key natural heritage feature or key hydrologic feature described in Column 2 of the Table to this Part is the area referred to in the corresponding item in Column 3 of the Table; and

(b) the minimum vegetation protection zone that relates to a key natural heritage feature or key hydrologic feature described in Column 2 of the Table is the area determined in accordance with the corresponding item in Column 4 of the Table.

(2) If land falls within more than one key natural heritage feature or key hydrologic feature described in Column 2 of the Table, the minimum area of influence described in Column 3 that is the largest and the vegetation protection zone described in Column 4 that is the largest shall apply with respect to each feature for the purposes of this Plan.

(3) With respect to land that is in a Settlement Area on April 22, 2002, any provision referred to in subsection (4) prevails, to the extent of any conflict, over clause (1) (b) and subsection (2).

(4) Subsection (3) applies with respect to a provision of the applicable official plan or zoning by-laws, as the case may be, that is adopted on the basis of,

(a) environmental studies; or

(b) infrastructure planning including, without limitation, environmental assessments, infrastructure servicing studies and master environmental servicing studies.

Key Natural Heritage Features (KNHF)

22. (1) The following are key natural heritage features:

1. Wetlands.

2. Habitat of endangered, rare and threatened species.

3. Fish habitat.

4. Areas of natural and scientific interest (life science).

5. Significant valleylands.

6. Significant woodlands.

7. Significant wildlife habitat (including habitat of special concern species).

8. Sand barrens, savannas and tallgrass prairies.

(2) All development and site alteration with respect to land within a key natural heritage feature or the related minimum vegetation protection zone is prohibited, except the following:

1. Forest, fish, and wildlife management.

2. Conservation and flood or erosion control projects, but only if they have been demonstrated to be necessary in the public interest after all alternatives have been considered.

3. Development of infrastructure in accordance with the requirements set out in section 41.

4. Low-intensity recreational uses as described in section 37.

5. Any development and site alteration in Countryside Areas or Settlement Areas that is within the habitat of an endangered or threatened species, but only if,

i. it is not prohibited under the Endangered Species Act, 2007 and it complies with any requirements or restrictions under that Act, and

ii. it is not within any other key natural heritage feature or the related minimum vegetation protection zone.

6. Agricultural uses other than uses associated with on-farm buildings and structures, but only with respect to land in the minimum vegetation protection zone related to a key natural heritage feature and not in the key natural heritage feature itself.

(3) An application for development or site alteration with respect to land within the minimum area of influence that relates to a key natural heritage feature, but outside the key natural heritage feature itself and the related minimum vegetation protection zone, shall be accompanied by a natural heritage evaluation under Section 23.

(4) Despite subsection (3), a natural heritage evaluation is not required in the case of an application relating to the construction of a new building or structure in the minimum area of influence of a key natural heritage feature if the proposed building or structure is for agricultural uses, agriculture-related uses or on-farm diversified uses and is located a minimum of 30 metres from the key natural heritage feature.

(5) Any agricultural uses, agriculture-related uses or on-farm diversified uses that are carried out in the minimum area of influence that relates to a key natural heritage feature shall be carried out in accordance with best management practices to protect or restore key natural heritage features and related ecological functions.

Natural Heritage Evaluation

23. (1) A natural heritage evaluation shall,

(a) demonstrate that the development or site alteration applied for will have no adverse effects on the key natural heritage feature or on the related ecological functions:

(b) identify planning, design and construction practices that will maintain and, where possible, improve or restore the health, diversity and size of the key natural heritage feature and its connectivity with other key natural heritage features and with key hydrologic features;

(c) in the case of an application relating to land in a Natural Core Area, Natural Linkage Area or Countryside Area, demonstrate how connectivity within and between key natural heritage features and key hydrologic features will be maintained and, where possible, improved or restored before, during and after construction;

(d) if the Table to this Part specifies the dimensions of a minimum vegetation protection zone, determine whether it is sufficient, and if it is not sufficient, specify the dimensions of the required vegetation protection zone and provide for the maintenance and, where possible, improvement or restoration of natural self-sustaining vegetation within it;

(e) if the Table to this Part does not specify the dimensions of a minimum vegetation protection zone, determine whether one is required, and if one is required, specify the dimensions of the required vegetation protection zone and provide for the maintenance and, where possible, improvement or restoration of natural self-sustaining vegetation within it; and

(f) in the case of a key natural heritage feature that is fish habitat, ensure compliance with the requirements of the Department of Fisheries and Oceans (Canada).

(2) In the case of item 4 of the Table to this Part, the basis on which the determination and specification mentioned in clause (1) (e) is done shall include, without limitation, an analysis of land use, soil type, slope class, and vegetation type, using criteria established by the Government of Ontario, as amended from time to time.

Key Hydrologic Features (KHF)

26. (1) The following are key hydrologic features:

1. Permanent and intermittent streams.

2. Wetlands.

3. Kettle lakes.

4. Seepage areas and springs.

(2) All development and site alteration with respect to land within a key hydrologic feature or the related minimum vegetation protection zone is prohibited, except the following:

1. Forest, fish, and wildlife management.

2. Conservation and flood or erosion control projects, but only if they are determined to be necessary in the public interest after all alternatives have been considered.

3. Development of infrastructure in accordance with the requirements set out in section 41.

4. Low-intensity recreational uses as described in section 37.

5. Agricultural uses other than uses associated with on-farm buildings and structures, but only with respect to land in the minimum vegetation protection zone related to a key hydrologic feature and not in the key hydrologic feature itself.

(3) An application for development or site alteration with respect to land within the minimum area of influence that relates to a key hydrologic feature, but outside the key hydrologic feature itself and the related minimum vegetation protection zone, shall be accompanied by a hydrological evaluation under subsection (4).

(4) A hydrological evaluation shall,

(a) demonstrate that the development or site alteration will have no adverse effects on the key hydrologic feature or on the related hydrological functions;

(b) identify planning, design and construction practices that will maintain, and where possible improve or restore, the health, diversity and size of the key hydrologic features and with key natural heritage features;

(c) determine whether the minimum vegetation protection zone whose dimensions are specified in the Table to this Part is sufficient, and if it is not sufficient, specify the dimensions of the required minimum vegetation protection zone and provide for the maintenance and, where possible, improvement or restoration of natural, self-sustaining vegetation within it, and

(d) in the case of an application relating to land in a Natural Core Area, Natural Linkage Area or Countryside Area, demonstrate how connectivity within and between key natural heritage features and key hydrologic features will be maintained and, where possible, improved or restored before, during and after construction.

(4.1) Despite subsection (3), a hydrological evaluation is not required in the case of an application relating to the construction of a new building or structure in the minimum area of influence of a key hydrologic feature if the proposed building or structure is for agricultural uses, agriculture-

related uses or on-farm diversified uses and is located a minimum of 30 metres from the key hydrologic feature.

(4.2) Any agricultural uses, agriculture-related uses or on-farm diversified uses that are carried out in the minimum area of influence that relates to a key hydrologic feature shall be carried out in accordance with best management practices to protect or restore key hydrologic features and related ecological functions.

(5) In the case of items 11 and 12 of the Table to this Part, the basis on which the determination and specification mentioned in clause (4) (c) is done shall include, without limitation, an analysis of land use, soil type and slope class, using criteria established by the Government of Ontario, as amended from time to time.

Subwatersheds

27. (1) Except with respect to land in Settlement Areas, all development and site alteration with respect to land in a subwatershed are prohibited if they would cause the total percentage of the area of the subwatershed that has impervious surfaces to exceed,

(a) 10 per cent; or

(b) any lower percentage specified in the applicable watershed plan or subwatershed plan.

(2) Except with respect to land in Settlement Areas, in considering applications for development or site alteration with respect to land in a subwatershed the approval authority shall take into account the desirability of ensuring that at least 30 per cent of the area of the subwatershed has self-sustaining vegetation.

(3) With respect to land in Settlement Areas, in considering applications for development or site alteration with respect to land in a subwatershed the approval authority shall consider the importance of,

(a) ensuring that natural vegetation is maintained, and where possible improved or restored; and

(b) keeping to a minimum impervious surfaces and their impact on water quality and quantity.

Wellhead protection areas

28. (1) Despite anything else in this Plan except subsection 6 (1) and subsection (3) of this section, the following uses are prohibited with respect to land in wellhead protection areas established under section 42:

1. Storage, except by an individual for personal or family use, of,

i. petroleum fuels,

ii. petroleum solvents and chlorinated solvents,

iii. pesticides, herbicides and fungicides,

iv. construction equipment,

v. inorganic fertilizers,

vi. road salt, and

vii. contaminants listed in Schedule 3 (Severely Toxic Contaminants) to Regulation 347 of the Revised Regulations of Ontario, 1990.

2. Generation and storage of hazardous waste or liquid industrial waste.

3. Waste disposal sites and facilities, organic soil conditioning sites, and snow storage and disposal facilities.

(2) Despite anything else in this Plan except subsection 6 (1) and subsection (3) of this section, the following uses are prohibited with respect to land in the zero to two year time of travel zone within every wellhead protection area established under section 42:

1. Storage of animal manure, except by an individual for personal or family use.

2. Animal agriculture, except by an individual for personal or family use.

3. Storage of agricultural equipment, except by an individual for personal or family use.

(3) Subsections (1) and (2) do not apply to,

(a) an area in respect of which wellhead protection policies established under clause 42 (1) (b) have been incorporated into the relevant official plan; and

(b) any agricultural land if the owner or operator of the agricultural operation complies with all the standards established under the Nutrient Management Act, 2002 and any applicable requirement under the Clean Water Act, 2006.

(4) Every person who carries on a use listed in subsection (1) or (2), as owner or operator, shall prepare and maintain a site management and contingency plan that is aimed at reducing or eliminating the creation of materials referred to in subsection (1) or (2), as the case may be, and their release into the environment.

Areas of high aquifer vulnerability

29. (1) Despite anything else in this Plan except subsection 6 (1) and subsection (1.1) of this section, the uses listed in subsection (5) are prohibited with respect to land in areas of high aquifer vulnerability, as shown on the map entitled "Reference Map for Ontario Regulation 140/02 (Oak Ridges Moraine Conservation Plan) made under the Oak Ridges Moraine Conservation Act, 2001" dated March, 2002, on file in the offices of the Ministry of Municipal Affairs at Toronto.

(1.1) Subsection (1) does not apply to agricultural land in areas of high aquifer vulnerability if the owner or operator of the agricultural operation is carrying out operations that are regulated under the Nutrient Management Act, 2002 and complies with all the standards established under that Act.

(2) Copies of the map referred to in subsection (1) are available on a website maintained by the Government of Ontario.

(3) The boundaries of the areas of high aquifer vulnerability may be further defined in official plans, in a manner that is consistent with the map referred to in subsection (1), but with greater precision than the map can show.

(4) The further definition of boundaries described in subsection (3) does not require an amendment to this Plan.

(5) Subsection (1) applies to the following uses:

1. Generation and storage of hazardous waste or liquid industrial waste.

2. Waste disposal sites and facilities, organic soil conditioning sites, and snow storage and disposal facilities.

3. Underground and above-ground storage tanks that are not equipped with an approved secondary containment device.

4. Storage of a contaminant listed in Schedule 3 (Severely Toxic Contaminants) to Regulation 347 of the Revised Regulations of Ontario, 1990.

Landform conservation areas

30. (1) The following, shown on maps entitled "Landform Conservation Areas of the Oak Ridges Moraine", numbered 1, 2, 3 and 4, dated March, 2002 and on file in the offices of the Ministry of Municipal Affairs at Toronto:

1. Landform conservation areas (Category 1).

2. Landform conservation areas (Category 2).

(2) Copies of the map referred to in subsection (1) are available on a website maintained by the Government of Ontario.

(3) When official plans and zoning by-laws are amended in accordance with sections 9 and 10 of the Act to bring them into conformity with this Plan, the boundaries of the landform conservation areas may be further defined, in a manner that is consistent with the maps referred to in subsection (1), but with greater precision than the maps can show.

(4) The further definition of boundaries described in subsection (3) does not require an amendment to this Plan.

(5) An application for development or site alteration with respect to land in a landform conservation area (Category 1) shall identify planning, design and construction practices that will keep disturbance to landform character to a minimum, including,

(a) maintaining significant landform features such as steep slopes, kames, kettles, ravines and ridges in their natural undisturbed form;

(b) limiting the portion of the net developable area of the site that is disturbed to not more than 25 per cent of the total area of the site; and

(c) limiting the portion of the net developable area of the site that has impervious surfaces to not more than 15 per cent of the total area of the site.

(6) An application for development or site alteration with respect to land in a landform conservation area (Category 2) shall identify planning, design and construction practices that will keep disturbance to landform character to a minimum, including,

(a) maintaining significant landform features such as steep slopes, kames, kettles, ravines and ridges in their natural undisturbed form;

(b) limiting the portion of the net developable area of the site that is disturbed to not more than 50 per cent of the total area of the site; and

(c) limiting the portion of the net developable area of the site that has impervious surfaces to not more than 20 per cent of the total area of the site.

(7) Subsections (5) and (6) do not apply in respect of mineral aggregate operations.

(8) An application for major development with respect to land in a landform conservation area of either category shall be accompanied by a landform conservation plan that shows, on one or more maps,

(a) elevation contours in sufficient detail to show the basic topographic character of the site, with an interval of not more than two metres;

(b) analysis of the site by slope type (for example, moderate or steep);

(c) significant landform features such as kames, kettles, ravines and ridges; and

(d) all water bodies including intermittent streams and ponds.

(9) The landform conservation plan shall also include a development strategy that identifies appropriate planning, design and construction practices to minimize disruption to landform character, including,

(a) retention of significant landform features in an open, undisturbed form;

(b) road alignment and building placement to minimize grading requirements;

(c) concentration of development on portions of the site that are not significant;

(d) use of innovative building design to minimize grading requirements; and

(e) use of selective grading techniques.

(10) An application for development or site alteration that does not constitute major development, with respect to land in a landform conservation area of either category, shall be accompanied by a site plan that,

(a) identifies the areas within which all building, grading, and related construction will occur;

(b) demonstrates that buildings and structures will be located within the areas referred to in clause (a) so as to minimize the amount of site alteration required; and

(c) provides for the protection of areas of natural and scientific interest (earth science) in accordance with subsection (12).

(11) Subsection (10) does not apply in respect of mineral aggregate operations.

(12) An application for development or site alteration with respect to land in an area of natural and scientific interest (earth science) or the related minimum area of influence shall be accompanied by an earth science heritage evaluation that,

(a) identifies planning, design and construction practices that will ensure protection of the geological or geomorphological attributes for which the area of natural and scientific interest was identified; and

(b) determines whether a minimum vegetation protection zone is required, and if so, specifies the dimensions of that zone and provides for the maintenance and, where possible, improvement or restoration of natural self-sustaining vegetation within it.

(13) With respect to land in Settlement Areas, in considering applications for development or site alteration within landform conservation areas (Category 1 and 2) the approval authority shall consider the importance of adopting planning, design and construction practices that will keep disturbance to landform character to a minimum, so as to satisfy the requirements of subsections (5) to (11) if possible.

Excess soil and fill

36. (1) Official plan policies and development proposals shall incorporate best practices for the management of excess soil generated and fill received during any development or site alteration, including infrastructure development, to ensure that,

(a) excess soil is reused on-site or locally to the maximum extent possible;

(b) where feasible, excess soil reuse planning is undertaken concurrently with development planning and design; and

(c) the quality of fill received and the placement of fill at the site will not cause an adverse effect with regard to the current or proposed use of the property, the natural environment or cultural heritage resources and is compatible with adjacent land uses.

Small-scale commercial, industrial and institutional uses

40. (1) Small-scale commercial, industrial and institutional uses,

(a) are supportive of, complementary to or essential to uses that are permitted in Countryside Areas under sections 13, 14 and 17;

(b) do not require large-scale modification of terrain, vegetation or both or large-scale buildings and structures; and

(c) include, but are not limited to,

(i) commercial sales or services related to the management or use of resources located in the surrounding area,

(ii) portable mineral aggregate crushing plants, portable asphalt plants and composting plants, and

(iii) schools, places of worship, community halls, retirement homes, and cemeteries, intended mainly to serve nearby Rural Settlements within the Plan Area.

(2) *An application for a small-scale commercial, industrial or institutional use with respect to land in a Countryside Area shall not be approved unless the applicant demonstrates that,*

(a) it is not feasible to locate the use in a Settlement Area; and

(b) the buildings and structures will be planned, designed and constructed so as not to adversely affect,

(i) the rural character of the Countryside Areas, and

(ii) the ecological integrity of the Plan Area.

(3) An application for a small-scale commercial, industrial or institutional use with respect to land in a Countryside Area shall not be approved if it is to be located within a prime agricultural area.

(4) Subsection (3) does not apply to portable asphalt plants and portable concrete plants required to complete public authority contracts.

(5) An application to establish or expand a small-scale commercial, industrial or institutional use shall demonstrate that the new or expanded use will have no adverse impacts on surrounding agricultural operations and lands or that such impacts will be minimized and mitigated to the extent possible.

As per Section 13 (4) of the ORMP, with respect to land in Rural Settlement areas, Small-scale commercial, industrial, and institutional uses as described in section 40, are permitted (subject to Parts III (Protecting Ecological and Hydrological Integrity) and IV (Specific Land Use Policies)), but are not subject to clauses (1) (a), (1) (c) or (2) (a) of that section (as described above).

Official plan provisions, wellhead protection areas, areas of high aquifer vulnerability

42. (1) Every official plan shall contain policies that,

(a) establish wellhead protection areas, in accordance with subsection (2), around all existing and new wells for municipal water services;

(b) with respect to each wellhead protection area,

(i) prohibit or restrict the uses listed in subsections 28 (1) and (2), and

(ii) prohibit or restrict other uses that could adversely affect the quality or quantity of groundwater reaching a well; and

(c) encourage restrictions on haulage routes for transportation of chemicals and volatile materials in wellhead protection areas and in areas of high aquifer vulnerability under section 29.

(2) A wellhead protection area shall identify zones of contribution corresponding to,

(a) zero to two years of time of travel;

(b) two to ten years of time of travel; and

(c) 10 to 25 years of time of travel.

(3) Every regional municipality shall comply with clause (1) (a) on or before April 22, 2003.

(4) Every municipality other than a regional municipality shall comply with clause

(a) on or before October 22, 2003.

(5) Every municipality shall comply with clause (1) (b) on or before April 23, 2007.

Sewage and water services

43. (1) An application for major development shall be accompanied by a sewage and water system plan that demonstrates,

(a) that the ecological integrity of hydrological features and key natural heritage features will be maintained;

(b) that the quantity and quality of groundwater and surface water will be maintained;

(c) that stream baseflows will be maintained;

(d) that the project will comply with the applicable watershed plan and water budget and conservation plan; and

(e) that the water use projected for the development will be sustainable.

(2) Water and sewer service trenches shall be planned, designed and constructed so as to keep disruption of the natural groundwater flow to a minimum.

Stormwater management plans

46. (1) The objectives of a stormwater management plan are to,

(a) maintain groundwater quantity and flow and stream baseflow;

(b) protect water quality;

(c) protect aquatic species and their habitat;

(d) prevent increases in stream channel erosion; and

(e) prevent any increase in flood risk.

(2) A stormwater management plan shall provide for an integrated treatment train approach that uses a planned sequence of methods of controlling stormwater and keeping its impact to a minimum by techniques including, without limitation,

(a) lot level controls such as devices and designs that direct roof discharge to rear yard ponding areas;

(b) conveyance controls such as grassed swales; and

(c) end-of-pipe controls such as wet ponds at the final discharge stage.

(3) A stormwater management plan shall be prepared in accordance with the applicable watershed plan under section 24, if one exists."

Rapid Infiltration basins and columns

47. (1) Despite anything else in this Plan, new rapid infiltration basins and new rapid infiltration columns are prohibited.

(2) In subsection (1),

"rapid infiltration basin" means a basin or system of basins at or below surface grade that is constructed in porous soil and punctures through a relatively impermeable layer to gain access to a more permeable sand or gravel layer, so as to rapidly infiltrate the ground, at a single point or area of concentration, surface runoff collected from impervious surfaces;

"rapid infiltration column" means a column or system of columns at or below surface grade that is constructed in porous soil and punctures through a relatively impermeable layer to gain access to a more permeable sand or gravel layer, so as to rapidly infiltrate the ground, at a single point or area of concentration, surface runoff collected from impervious surfaces.

5.0 ORMCP CONFORMITY EVALUATION

5.1 ORMCP PLANNING CONTEXT

5.1.1 Land Use

The subject property is entirely located within the Oak Ridges Moraine (Figure 1). Land use mapping provided by the Ministry of Municipal Affairs and Housing (MMAH) designates the ORMCP plan area at this location as Rural Settlement Area. The Rural Settlement Area designation is consistent with the Rural Settlements Area shown in the City of Pickering Official Plan and the Hamlet designation provided in the Durham Region OP.

Section 19 (2) of the ORMCP identifies provisions that apply with respect to land in Rural Settlement, and reads as follows:

> *Sections 20 to 26, subsections 27 (1) and (2), sections 28 and 29, subsections 30 (1) to (12) and the Table to this Part apply with respect to land in the Natural Core Areas, Natural Linkage Areas and Countryside Areas.*

Section 31 (3) of the ORMCP identifies provisions that apply with respect to land in Rural Settlement, and reads as follows:

> *The following provisions for the Part apply to land in the Countryside Areas:*
>
> 1. *Sections 32 to 34*
> 2. *Subsections 35 (1), (4), (5) and (6)*
> 3. *Sections 36 to 40*
> 4. *Subsections 41 (1), (4), (5) and (6)*
> 5. *Sections 42 to 47*

The provisions relating to key natural heritage features and key hydrologic features that are of specific relevance to the subject property are reproduced verbatim in Section 4.0.

5.1.2 Key Natural Heritage Features

Section 22 of the ORMPC identifies the key natural heritage features (KNHFs) listed in Table 3 and identified on Figure 3. This table provides the results of the desktop review and field investigations by indicating KNHFs identified for the subject property and adjacent lands.

Table 3: Summary of Key Natural Heritage Features

No.	ORMCP Feature	Present	Results of Background Review
1	Wetlands	Yes	Field investigations identified a Reed-canary grass meadow marsh (MAMM1-3) at the southeast edge of the subject property, west of Brock Road. A review of MNRF mapping identified the Glen Major Wetland Complex PSW is located within 120 m of the subject property, to the east and to the west.
2	Habitat of endangered, threatened and rare species	Yes	Two threatened species were observed on the property: Barn swallow was observed foraging and visiting probable nesting sites at the existing structures on the subject property (Area 1, Figure 4). Bobolink was identified breeding to the south of the property. Although no breeding evidence was observed on the property. Buildings located on the subject property may also be suitable maternity roosts for endangered bats.
3	Fish habitat	No	A review of MNRF mapping, and field investigations did not identify any fish habitat in or within 120 m of the subject property.
4	Areas of Natural and Scientific Interest (ANSI) (life science)	No	A review of MNRF mapping and the City of Pickering and Township of Uxbridge OPs did not locate any ANSIs in or within 120 m of the subject property.
5	Significant Valleylands	No	Not defined in relevant municipal OPs, and no features meeting the criteria established by the province in the Natural Heritage Reference Manual (MNR, 2009).
6	Significant Woodlands	Yes	The City of Pickering (2011) and Township of Uxbridge (2014) designates Significant Woodlands, which have been identified within 120 m of the subject property.
7	Significant Wildlife Habitat	Yes	The deciduous forests, and deciduous swamps, identified within 120 m of the subject property during the field investigations, may qualify as candidate bat maternity colonies.
8	Sand barrens, savannas and tallgrass prairies	No	None identified in the background review or during site investigations.

5.1.3 Key Hydrologic Features

Section 26 of the ORMCP identifies the Key Hydrologic Features (KHF) listed in Table 4. This table provides the results of the desktop review and field investigations by indicating the KNHFs identified for the subject property and adjacent lands. These features are delineated on Figure 2.

Table 4: Summary of Key Hydrologic Features

No.	ORMCP Feature	Present	Results of Background Review
1	Permanent and intermittent streams	Yes	There is an existing culvert that runs underneath Brock Road at unit MAMM1-3 (Figure 3); however, it conveys intermittent sheet flow from a wide open road side drain and there is no fish habitat present. The portion with a defined channel is contained entirely within wetland unit MAMM1-3.
2	Wetlands	Yes	Field investigations identified a Reed-canary grass meadow marsh (MAMM1-3) at the southeast edge of the subject property, west of Brock Road. A review of MNRF mapping identified the Glen Major Wetland Complex PSW is located within 120 m of the subject property, to the east and to the west.
3	Kettle lakes	No	The background review (including an assessment of aerial photography) and site investigations did not identify any kettle lakes on the subject property or adjacent lands.
4	Seepage areas and springs	No	No seepage areas or springs were identified in the subject property or adjacent lands.

5.1.4 Wellhead Protection and Areas of High Aquifer Vulnerability

The ORMCP has developed specific policies related to Wellhead Protection Areas (Section 28) and areas of High Aquifer Vulnerability (Section 42). The nearest Wellhead Protection area as identified by the Durham Regional OP (2017; Schedule 'B' – Map 'B2') is greater than 5 km from the subject property, and Section 28 of the ORMCP does not apply.

The City of Pickering OP (2010; Map 13), and the Reference Map for Ontario Regulation 140/02 (Oak Ridges Moraine Conservation Plan) made under the Oak Ridges Moraine Conservation Act, 201 (Map 5 – Township of Uxbridge, City of Pickering) identifies the subject property as an area of low Aquifer Vulnerability, and Section 29 of the ORMCP does not apply.

5.1.5 Hydrological Evaluation

Section 26 (2) of the ORMCP prohibits all development and site alteration with respect to land within a key hydrologic feature or the related MVPZ. The proposed development is located outside the MVPZ for key hydrologic features identified in the Study Area, including 30 m from the wetland that is located at the southeast edge of the Subject Property (Figure 5).

The FSR (Stantec, 2019) reported that under existing conditions the subject property sheet drains south towards the wetland. The wetland also receives drainage from areas outside the subject property, including lands to the south, and drainage that enters the subject property from a roadside ditch along Old Brock Road.

With respect to the proposed development, the FSR (Stantec, 2019) found that:

- "…existing drainage patterns will be maintained and attenuated in accordance to ORMCP polices. Current Old Brock Road major/minor flow conveyance to the wetland southeast of the site will be preserved. Onsite major/minor flows will be captured and controlled in a proposed dry pond. An onsite oil-grit separator in combination with a dry pond and vegetated swale outlet will exceed the minimum requirements for onsite water quality treatment. A proposed dry pond will capture and detain surface water runoff to pre-development levels."

- "Various infiltration practices will be explored at the detailed design stage to satisfy the governing erosion control requirement [outlined in the City of Toronto's Wet Weather Flow Management Guidelines]. Practices may include but will not necessarily be limited to the use of vegetated filter strips, surface infiltration measures, subsurface infiltration measures, grass swales with stormwater retention zones. Rapid infiltration basins and columns will not be considered."

Based on these findings, negative adverse water quality or quantify effects to the wetland are not anticipated.

5.2 SUMMARY OF NATURAL HERITAGE CONSTRAINTS

The background review and site investigations identified a number of KNHFs and KHFs requiring consideration in regard to the proposed building expansion. This section identifies respective protection zones as required by the ORMCP and as determined by this NHE as discussed in the previous sections. Table 5 lists features and identifies the ORMCP trigger for study (i.e., the Minimum Area of Influence; MAOI) and the Minimum Vegetation Protection Zone (MVPZ). The MVPZ is also illustrated on Figure 5. Setbacks to species and habitat protected by the ESA are addressed separately in Section 6.3.

Table 5: Summary of Features and Associated Study Requirements and Protection Zones

ORMCP Feature	Minimum Area of Influence	Minimum Vegetation Protection Zone
Key Natural Heritage Features		
Wetlands	All land within 120 m of feature	All land within 30 m of feature
Habitat of endangered, threatened and rare species	All land within 120 m of feature	Habitat is protected by the ESA; therefore, species-specific requirements are to be determined via consultation with MRNF. Some MNRF guidance is available regarding delineation of habitat: **Barn Swallow** – the area within 5m of the nest is considered to have moderate tolerance to alternation, and the area between 5 and 200m is considered to have high tolerance (MNRF, undated-a).

ORMCP Feature	Minimum Area of Influence	Minimum Vegetation Protection Zone
		Bobolink – the area within 60m of the nest or center of approximated defended territory is considered to have moderate tolerance to alteration, and the area of continuous suitable habitat between 60 and 300m is considered to have high tolerance (MNRF, undated-b). **Endangered bats** - buildings located on the subject property may be suitable maternity roosts for ESA protected bats Refer to requirements under the ESA in Section 6.4 of this report.
Fish Habitat	All land within 120 m of feature	All land within 30 m of feature
Significant Woodlands	All land within 120 m of feature	All land within 30 m of the base of outermost tree trunks within the woodland
Significant Wildlife Habitat	All land within 120 m of feature	All land within 30 m of feature (as determined by NHE)
Key Hydrologic Features		
Permanent and intermittent streams	All land within 120 m of meander belt	All land within 30 m of meander belt
Wetlands	All land within 120 m of feature	All land within 30 m of feature
Seepage areas and springs	All land within 120 m of feature	All land within 30 m of feature

Section 22 (2) of the ORMCP prohibits all development and site alteration with respect to land within a key natural feature or the related MVPZ. Our review of the proposed plan (Figure 5) indicates that no encroachment into MVPZs is proposed. However, the proposed development will remove a probable Barn Swallow nesting structure. Protection for Barn Swallow and their habitat is provided by the ESA. Potential impacts, mitigation measures and authorization requirements for are discussed in Section 6.0.

The old field meadow habitat identified in Area 2 is connected to Bobolink habitat south of the subject property at one location (approximately 25 m wide). Because Area 2 is not suitable breeding habitat for Bobolink, and no evidence of Bobolink breeding on the subject property was observed during targeted surveys, Area 2 is not considered Bobolink habitat, and a vegetation protection zone does not apply.

6.0 POTENTIAL IMPACTS AND MITIGATION MEASURES

As described in Section 5.2, the following KNHF are known to occur within approximately 30 m (within the MVPZs) of the proposed development:

- Barn Swallow nesting structure

Potential impacts to all KNHFs within the subject property are discussed below. Implications of the ESA are addressed in Section 6.3 of this report.

6.1 POTENTIAL IMPACTS

Potential impacts of the proposed development on the habitat of endangered, threatened and rare species include direct impact (removal) of a Barn Swallow nesting structure. Requirements under the ESA for Barn Swallow are discussed in Section 6.3 of this report.

Indirect impacts resulting from construction activities, such as noise, dust generation, sedimentation and erosion are expected to be short term, temporary in duration and mitigated through the use of standard site control measures.

The Hydrogeological Evaluation recommended identify Erosion and Sediment Control measures, and a temporary grading plan, to reduce the potential for effects to the subject property. Additional Hydrogeological studies will be required prior to finalizing detailed design, and should include potential effects to the unevaluated wetland on the subject property (MAMM1-3; Figure 3), as well as requirements for construction phase dewatering, and long term implications to the water balance.

6.2 RECOMMENDED MITIGATION STRATEGY

The following section provides recommendations to be considered during construction of the proposed building developments are intended to minimize or mitigate potential adverse impacts on KNHFs. These avoidance, mitigation and restoration measures, as well as implementation of construction best management practices, should be implemented through all phases of construction.

6.2.1 Avoidance

Avoidance of KNHFs and minimizing encroachment into the MVPZs is the preferred strategy for the proposed development. Where possible, the following avoidance strategies should be implemented:

- Proposed expansions have been located outside or setback from identified KNHFs and MVPZs, where feasible.
- Any proposed construction work associated with the expansion will occur outside of KNHFs and MVPZs where possible.

6.2.1.1 Migratory Birds

To address the federal *Migratory Bird Convention Act, 1994* construction should avoid disturbance to the nests of migratory birds. The Primary Nesting Period (PNP) is the period when the percent of total nesting species is expected to be greater than 10%. The PNP for the subject property is generally from April 1 and August 15, although nesting also infrequently occurs outside of this period (Environment Canada, 2014). Vegetation clearing and removal of existing building should occur outside the PNP to avoid active nests. Should construction be required during the PNP, surveys identify the presence/absence of protected nests in vegetation and on buildings in the work area. If a nest is located, a designated buffer will be marked off within which no construction activity will be allowed while the nest is active. The radius of the buffer width ranges from 5 - 60 m depending on the species.

6.2.2 Mitigation

In addition to the implementation of the avoidance measures described above, the following mitigation measures are recommended to be implemented prior to, during and following any construction activities:

- Maximize setbacks from KNHFs and MVPZs, where feasible
- Clearly delineate/demarcate work areas to avoid encroachment and incidental damage to natural vegetation
- Accidental damage to trees, or unexpected vegetation removal, should be replaced / restored with native species
- Erosion and sediment control structures (i.e., silt fencing) should be installed, monitored and maintained regularly to ensure that they are fully functional, especially following a major rainfall event
- Silt fencing should be placed as far away as possible from the existing unevaluated wetland on the subject property (MAMM1-3) and the associated MVPZ
- All maintenance activities, vehicle refueling or washing, as well as the storage of chemical and construction equipment should be located outside of KNHFs and MVPZs
- In the event of an accidental spill, the MOECC Spills Action Centre should be contacted and emergency spill procedures implemented immediately

6.2.3 Restoration

Ongoing monitoring of any areas disturbed during construction should occur to ensure restoration areas are restored appropriately. Further details with respect to specific restoration activities should be completed during detailed design prior to construction.

6.3 NET EFFECTS

Potential impacts to the KNHFs in the subject property and adjacent lands resulting from the proposed building expansion are anticipated to be negligible. The subject property has been previously disturbed, and is surrounded on three sides by paved municipal roads.

While the potential exists during construction for temporary impacts on the natural features, avoidance and mitigation measures described above are recommended to be implemented during construction to minimize potential impacts and to restore disturbed or impacted areas to pre-construction condition.

6.4 REQUIREMENTS UNDER THE ENDANGERED SPECIES ACT, 2007

Two SAR protected by the ESA are known to occur in the subject property or adjacent lands:

- Barn Swallow – observed visiting probable nesting site(s);
- Bobolink – observed singing on fenceposts within Area 2 (Figure 4), and display flight observed overtop of existing farm buildings (Area 1, Figure 4).

Bobolink nests and nesting habitat are protected by the ESA, however, fieldwork completed for this report confirmed that Bobolink habitat is not present on the subject property, and the proposed development will not impact the potential Bobolink habitat identified on adjacent property, therefore approval under the ESA will not be required for this Project in respect to Bobolink. Consultation with MNRF should be completed to confirm this recommendation.

Endangered bats may also use buildings on the subject property and consultation with MNRF is recommended to determine if surveys are required to determine presence absence of ESA protected species.

6.4.1 Barn Swallow

Barn Swallow nests and nesting structures are protected by the ESA, therefore approval under the ESA will be required if a nest or structure with nests will be removed, including the trailer identified on site as a probably barn swallow nesting location. It is noted the identified trailer is owned by a third party and not owned by S. Larkin Developments Inc. Ontario Regulation 242/08 of the ESA (hereafter referred to as the “Regulation”) allows individuals and businesses to undertake eligible development activities within the habitat of Barn Swallow by registering with the MNRF and following the rules outlined within the Regulation, including observation of a restricted period for nest removal, and implementation of habitat compensation and monitoring. No part of any activity that is likely to damage or destroy the habitat of Barn Swallow or kill, harm and harass Barn Swallow can occur between May 1 and August 31 of any year. This timing window corresponds with the breeding, nesting, and rearing period for Barn Swallow, so any potentially harmful activities must not take place while birds are on site.

Under the Regulation, if a Barn Swallow nesting structure is removed, an alternative nesting structure must be provided. The size of the nesting structure to be provided is determined by the size of the structure that is to be removed, and the number of barn swallow nests in the structure to be removed. The alternative nesting structure must be erected prior to the existing structure being removed, and the existing structure may not be removed during the Barn Swallow nesting season (May to August).

Consultation should occur with MNRF to determine if the proposed activities are eligible under the Regulation and identify other approval requirements under the ESA.

6.4.2 Endangered Bats

Buildings that support maternity roosts of endangered bats may be protected by the ESA. Consultation should occur with MNRF to determine if the buildings in Area 1 and the north part of Area 3 (Figure 4) require surveys to determine presence/absence of endangered bats. If required, visual and acoustic surveys should be conducted during suitable conditions (15ºC and low wind), starting 0.5 hours before sunset and continuing for at least 1 hour. Each potential roost sit should be monitoring on two evenings.

If surveys confirm the presence of endangered bats, authorization is required under the ESA to remove the buildings.

7.0 CLOSING

This Natural Heritage Evaluation Report and Oak Ridges Moraine Conformity Statement has been prepared by Stantec to assist S. Larkin Developments with a proposed development project, as required under the Oak Ridges Moraine Conservation Plan and by the City of Pickering.

In conjunction with the two additional reports prepared by Stantec Consulting Ltd. for Geotechnical/ Hydrogeological and the FSR it addresses and satisfies the requirements of the ORMCP, specifically sections 20, 21, 22, 23, 26, 28, 29 and the Part III Table.

This report is intended to provide guidance for assessing the impact of development and site alteration in Key Natural Heritage features. Under Section 23, ORMCP - Natural Heritage Evaluation , this report demonstrates how the proposed development will have no adverse effects on the KNHFs or related ecological functions; identifies planning, design and construction activities that will maintain and/or improve the health and diversity of the KNHFs; and provides mitigation to support the maintenance and restoration of natural self-sustaining vegetation within the vegetation protection zone.

The data presented in this report are in accordance with Stantec’s understanding of the Project at the time of reporting.

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APPENDIX A
Figures

649250 649500 649750 650000 650250 650500

4872750 4872500 4872250 4872000

Uxbridge Pickering Townline Road

Old Brock Road

Brock Road

Hoxton Street

Track Street

Sideline 16

N

Stantec

Legend

Property Boundary

0 100 200 metres

1:5,000 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2019.
3. Orthoimagery © First Base Solutions, 2019. Imagery Date, 2018.

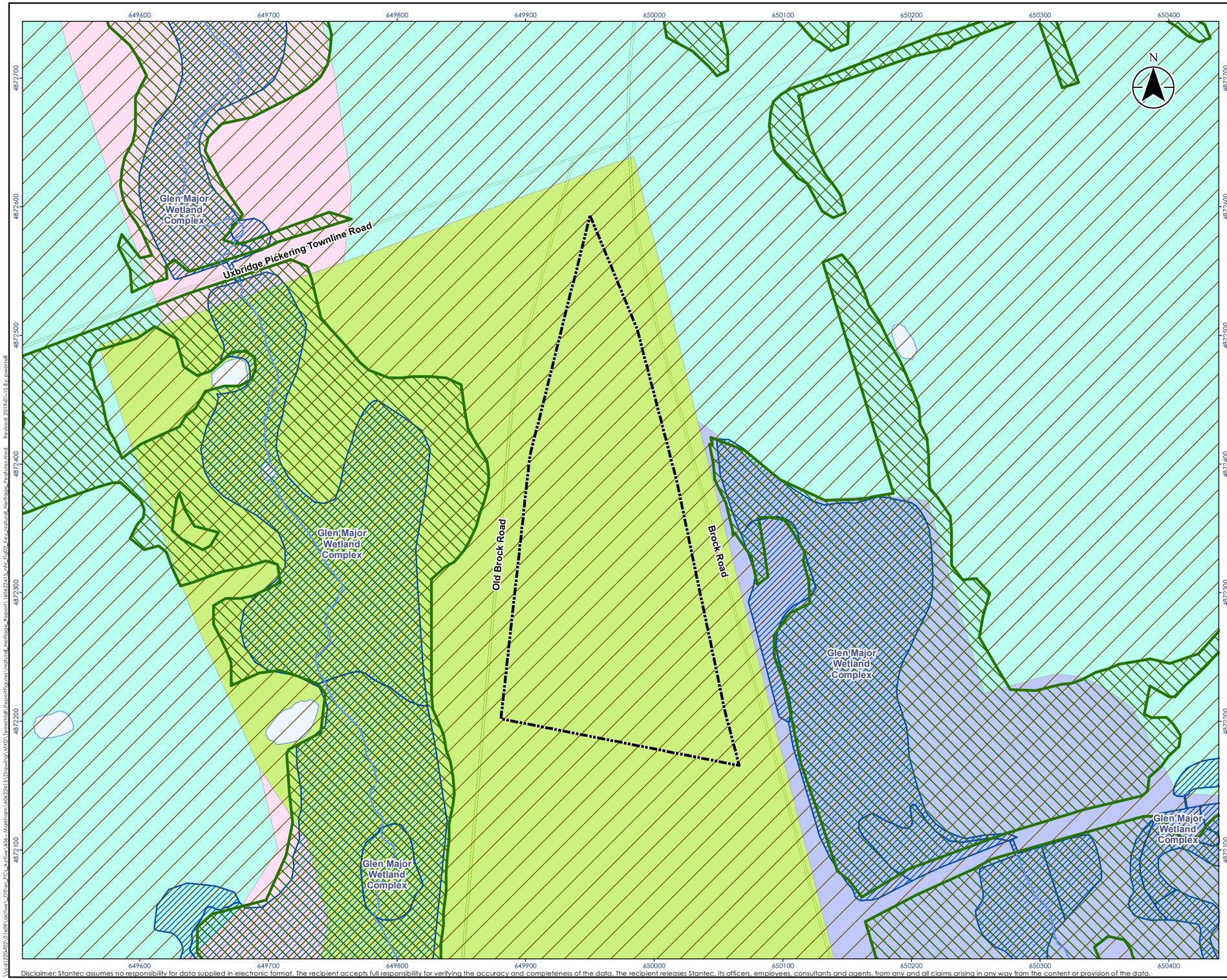
Project Location
Regional Municipality of Durham

160622415
Prepared by PW on 2019-01-15

Client/Project
S. LARKIN DEVELOPMENTS INC.
CLAREMONT NORTH BUSINESS PARK

Figure No.
1

Title
Location Map



Stantec

Legend

- Property Boundary
- Watercourse
- Oak Ridges Moraine Conservation Plan
- Significant Woodland
- Waterbody
- Wetland - Evaluated (Provincial)

ORM - Land Use Designations (MNRF)

- Countryside Area
- Natural Core Area
- Natural Linkage Area
- Rural Settlement

0 50 100 metres

1:3,000 (At original document size of 11x17)

Notes

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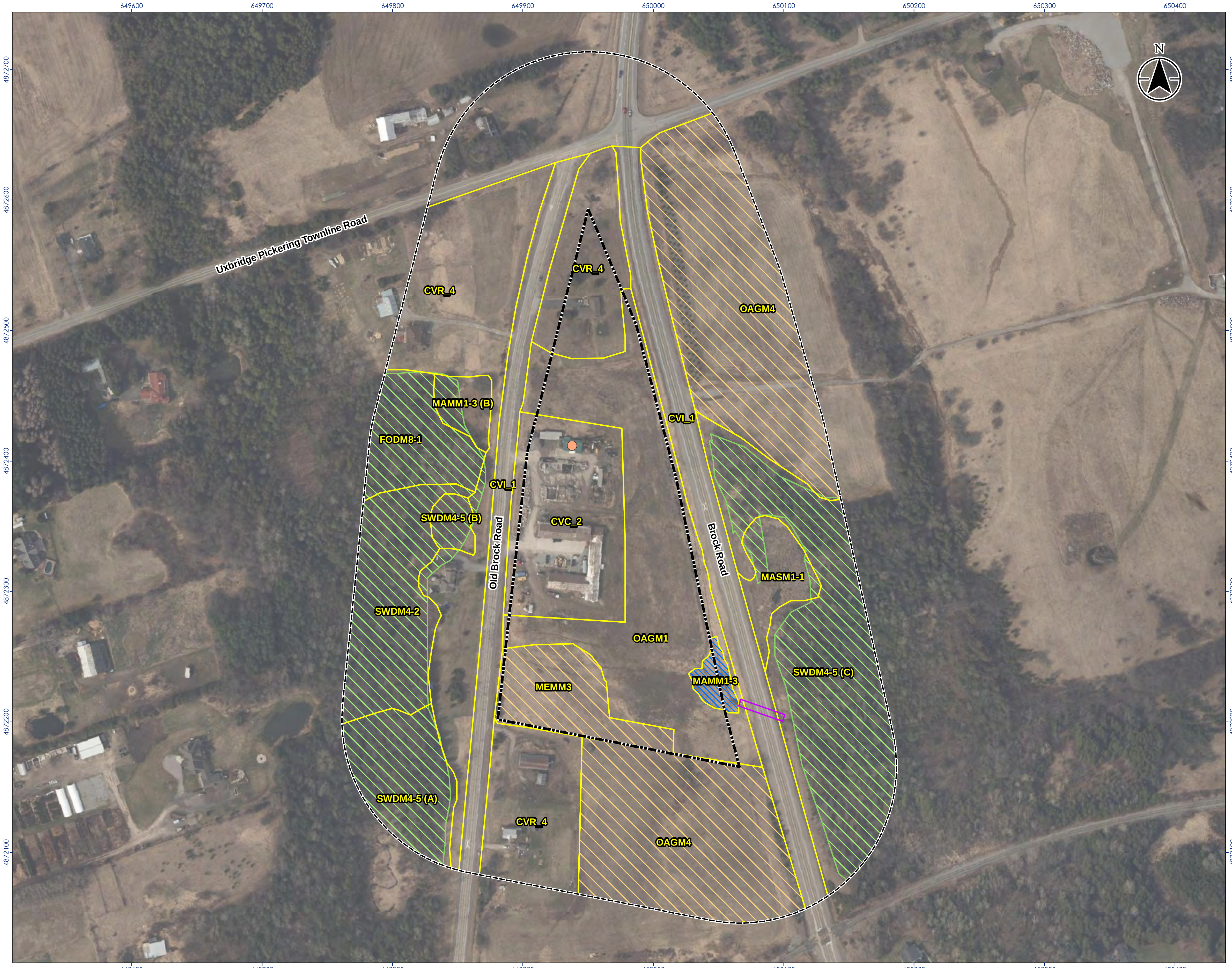
Project Location
Regional Municipality of Durham

160622415
Prepared by PW on 2019-01-15

Client/Project
S. LARKIN DEVELOPMENTS INC.
CLAREMONT NORTH BUSINESS PARK

Figure No.
2

Title
Key Natural Heritage Features



Stantec

Legend

- Property Boundary
- Adjacent Lands Study Area (120m)
- Barn Swallow Nest
- Culvert
- ELC Boundary
- KHNF – Wetland
- Significant Woodland
- Suitable Bobolink habitat

ELC Code	Description
CVC_2	Light Industry
CVI_1	Transportation
CVR_4	Rural Property
FODM8-1	Fresh – Moist Poplar Deciduous Forest Type
MAMM1-3	Reed-canary Grass Graminoid Mineral Meadow Marsh Type
MASM1-1	Cattail Mineral Shallow Marsh Type
MEMM3	Dry - Fresh Mixed Meadow Ecosite
OAGM1	Annual Row Crops
OAGM4	Open Pasture
SWDM4-2	White Elm Mineral Deciduous Swamp Type
SWDM4-5	Poplar Mineral Deciduous Swamp Type

0 50 100 metres
1:3,000 (At original document size of 11x17)

Notes
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Project Location
Regional Municipality of Durham

160622415
Prepared by PW on 2019-01-15

Client/Project
S. LARKIN DEVELOPMENTS INC.
CLAREMONT NORTH BUSINESS PARK

Figure No.
3

Title
Ecological Land Classification

649600 649700 649800 649900 650000 650100 650200 650300 650400

4872700 4872600 4872500 4872400 4872300 4872200 4872100

Uxbridge Pickering Townline Road

Old Brock Road

Brock Road

1 2 3 4

N

Stantec

Legend

- Property Boundary
- Breeding Bird Survey Point Count
- Breeding Bird Survey Area

0 50 100 metres

1:3,000 (At original document size of 11x17)

Notes

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Project Location
Regional Municipality of Durham

160622415
Prepared by PW on 2019-01-15

Client/Project
S. LARKIN DEVELOPMENTS INC.
CLAREMONT NORTH BUSINESS PARK

Figure No.
4

Title
Field Investigation and Monitoring Locations

Stantec

Legend

- Property Boundary
- Adjacent Lands Study Area (120m)
- Site Plan
- KHNF – Wetland
- Minimum Vegetation Protection Zone (MVPZ)

0 50 100 metres

1:3,000 (At original document size of 11x17)

Notes

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Project Location
Regional Municipality of Durham

160622415
Prepared by PW on 2019-01-15

Client/Project
S. LARKIN DEVELOPMENTS INC.
CLAREMONT NORTH BUSINESS PARK

Figure No.
5

Title
Minimum Vegetation Protection Zones and Proposed Development

APPENDIX B
Vascular Plant Species List

LATIN NAME	COMMON NAME	COEFFICIENT OF CONSERVATISM	WETNESS INDEX	WETLAND PLANT SPECIES	WEEDINESS INDEX	PROVINCIAL STATUS	OMNR STATUS	COSEWIC STATUS	GLOBAL STATUS		LOCAL STATUS TRCA RANKING	LOCAL STATUS DURH	LOCAL STATUS Site District 7E-4	LOCAL STATUS OAK RIDGES MORAINE		LFCYCLE	SPECIES CODE	AUTHOR	PRAIRIE AFFINITY
										LOCAL STATUS SOURCE	TRCA April 2003	VARGA 2000	VARGA 2000	MNR					
										LAST UPDATE/ INITIALS		July 2002/KH	July 2002/KH	Feb-04					
PTERIDOPHYTES	**FERNS & ALLIES**																		
Equisetaceae	**Horsetail Family**																		
Equisetum arvense	Field Horsetail	0	0	T		S5			G5		L5	X	X			P	ASPPLAT	(L.) Oakes ex Eaton	
Onocleaceae	**Sensitive Fern Family**															P	ASPRHIZ	L.	
Onoclea sensibilis	Sensitive Fern	4	-3	I		S5			G5		L5	X	X			P	ASPRUTA	L.	
																P	ASPSCOL	L.	
GYMNOSPERMS	**CONIFERS**															P	ASPTRQU	L.	
Cupressaceae	**Cedar Family**															P	ASPTRTR	L.	
Thuja occidentalis	Eastern White Cedar	4	-3	T		S5			G5		L4	X	X			P	ASPVIRI	L.	
Pinaceae	**Pine Family**																		
Larix laricina	Tamarack	7	-3	I		S5			G5		L3	X	R6						
Pinus strobus	Eastern White Pine	4	3	T		S5			G5		L4	X	X			P	AZOCARO	Willd.	
DICOTYLEDONS	**DICOTS**																		
Anacardiaceae	**Sumac or Cashew Family**															P	WOOVIRG	(L.) Sm.	
Rhus typhina	Staghorn Sumac	1	5			S5			G5		L5	X	X						
Apiaceae	**Carrot or Parsley Family**																		
Daucus carota	Wild Carrot		5		-2	SE5			G?		L+	X	X			P	DENPUNC	(Michx.) T. Moore	
Apocynaceae	**Dogbane Family**															P	PTEAQUI	(L.) Kuhn	
Asclepias syriaca	Common Milkweed	0	5			S5			G5		L5	X	X						
Cynanchum rossicum	Swallow-wort					SE5			G?		L+	X	X						
Asteraceae	**Composite or Aster Family**															P	ATHFICY	(L.) Roth ex Mert.	
Ambrosia artemisiifolia	Common Ragweed	0	3			S5			G5		L5	X	X			P	ATHFIAN	(L.) Roth ex Mert.	
Bidens species	Beggar-ticks species															P	CYSBULB	(L.) Bernh.	
Bidens frondosa	Devil's Beggar-ticks	3	-3	I		S5			G5		L5	X	X			P	CYSFRAG	(L.) Bernh.	
Carduus nutans	Musk Thistle		5		-1	SE5			G?T?							P	CYSLAUR	(Weath.) Blasdell	
Centaurea biebersteinii	Spotted Knapweed		5		-3	SE5			G?		L+	X	X			P	CYSMONT	(Lam.) Bernh. ex Desv.	
Cirsium arvense	Canada Thistle		3		-1	SE5			G?		L+	X	X			P	CYSPROT	(Weath.) Blasdell	
Cirsium vulgare	Bull Thistle		4		-1	SE5			G5		L+	X	X			P	CYSTENU	(Michx.) Desv.	
Erigeron annuus	Annual Fleabane	0	1			S5			G5		L5					P	DEPACRO	(Swartz) M. Kato	
Euthamia graminifolia	Grass-leaved Goldenrod	2	-2			S5			G5		L5	X	X			P	DIPPYCN	(Spreng.) M. Brown	
Eutrochium maculatum	Spotted Joe-pye-weed	3	-5	I		S5			G5T5		L5	X	X			P	DRYCART	(Vill.) H.P. Fuchs	
Leucanthemum vulgare	Ox-eye Daisy		5		-1	SE5			G?		L+	X	X			P	DRYCLIN	(D.C. Eaton) Dowell	
Solidago canadensis	Canada Goldenrod	1	3			S5			G5		L5	U	X			P	DRYCRIS	(L.) A. Gray	
Symphyotrichum lanceolatum ssp. lanceolatum	Panicled Aster	3	-3	I		S5			G5T5		L5	X	X			P	DRYEXPA	(C. Presl.) Fraser-Jenk. & Jermy	
Symphyotrichum novae-angliae	New England Aster	2	-3			S5			G5		L5	X	X			P	DRYFILI	(L.) Schott	
Balsaminaceae	**Touch-me-not Family**															P	DRYFRAG	(L.) Schott	
Impatiens capensis	Spotted Touch-me-not	4	-3	I		S5			G5		L5	X	X			P	DRYGOLD	(Hook. ex Goldie) A. Gray	
Betulaceae	**Birch Family**															P	DRYINTE	(Muhlenb. ex Willd.) A. Gray	
Betula papyrifera	White Birch		2	T		S5			G5		L4	X	X			P	DRYMARG	(L.) A. Gray	
Caryophyllaceae	**Pink Family**															P	DRYALGO	D.M. Britton	
Saponaria officinalis	Bouncing-bet		3		-3	SE5			G?		L+	X	X			P	DRYBENE	(Farw.) Wherry	
Silene latifolia	Bladder Campion					SE5			G?		L+	X	X			P	DRYBOOT	(Tuckerm.) Underw.	
Cornaceae	**Dogwood Family**															P	DRYBURG	B. Boivin	
Cornus sericea	Red-osier Dogwood	2	-3	I*		S5			G5		L5	X	X			P	DRYDOWE	(Farw.) Wherry	
Fabaceae	**Pea Family**															P	DRYNEO-	W.H. Wagner	
Lotus corniculatus	Bird's-foot Trefoil		1		-2	SE5			G?		L+	X	X			P	DRYPITT	Sloss.	
Medicago lupulina	Black Medick		1		-1	SE5			G?		L+	X	X			P	DRYSLOS	Wherry ex Lellinger	
Melilotus alba	White Sweet-clover		3		-3	SE5			G?		L+	X	X			P	DRYTRIP	Wherry	
Trifolium hybridum ssp. elegans	Alsike Clover		1		-1	SE5					L+	X	X			P	DRYULIG	(A. Braun ex Dowell) Druce	
Trifolium pratense	Red Clover		2		-2	SE5			G?		L+	X	X			P	DRYSING	(L.) Newman	
Vicia cracca	Tufted Vetch		5		-1	SE5			G?		L+	X	X			P	GYMDRYO	(Koidz.) Koidz.	
Grossulariaceae	**Currant Family**															P	GYMJESS	(Hoffm.) Newman	
Ribes americanum	Wild Black Currant	4	-3	T		S5			G5		L5	X	X			P	GYMROBE	Sarvela	
Lamiaceae	**Mint Family**															P	GYMINTE	(Sarvela) Pryer & Haufler	
Lycopus uniflorus	Northern Water-horehound	5	-5	I		S5			G5		L4	X	X			P	GYMBRIT	(Michx.) Schott	
Mentha canadensis	Wild Mint	3	-3	I		S5					L5	X	X			P	POLACRO	(Spenn.) Fée	
Lythraceae	**Loosestrife Family**															P	POLBRAU	(L.) Roth	
Lythrum salicaria	Purple Loosestrife		-5	I	-3	SE5			G5		L+	X	X			P	POLLONC	Cody	
Malvaceae	**Mallow Family**															P	POLHAGE	(Bolton) S.F. Gray	
Tilia americana	Basswood	4	3			S5			G5		L5	X	X			P	WOOALPI	R. Br. ex Richardson	
Oleaceae	**Olive Family**															P	WOOGLAB	(L.) R. Br.	
Fraxinus species	Ash species															P	WOOILVE	(Spreng.) Torr.	
Onagraceae	**Evening-primrose Family**															P	WOOOBTU	D.C. Eaton	
Epilobium sp.	Willow-herb speices															P	WOOOREG	D.C. Eaton	
Epilobium ciliatum ssp. ciliatum	Hairy Willow-herb	3	3	I*		S5			G5T?		L5	X	X			P	WOOSCOP	Butters	
Polygonaceae	**Smartweed Family**															P	WOOABBE	(G. Lawson) Butters	
Persicaria maculosa	Lady's-thumb		-3	T	-1	SE5			G?		L+	X	X			P	WOOGRAC	R. Tyron	
Ranunculaceae	**Buttercup Family**															P	WOOMAXO	B. Boivin	
Ranunculus sceleratus var. sceleratus	Cursed Crowfoot	2	-5	I		S5			G5T5		L5					P	WOOTRYO	W.H. Wagner	
Rhamnaceae	**Buckthorn Family**																		
Rhamnus cathartica	Common Buckthorn		3	T	-3	SE5			G?		L+	X	X						
Rubiaceae	**Madder Family**															P	EQUARVE	L.	
Galium triflorum	Sweet-scented Bedstraw	4	2			S5			G5		L5	X	X			P	EQUFLUV	L.	

LATIN NAME	COMMON NAME	COEFFICIENT OF CONSERVATISM	WETNESS INDEX	WETLAND PLANT SPECIES	WEEDINESS INDEX	PROVINCIAL STATUS	OMNR STATUS	COSEWIC STATUS	GLOBAL STATUS		LOCAL STATUS TRCA RANKING	LOCAL STATUS DURH	LOCAL STATUS Site District 7E-4	LOCAL STATUS OAK RIDGES MORAINE					
Salicaceae	**Willow Family**															P	EQUHYEM	L.	
Populus balsamifera	Balsam Poplar	4	-3	T		S5			G5T?		L5	X	X			P	EQULAEV	A. Braun	p
Populus tremuloides	Trembling Aspen		0	T		S5			G5		L5	X	X			P	EQUPALU	L.	
Salix sp.	Willow species															P	EQUPRAT	Ehrh.	
Sapindaceae	**Maple Family**															P	EQUSCIR	Michx.	
Acer rubrum	Red Maple	4	0	T		S5			G5		L4	X	X			P	EQUSYLV	L.	
Ulmaceae	**Elm Family**															P	EQUVARI	Schleich. ex Fried., Weber & Mohr	
Ulmus americana	White Elm	3	-2	T		S5			G5?		L5	X	X			P	EQUFERR	Clute	
Vitaceae	**Grape Family**															P	EQULITO	Kuhl. ex Rupr.	
Vitis riparia	Riverbank Grape	0	-2			S5			G5		L5	X	X			P	EQUMACK	(Newman) Brichan	
																P	EQUNELS	(A.A. Eaton) J.H. Schaffn.	
MONOCOTYLEDONS	**MONOCOTS**																		
Cyperaceae	**Sedge Family**																		
Scirpus microcarpus	Small-fruited Bulrush	4	-5	I		S5			G5		L4	U	X			P	ISOECHI	Durieu	
Poaceae	**Grass Family**															P	ISOENGE	A. Braun	
Agrostis stolonifera	Redtop		-3	T		S5			G5		L+?	X	X			P	ISOLACU	L.	
Bromus inermis	Awnless Brome		5		-3	SE5			G4G5T?		L+	X	X			P	ISORIPA	Engelm. ex A. Braun	
Echinochloa crus-galli	Common Barnyard Grass		-3	T	-1	SE5			G?		L+	X	X			P	ISOTUCK	A. Braun ex Engelm.	
Festuca species	Fescue species															P	ISODODG	A.A. Eaton	
Phalaris arundinacea	Reed Canary Grass	0	-4	T		S5			G5		L+?	X	X			P	ISOEATO	Dodge	
Typhaceae	**Cattail Family**															P	ISOHARV	A.A. Eaton	
Typha angustifolia	Narrow-leaved Cattail	3	-5	I		S5			G5		L+	X	X			P	ISOHICK	W. Taylor & N. Luebke	
Typha latifolia	Broad-leaved Cattail	3	-5	I		S5			G5		L4	X	X			P	ISOJEFF	D.M. Britton & D.F. Brunt.	
FLORISTIC SUMMARY & ASSESSMENT																			
Species Diversity																			
Total Species:		**56**																	
Native Species:		**35**	63%																
Exotic Species		**21**	38%																
Regionally Significant Species		0																	
Locally Significant Species		1																	
S1-S3 Species	*rare in Ontario*	0	0%																
S4 Species	*uncommon in Ontario*	0	0%																
S5 Species	*common in Ontario*	35	100%																
Co-efficient of Conservatism (C) and Floristic Quality Index (FQI)																			
mean C		**2.7**																	
C 0 to 3	*lowest sensitivity*	20	63%																
C 4 to 6	*moderate sensitivity*	11	34%																
C 7 to 8	*high sensitivity*	1	3%																
C 9 to 10	*highest sensitivity*	0	0%																
FQI		**15**																	
Presence of Weedy & Invasive Species																			
mean weediness		**-1.8**																	
weediness = -1	*low potential invasiveness*	9	50%																
weediness = -2	*moderate potential invasiveness*	3	17%																
weediness = -3	*high potential invasiveness*	6	33%																
Presence of Wetland (W) Species																			
average wetness value		**-0.1**																	
upland	*W of 5*	8	15%																
facultative upland	*W of 4, 3 or 2*	13	25%																
facultative	*W of 1, 0 or -1*	7	13%																
facultative wetland	*W of -2, -3 or -4*	18	34%																
obligate wetland	*W of -5*	7	13%																
Total Wetland Tolerant (T) Plant Species as identified in OWES Manual		14																	
Total Wetland Indicator (I) Plant Species as identified in OWES Manual		15																	

APPENDIX C
Wildlife Species List

Wildlife Recorded from

COMMON NAME	*SCIENTIFIC NAME*	ONTARIO STATUS	GLOBAL STATUS	COSSARO	COSEWIC	AREA SENSITIVITY (ha)	ECO REGION (OWES)	Local Status Halton	Local Status Hamilton	Local Status TRCA	Region of Waterloo Regionally Significant	Source	Local Status PIF Priority Species (BCR 13)	COMMENTS	Area Sensitive Reference
BIRDS															
Mourning Dove	*Zenaida macroura*	S5	G5												
Killdeer	*Charadrius vociferus*	S5B, S5N	G5												
Ring-billed Gull	*Larus delawarensis*	S5B,S4N	G5												
Turkey Vulture	*Cathartes aura*	S5B	G5						m		X				
Downy Woodpecker	*Picoides pubescens*	S5	G5												
Northern Flicker	*Colaptes auratus*	S4B	G5										X		
Great Crested Flycatcher	*Myiarchus crinitus*	S4B	G5												
Eastern Kingbird	*Tyrannus tyrannus*	S4B	G5										X		
Red-eyed Vireo	*Vireo olivaceus*	S5B	G5												
American Crow	*Corvus brachyrhynchos*	S5B	G5												
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*	S4B	G5					HU							
Barn Swallow	*Hirundo rustica*	S4B	G5	THR	THR-NS										
Black-capped Chickadee	*Poecile atricapillus*	S5	G5												
American Robin	*Turdus migratorius*	S5B	G5												
European Starling	*Sturnus vulgaris*	SNA	G5												
Cedar Waxwing	*Bombycilla cedrorum*	S5B	G5												
House Sparrow	*Passer domesticus*	SNA	G5												
American Goldfinch	*Spinus tristis*	S5B	G5												
Common Yellowthroat	*Geothlypis trichas*	S5B	G5												
Yellow Warbler	*Setophaga petechia*	S5B	G5												
Chipping Sparrow	*Spizella passerina*	S5B	G5												
Savannah Sparrow	*Passerculus sandwichensis*	S4B	G5										X		
Song Sparrow	*Melospiza melodia*	S5B	G5												
Northern Cardinal	*Cardinalis cardinalis*	S5	G5												
Bobolink	*Dolichonyx oryzivorus*	S4B	G5	THR	THR-NS	10							X		
Red-winged Blackbird	*Agelaius phoeniceus*	S4	G5												
Common Grackle	*Quiscalus quiscula*	S5B	G5												
Brown-headed Cowbird	*Molothrus ater*	S4B	G5												
Explanation of Status and Acronymns															
COSSARO: Committee on the Status of Species at Risk in Ontario															
COSEWIC: Committee on the Status of Endangered Wildlife in Canada															
REGION: Rare in a Site Region															
S1: Critically Imperiled—Critically imperiled in the province (often 5 or fewer occurrences)															
S2: Imperiled—Imperiled in the province, very few populations (often 20 or fewer),															
S3: Vulnerable—Vulnerable in the province, relatively few populations (often 80 or fewer)															
S4: Apparently Secure—Uncommon but not rare															
S5: Secure—Common, widespread, and abundant in the province															
SX: Presumed extirpated															
SH: Possibly Extirpated (Historical)															
SNR: Unranked															
SU: Unrankable—Currently unrankable due to lack of information															
SNA: Not applicable—A conservation status rank is not applicable because the species is not a suitable target for conservation activities.															
S#S#: Range Rank—A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species															
S#B- Breeding status rank															
S#N- Non Breeding status rank															
?: Indicates uncertainty in the assigned rank															
G1: Extremely rare globally; usually fewer than 5 occurrences in the overall range															
G1G2: Extremely rare to very rare globally															
G2: Very rare globally; usually between 5-10 occurrences in the overall range															

Wildlife Recorded from

COMMON NAME	*SCIENTIFIC NAME*	ONTARIO STATUS	GLOBAL STATUS	COSSARO	COSEWIC	AREA SENSITIVITY (ha)	ECO REGION (OWES)	Local Status Halton	Local Status Hamilton	Local Status TRCA	Region of Waterloo Regionally Significant	Source	Local Status PIF Priority Species (BCR 13)	COMMENTS	Area Sensitive Reference
G2G3: Very rare to uncommon globally															
G3: Rare to uncommon globally; usually between 20-100 occurrences															
G3G4: Rare to common globally															
G4: Common globally; usually more than 100 occurrences in the overall range															
G4G5: Common to very common globally															
G5: Very common globally; demonstrably secure															
GU: Status uncertain, often because of low search effort or cryptic nature of the species; more data needed.															
GNR: Unranked—Global rank not yet assessed.															
T: Denotes that the rank applies to a subspecies or variety															
Q: Denotes that the taxonomic status of the species, subspecies, or variety is **questionable**.															
END: Endangered															
THR: Threatened															
SC: Special Concern															
2, 3 or NS after a COSEWIC ranking indicates the species is either on Schedule 2, Schedule 3 or No Schedule of the Species At Risk Act (SARA)															
NAR: Not At Risk															
IND: Indeterminant, insufficient information to assign status															
DD: Data Deficient															
6: Rare in Site Region 6															
7: Rare in Site Region 7															
Area: Minimum patch size for area-sensitive species (ha)															
H- highly significant in Hamilton Region (i.e. rare)															
m- moderately significant in Hamilton Region (i.e. uncommon)															
L1- extremely rare locally (Toronto Region)															
L2- very rare locally (Toronto Region)															
L3- rare to uncommon locally (Toronto Region)															
HR- rare in Halton Region, highly significant															
HU- uncommon in Halton Region, moderately significant															
* The Pileated Woodpecker will incorporate smaller woodlots into its homerange, therefore it may not be a true area-sensitive species (Naylor et al. 1996)															
LATEST STATUS UPDATE															
Odonata: Nov 2016															
Butterflies: July 2016															
Bumble Bees: June 2016															
Other Arthropods: Nov 2016															
Terrestrial Molluscs: June 2016															
Amphibans: Nov 2016															
Reptiles: Nov 2016															
Birds: August 2016															
Mammals: June 2016															
S and G ranks and explanations: December 2011															
NOTE															
All rankings for birds refer to breeding birds unless the ranking is followed by N															

Wildlife Recorded from

COMMON NAME	*SCIENTIFIC NAME*	ONTARIO STATUS	GLOBAL STATUS	COSSARO	COSEWIC	AREA SENSITIVITY (ha)	ECO REGION (OWES)	Local Status Halton	Local Status Hamilton	Local Status TRCA	Region of Waterloo Regionally Significant	Source	Local Status PIF Priority Species (BCR 13)	COMMENTS	Area Sensitive Reference
REFERENCES															
COSSARO Status															
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