REPORT

Preliminary Scoped Environmental Impact Statement

Proposed Development of 575 Dealership Drive, Ottawa, ON

Submitted to:

Rosefellow Holdings Inc.
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Attention: Nathanael Niedermann, Development Coordinator

Submitted by:

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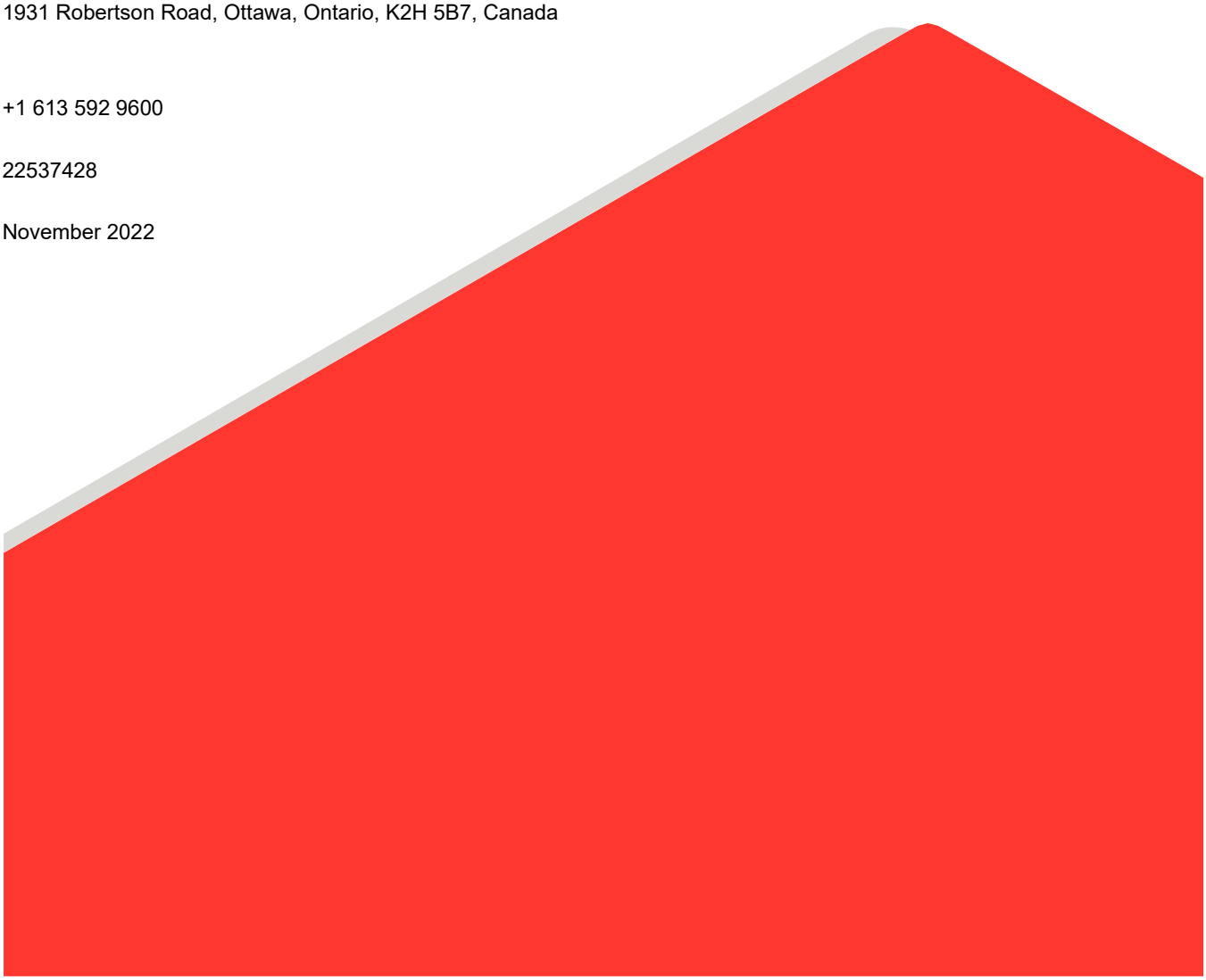
November 2022



Distribution List

1 e-copy - Rosefellow Holdings Inc.

1 e-copy - Golder Associates Ltd.

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1.0 INTRODUCTION

1.1 Purpose

Golder Associates Ltd., a Member of WSP (WSP Golder) has been retained by Rosefellow Holdings Inc. to conduct environmental studies for a Scoped Environmental Impact Statement (EIS) for the proposed commercial development at 575 Dealership Drive, Ottawa, Ontario (The Site; Figure 1). The lands within 120 m of the Site (Study Area; Figure 1) were included in this assessment.

The proposed project will be a combined warehouse and office facility with associated parking facilities.

This report provides a preliminary assessment of potential impacts from the proposed development. Following additional study in 2023, it is intended that an addendum report be prepared to confirm or update the findings of this preliminary report. This preliminary report, plus the eventual addendum, are intended to satisfy the City of Ottawa's official plan (Ottawa 2021) requirements for an EIS, which is triggered in this instance by the proximity of the proposed project to a Natural Heritage Feature (Ottawa 2021).

Due to the limited natural features present on the Site, this report has focused on potential impacts of the project on species at risk (SAR), wildlife habitats, and on the adjacent natural features.

2.0 ENVIRONMENTAL POLICY CONTEXT

2.1 Migratory Birds Convention Act

The *Migratory Birds Convention Act* (MBCA) (Canada 1994) prohibits the killing or capturing of migratory birds, as well as any damage, destruction, removal or disturbance of active nests. It also allows the Canadian government to pass and enforce regulations to protect various species of migratory birds, as well as their habitats. While Environment and Climate Change Canada (ECCC) can issue permits allowing the destruction of nests for scientific or agricultural purposes, or to prevent damage being caused by birds, it does not typically allow for permits in the case of industrial or construction activities.

2.2 Species at Risk

2.2.1 Species at Risk Act (SARA)

At the federal level, Species at Risk (SAR) designations for species occurring in Canada are initially determined by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). If approved by the federal Minister of the Environment and Climate Change, species are added to the federal List of Wildlife Species at Risk (Canada, 2002). Species that are included on Schedule 1 as endangered or threatened are afforded protection of critical habitat on federal lands under the *Species at Risk Act* (SARA) (Canada 2002). On private or provincially-owned lands, only aquatic species and migratory birds listed as endangered, threatened or extirpated are protected under SARA, unless ordered by the Governor in Council.

2.2.2 Endangered Species Act (ESA)

SAR designations for species in Ontario are initially determined by the Committee on the Status of Species at Risk in Ontario (COSSARO), and if approved by the provincial Minister of Environment, Conservation and Parks, species are added to the provincial *Endangered Species Act* (ESA) which came into effect June 30, 2008 (Ontario 2007). The legislation prohibits the killing or harming of species identified as endangered or threatened in the various schedules to the Act. The ESA also provides habitat protection to all species listed as threatened or endangered. The Species at Risk Ontario (SARO) list is contained in O. Reg. 230/08.

Subsection 9(1) of the ESA prohibits the killing, harming or harassing of species identified as 'endangered' or 'threatened' in the various schedules to the Act. Subsection 10(1)(a) of the ESA states that *"No person shall damage or destroy the habitat of a species that is listed on the Species at Risk in Ontario* (*SARO*) *list as an endangered or threatened species"*.

General habitat protection is provided, by the ESA, to all threatened and endangered species listed on O. Reg. 230/08. Species-specific habitat protection is only afforded to those species for which a habitat regulation has been prepared and passed into law as a regulation of the ESA. The ESA has a permitting process to allow alterations to protected species or their habitats as well as a registration process for certain activities and species.

2.3 Rideau Valley Conservation Authority (RVCA)

The Site and Study Area are located within the jurisdiction of the Rideau Valley Conservation Authority (RVCA). The Site lies outside the regulated area of a floodplain, valley land, slope or wetland, therefore no portion of the Site is regulated under O. Reg. 174/06 - *Development, Interference with Wetlands and Alterations to Shorelines and Watercourse Regulation* (RVCA 2022).

2.4 City of Ottawa

The Site is designated as Mixed Industrial and Industrial and Logistics in the City of Ottawa official plan (Ottawa 2021). The unevaluated forested wetland, which lies along the northern boundary of the Study Area, is designated as Natural Heritage Feature within the Urban Area, outside of the Natural Heritage System. Due to the proximity of this feature to the Site, development on the Site requires completion of an EIS under the policies of the City of Ottawa official plan.

3.0 METHODS

3.1 Background Review

WSP Golder conducted a desktop review of published natural heritage data and information available for the Site and the Study Area. This information served to identify significant natural features as well as SAR known to be present, or having the potential to be present. This included review of the following resources:

- Ministry of Natural Resources and Forestry (MNRF) Natural Heritage Information Centre (NHIC) Make-a-Map geographic explorer for SAR, rare (S1-S3) species reported as occurring in the vicinity of the Site, and natural areas information queries (MNRF 2022a)
- Environment and Climate Change Canada (ECCC) SAR Public Registry (ECCC 2022) including COSEWIC status reports, assessments, and recovery strategies
- List of SAR in Ontario (O. Reg. 230/08) (MNRF 2022b) including COSSARO species assessment reports
- Information available from the RVCA (RVCA 2022)
- City of Ottawa Official Plan (Ottawa 2021)
- Fisheries and Oceans Canada (DFO) Aquatic Species at Risk Maps (DFO 2022)
- Breeding Bird Atlas of Ontario (OBBA) (Cadman et al. 2007)
- Atlas of the Mammals of Ontario (Dobbyn 1994)

- Ontario Reptile and Amphibian Atlas (Ontario Nature 2022)
- Bat Conservation International (BCI) range maps (BCI 2022)
- Ontario Butterfly Atlas (Jones et al. 2022)
- eBird species maps (eBird 2022)
- Vascular Plants at Risk in Ontario (Leslie 2018)
- MNRF Land Information Ontario (LIO) Aquatic Resources Area Layer (MNRF 2022c);
- Information contained in natural heritage related map layers from LIO (LIO; 2022) and the Ontario Land Cover Compilation (MNRF 2022d)
- Existing high-resolution aerial imagery and mapping

To develop an understanding of the drainage patterns, ecological communities and potential natural heritage features that may be affected by the proposed project, MNRF LIO data were used to create base layer mapping for the Study Area. A geographic query of the MNRF Make-a-Map database was conducted to identify element occurrences of any natural heritage features, including wetlands, rare vegetation communities and rare species (i.e., S1-S3 species in the NHIC), threatened or endangered species and other natural heritage features within two kilometres of the Site.

3.2 SAR Screening

A SAR screening was completed for the Site and Study Area, focusing on the review of records and range maps pertaining to species that are designated as threatened, endangered or special concern under the ESA, and species that are protected under Schedule 1 of the SARA. Species with ranges overlapping the Site or Study Area, or recent occurrence records in the vicinity, were screened by comparing their habitat requirements to habitat conditions at the Site and Study Area.

The potential for the species to occur was determined through a probability of occurrence. A ranking of low indicates no suitable habitat availability for that species in the Site and Study Area and no specimens identified. Moderate probability indicates more potential for the species to occur, as suitable habitat appeared to be present in the Study Area, but no occurrence of the species has been recorded. Alternatively, a moderate probability could indicate an observation of a species, but there is no suitable habitat on the Site or in the Study Area.
High potential indicates a known species record at the Site or in the Study Area (including during the site reconnaissance or background data review) and good quality habitat is present.

Searches were conducted during the site reconnaissance for suitable habitats and signs of all SAR identified through the desktop screening. The screening was refined based on field surveys (i.e., habitat assessment during the site reconnaissance). Any habitat identified during the site reconnaissance with potential to provide suitable conditions for additional SAR not already identified through the desktop screening was also assessed and recorded.

3.3 Field Survey

A site reconnaissance was completed by a WSP-Golder biologist on October 6, 2022 to document existing conditions on the Site and assess habitat suitability for SAR identified in the desktop SAR screening. Adjacent natural features were assessed to the extent possible from the Site boundary.

4.0 SITE DESCRIPTION

Based on a review of aerial imagery and the single site reconnaissance, the Site consists mainly of a mature mixed meadow, likely with a history of agriculture with some natural vegetation at the periphery of the Site (Figure 1). There are scattered trees and thickets overlapping three sides of the boundary of the Site. An area of recent disturbance is present at the eastern end of the Site, west of a commercial dealership. There is no aquatic habitat on the Site. No SAR or evidence of SAR was observed on the Site or immediately adjacent to the Site during the site reconnaissance, and the scattered trees at the Site do not appear suitable for maternity roosting of bats. It is noted the site reconnaissance was completed outside the core active season for Ontario wildlife. Photographs of the Site conditions are presented in Appendix A.

The forested area north of the Site is identified as a Natural Heritage Feature (in the urban area, outside the Natural Heritage System) in the City of Ottawa official plan (Ottawa 2021). In proximity to the Site, this feature appears to be composed of a coniferous and deciduous forest with areas of cultural woodland and cultural thicket east and west of the forested portion (Figure 1). A very small portion (approximately 8 m) of the forested area extends onto the Site. In this location, the forested area is edge habitat (i.e., less dense and influenced by the open portions of the Site). A forested wetland is mapped approximately 100 m north of the Site boundary.

5.0 PROPOSED DEVELOPMENT

The proposed development consists of a combined warehouse and office building with associated parking facilities along the southern edge of the Site (Figure 2). Along the northern edge of the Site there will be a paved area for accessing the warehousing area. The proposed development features a 349,000 square-foot warehousing multi-tenant facility with a potential of up to 17,500 square-foot office space. Three drive-in doors and 42 dock doors are proposed for this development. The exterior facades will consist of an insulated metal panel and curtain wall at the office section. It is planned that all runoff from the Site will be directed towards existing storm outlets at Citigate Drive. The north, east and southern edges of the Site will be landscaped with a combination of trees and manicured grass.

6.0 IMPACT ASSESSMENT

6.1 Plant Communities and Wildlife Habitat

The proposed development will remove all existing vegetation and wildlife habitats on the Site, including some trees greater than 10 cm DBH. The approximately 8 m of forested area, consisting of edge habitat, that extends onto the Site along the northern edge will be removed. As this forested area is considered a Natural Heritage Feature (Ottawa 2021), the City requires a no net loss approach to tree cover at the Site. The proposed landscaping plan will include trees and manicured grass areas along the southern, western and northern boundaries of the Site, which will assist in compensating for the loss of trees at the Site. It is recommended that trees considered in the landscaping plan include only non-invasive, native, locally-sourced species. Based on this, no net impacts to the Natural Heritage Feature are anticipated.

The proposed clearing of natural habitats on the Site is not expected to result in the loss of any habitats for SAR (see discussion in Section 6.2). This conclusion will be confirmed following additional field surveys, with the results included in an addendum to this EIS.

6.2 Species at Risk

The following is a discussion of those species identified in the screening as having a moderate or high potential to be present on the Site (Appendix B). Species identified as having a low potential, based on an absence of suitable habitat and no known records, and those listed as special concern under the SARA only, are included in Appendix A but are not discussed further in this report.

6.2.1 Provincially Endangered and Threatened Species

Based on the background review, the habitat of two threatened (THR) bird species were identified as having moderate potential to be present on the Site (Appendix B): bobolink (*Dolichonyx oryzivorus*), and eastern meadowlark (*Sturnella magna*). No endangered species were identified as having potential habitat at the Site.

Bobolink

Bobolink (*Dolichonyx oryzivorus*) breeds in grasslands or graminoid dominated hayfields with tall vegetation (Gabhauer 2007). Bobolink prefers grassland habitat with a forb component and a moderate litter layer. They have low tolerance for presence of woody vegetation and are sensitive to frequent mowing within the breeding season. This species may breed in the cultural meadows found on the Site and Study Area. Targeted surveys for this species are planned in the spring of 2023 to determine presence / absence. If this species is confirmed using the Site, approvals under the ESA must be obtained prior to disturbing the habitat at the Site.

Eastern Meadowlark

Eastern meadowlark (*Sturnella magna*) prefer moderately tall grasslands with abundant litter cover, high grass proportion, and a forb component (Hull 2019). They prefer well drained sites or slopes, and sites with different cover layers (Roseberry and Klimstra 1970). This species may breed in the cultural meadows found on the Site and Study Area. Targeted surveys for this species are planned in the spring of 2023 to determine presence / absence. If this species is confirmed using the Site, approvals under the ESA must be obtained prior to disturbing the habitat at the Site.

Nine endangered (END) or threatened SAR were identified as potentially present in the Study Area only (Appendix B): barn swallow (THR, *Hirundo rustica*), red-headed woodpecker (END, *Melanerpes erythrocephalus*), little brown myotis (END, Myotis lucifugus), northern myotis (END, *Myotis septentrionalis*), tri-colored bat (END, *Perimyotis subflavus*), pale-bellied frost lichen (END, *Physconia subpallida*), black Ash (END, *Fraxinus nigra*), and butternut (*Juglans cinerea*). As the proposed development does not have potential to negatively impact habitat for these species, if present off-Site, no further study is proposed to determine presence/absence of these species in the Study Area.

6.2.2 Species of Conservation Concern

Habitat for species of conservation concern (SOCC) includes habitat for three groups of species:

- Species that are rare, those whose populations are significantly declining, or have a high percentage of their global population in Ontario;
- Species listed as special concern under the ESA; and,
- Species listed as threatened or endangered under SARA.

SOCC identified as present or having a moderate or high likelihood of being present at the Site, are discussed below.

Common Nighthawk

Common nighthawk (*Chordeiles minor*) is designated special concern under the ESA and designated threatened under the SARA and was identified as having moderate potential to be found on the Site and in the Study Area. There is potential habitat for this species in the open fields. The proposed development will removal all suitable habitat for this species at the Site; however, suitable habitat is widespread in the local landscape and the Site is not considered unique or significant in the context of the planning area. Targeted surveys for this species are planned in the spring of 2023 to determine presence / absence.

Grasshopper Sparrow

Grasshopper sparrow (*Ammodramus savannarum*, *pratensis* subspecies) is designated special concern under the ESA and SARA and was identified as having moderate potential to be found on the Site and in the Study Area. There is potential habitat for this species in the open fields. The proposed development will removal all suitable habitat for this species at the Site; however, suitable habitat is widespread in the local landscape and the Site is not considered unique or significant in the context of the planning area. Targeted surveys for this species are planned in the spring of 2023 to determine presence / absence.

Monarch

Monarch butterfly (*Danaus plexippus*) is designated special concern under the ESA and SARA and was identified as having moderate potential to be found on the Site and in the Study Area. This species utilizes open and edge areas where flowering plants offer foraging opportunities, and milkweeds (*Asclepias* spp.) provide food for their larval stage. The proposed development will removal all suitable habitat for this species at the Site; however, suitable habitat is widespread in the local landscape and the Site is not considered unique or significant in the context of the planning area. Surveys for this species are planned in the spring of 2023 to determine presence / absence of individuals or suitable habitat.

Short-eared Owl

Short-eared owl (*Asio flammeus*) is designated special concern under the ESA and SARA and was identified as having moderate potential to be found on the Site and in the Study Area. There is potential habitat for this species in the open fields. The proposed development will removal all suitable habitat for this species at the Site; however, suitable habitat is widespread in the local landscape and the Site is not considered unique or significant in the context of the planning area. Targeted surveys for this species are planned in the spring of 2023 to determine presence / absence.

Yellow-banded Bumble Bee

Yellow-banded bumble bee (*Bombus terricola*) is designated special concern under the ESA and SARA and was identified as having moderate potential to be found on the Site and in the Study Area. There is potential habitat for this species in the fields and field edges. The proposed development will removal all suitable habitat for this species at the Site; however, suitable habitat is widespread in the local landscape and the Site is not considered unique or significant in the context of the planning area. Surveys for this species are planned in the spring of 2023 to determine presence / absence of individuals or suitable habitat.

7.0 RECOMMENDATIONS AND CONCLUSION

Based on the results of this preliminary review, the proposed development has potential to cause negative impacts to a Natural Heritage Feature (Ottawa 2021) and SAR (two threatened species and several species of conservation concern). The proposed landscaping plan is expected to assist in compensating for the minimal loss of tree cover at the Site, and so no net impacts to the Natural Heritage Feature are expected. Impacts to SAR, if any, will need to be confirmed through presence/absence surveys. Based on this preliminary analysis, the proposed development appears to comply with all relevant municipal, provincial and federal legislation, pending results of further study.

This conclusion is based on the following recommendations:

- Complete additional field surveys at the Site in spring and early summer 2023 for SAR and prepare an addendum confirming or modifying the conclusions of this preliminary report. If SAR are confirmed using the Site, authorizations under the ESA may be required.
- Clearly demarcate and maintain the development envelope using temporary fencing.
- To comply with the *Migratory Birds Convention Act* (MBCA; Canada 1994), avoid removal of vegetation or ground disturbance during the active season for breeding birds (April 1 – August 15) unless preceded by a nesting survey, completed by a qualified biologist.
- If a SAR is observed on the Site during construction, contact the MECP immediately ([613] 549-4000).
- Comply with the City of Ottawa Protocol for Wildlife Protection during Construction (Ottawa 2015) by:
    i) Avoiding disturbing active mammal burrows during the hibernation and natal period (October to June).
    ii) Leave gaps in construction fencing to allow wildlife to leave the Site.
    iii) Do not harm, feed or unnecessarily harass wildlife; keep the Site tidy and free of garbage.
    iv) Check the work area daily for presence of wildlife. If any are observed, allow them to leave of their own accord, or contact a professional wildlife removal service.
- Implement a lighting design for the development that reduces lighting impacts on the adjacent natural habitats (e.g., downward pointing, motion lighting where appropriate, etc.).
- Do not include any invasive species in landscaping plans and prioritize locally-adapted native species wherever possible.
- Implement Best Management Practices, including sediment and erosion controls, spill prevention, etc. during the construction phase of the project.

In accordance with the City of Ottawa's Tree Protection (By-law No. 2020-340), recommended tree protection measures for trees > 10 cm DBH adjacent to the proposed development envelope include the following:

- Under the guidance of a landscape architect, erect tree protection fencing at the critical root zone (CRZ) of off-Site trees along the southern boundary of the Site and maintain the fencing until work is complete. The CRZ is calculated as DBH x 10 cm.

- Tree protection fencing shall be at least 1.2 m in height and installed in such a way that the fence cannot be altered.
- Within the CRZ of a tree to be retained, no person shall:

  I. place any material or equipment, including outhouses;
  II. raise or lower the existing grade; or,
  III. extend any hard surface or significantly change landscaping;
  IV. attach any signs, notices or posters to a tree;
  V. damage the root system, trunk or branches of a tree; or,
  VI. direct exhaust fumes from equipment toward a tree canopy.

- When trees to be removed overlap with the CRZ of trees to be preserved: cut roots at the edge of the CRZ and grind down stumps after tree removals; do not pull out stumps. Ensure there is not root pulling or disturbance of the ground within the CRZ.
- If roots must be cut, roots 20 millimetres (mm) or larger should be cut at right angles with clean, sharp horticultural tools without tearing, crushing, or pulling. Refer to City of Ottawa Specification S.P. F-8011 Tree Protection, Excavation of Root Zone.

If reductions to the fenced tree protection area are required to facilitation construction, or any of the above mitigation measures must be deviated from, approval from the City of Ottawa General Manager must be sought.

8.0 LIMITATIONS AND USE OF REPORT

This report was prepared for the exclusive use of Rosefellow Holdings Inc. The report, which specifically includes all tables, figures and attachments, is based on data and information collected by Golder Associates Ltd. and is based solely on the conditions of the properties at the time of the work, supplemented by historical information and data obtained by Golder Associates Ltd. as described in this report.

Golder Associates Ltd. has relied in good faith on all information provided and does not accept responsibility for any deficiency, misstatements, or inaccuracies contained in the report as a result of omissions, misinterpretation, or fraudulent acts of the persons contacted or errors or omissions in the reviewed documentation.

The services performed, as described in this report, were conducted in a manner consistent with that level of care and skill normally exercised by other members of the engineering and science professions currently practicing under similar conditions, subject to the time limits and financial and physical constraints applicable to the services.

Any use which a third party makes of this report, or any reliance on, or decisions to be made based on it, are the responsibilities of such third parties. Golder Associates Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

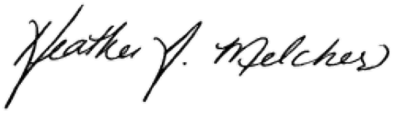
The findings and conclusions of this report are valid only as of the date of this report. If new information is discovered in future work, including excavations, borings, or other studies, Golder Associates Ltd. should be requested to re-evaluate the conclusions of this report, and to provide amendments as required.

9.0 CLOSURE

We trust this report meets your current requirements. If you have any questions regarding this report, please contact the undersigned.

Golder Associates Ltd.

Gwendolyn Weeks, H.B.Sc.Env.
Lead Ecologist



Heather Melcher, M.Sc.
Director, Ecology - Earth and Environment Ontario

GAW/HM/sg
https://golderassociates.sharepoint.com/sites/165866/project files/6 deliverables/preliminary eis/22537428_preliminary scoped eis_575 dealership dr_nov2022.docx

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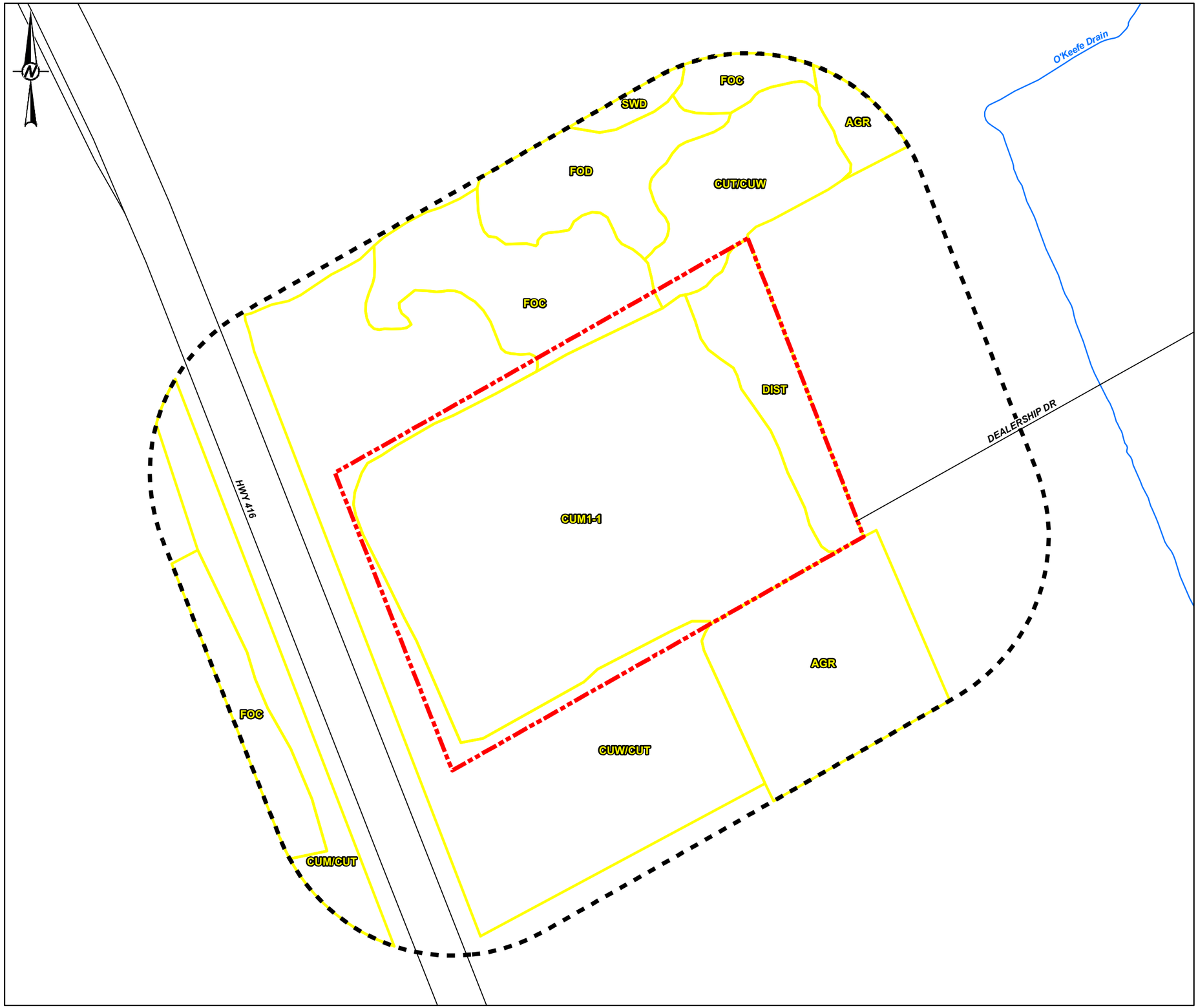
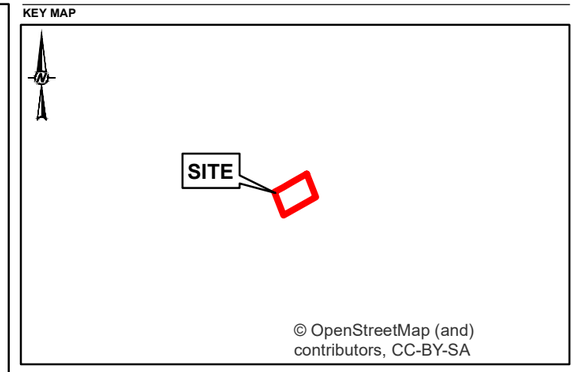


KEY MAP



SCALE 1:50,000

LEGEND

- ROADWAY
- CONSTRUCTED DRAIN
- WETLAND
- SITE
- STUDY AREA
- ECOLOGICAL LAND CLASSIFICATION

DIST: DISTURBED
AGR: AGRICULTURE
CUM1-1: MINERAL CULTURAL MEADOW
CUM/CUT: CULTURAL MEADOW/CULTURAL THICKET
CUT/CUW: CULTURAL THICKET/CULTURAL WOODLAND
FOD: DECIDUOUS FOREST
FOC: CONIFEROUS FOREST
SWD: DECIDUOUS SWAMP

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. COORDINATE SYSTEM: NAD 1983 UTM ZONE 18N, PROJECTION: TRANSVERSE MERCATOR, DATUM: NORTH AMERICAN 1983

0 25 50 100
1:2,500 METRES

CLIENT
ROSEFELLOW HOLDINGS INC.

PROJECT
NATURAL ENVIRONMENT DUE DILIGENCE
575 DEALERSHIP DRIVE, OTTAWA, ON

TITLE
SITE LOCATION AND EXISTING CONDITIONS

CONSULTANT

YYYY-MM-DD	2022-10-11
DESIGNED	----
PREPARED	JEM
REVIEWED	GW
APPROVED	HM

PROJECT No.	CONTROL	REV.	FIGURE
22537428	0001	0	1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm

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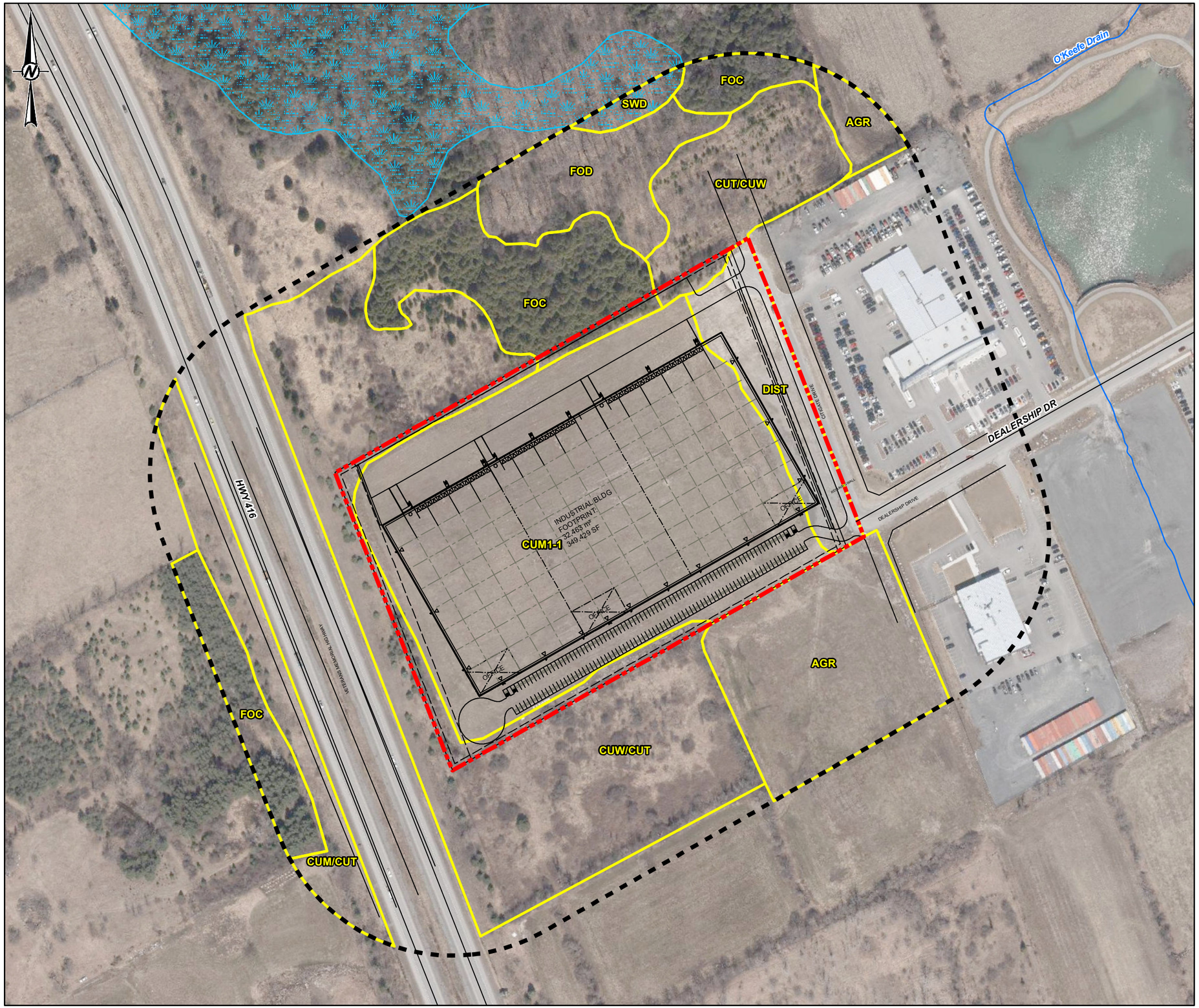

LEGEND

- ROADWAY
- CONSTRUCTED DRAIN
- WETLAND
- SITE
- STUDY AREA
- ECOLOGICAL LAND CLASSIFICATION

DIST: DISTURBED
AGR: AGRICULTURE
CUM1-1: MINERAL CULTURAL MEADOW
CUM/CUT: CULTURAL MEADOW/CULTURAL THICKET
CUT/CUW: CULTURAL THICKET/CULTURAL WOODLAND
FOD: DECIDUOUS FOREST
FOC: CONIFEROUS FOREST
SWD: DECIDUOUS SWAMP

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. COORDINATE SYSTEM: NAD 1983 UTM ZONE 18N, PROJECTION: TRANSVERSE MERCATOR, DATUM: NORTH AMERICAN 1983

0 25 50 100
1:2,500 METRES

CLIENT
ROSEFELLOW HOLDINGS INC.

PROJECT
NATURAL ENVIRONMENT DUE DILIGENCE
575 DEALERSHIP DRIVE, OTTAWA, ON

TITLE
PROPOSED DESIGN PLAN

CONSULTANT
WSP GOLDER

YYYY-MM-DD	2022-11-15
DESIGNED	----
PREPARED	JEM
REVIEWED	GW
APPROVED	HM

PROJECT No.	CONTROL	REV.	FIGURE
22537428	0001	0	**2**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm

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APPENDIX A

Photographic Log

Photo 1: Mixed meadow (entire site) facing north. Adjacent coniferous and deciduous forest in the background view.

Photo 2: Adjacent treed area of the Site (north).

Photo 3: Disturbed meadow area of the Site (east).

Photo 4: Adjacent agricultural field of the Site (south).

Photo 5: Adjacent trees to the meadow on the site (west).

APPENDIX B

Species at Risk Screening

APPENDIX B
Species at Risk Screening

Taxon	Common Name	Scientific Name	Endangered Species Act, Reg. 230/08 SARO List Status[1]	Species at Risk Act, Schedule 1 List of Wildlife SAR Status[2]	COSEWIC Status[3]	Global Rarity Rank[4]	Provincial Rarity Rank[5]	Source(s)*	Ontario Habitat Descriptions	Probability of Occurrence on the Site	Probability of Occurrence in the Study Area	ESA Habitat Protection Provisions[6]	References
Amphibian	Western chorus frog - Great Lakes St. Lawrence / Canadian Shield population	*Pseudacris triseriata*	—	THR	THR	G5TNR	S3	ORAA	In Ontario, habitat of this amphibian species typically consists of marshes or wooded wetlands, particularly those with dense shrub layers and grasses, as this species is a poor climber. They will breed in almost any fishless pond including roadside ditches, gravel pits and flooded swales in meadows. This species hibernates in terrestrial habitats under rocks, dead trees or leaves, in loose soil or in animal burrows. During hibernation, this species is tolerant of flooding (Environment Canada 2015).	Low - no habitat	Moderate - potential habitat to the north		Environment Canada. 2015. Recovery Strategy for the Western Chorus Frog (Pseudacris triseriata), Great Lakes/ St. Lawrence - Canadian Shield population, in Canada. Species at Risk Act Recovery Strategy Series. Ottawa ON: Environment Canada; [accessed 29 November 2019]. https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/plans/Rs-WesternChorusFrogGLSLBC-v00-2015Dec01_e.pdf. vi + 50 p.
Arthropod	Bogbean buckmoth	*Hemileuca sp.*	END	END	END	G1Q	S1	Range	In Ontario, bogbean buckmoth is found at two sites near Ottawa: the Richmond Fen Wetland and White Lake Wetland Complex. Bogbean buckmoth is found in open calcareous fens that have an abundance of its' primary plant host, bogbean, where caterpillars feed. These fens are typically low-shrub and have areas of peat moss hummocks for pupation sites nearby (Gradish and Tonge 2011).	Low - no habitat	Low - no habitat	Regulated In the geographic areas of: townships of Goulbourn and Marlborough (near Ottawa), township of McNab in Renfrew County, and township of Pakenham in Lanark County Regulated Habitat: • extent of the fen where the species is found, and the area within 120 m of that fen site, protected until 3 years of documented non-use	Gradish A, Tonge M. 2011. Recovery Strategy for the Bogbean Buckmoth (Hemileuca sp.) in Ontario. Ontario Recovery Strategy Series. Peterborough ON: Ontario Ministry of Natural Resources; [accessed 29 November 2019]. https://files.ontario.ca/environment-and-energy/species-at-risk/stdprod_086029.pdf. vi + 19 p.
Arthropod	Gypsy cuckoo bumble bee	*Bombus bohemicus*	END	END	END	G4	S1S2	Range	In Ontario, gypsy cuckoo bumble bee is a habitat generalist and is found in several different types of habitats, including open meadows, agricultural fields, urban areas, boreal forest and other woodlands. Gypsy cuckoo bumble bee is a parasitic bee and uses the underground nests of the subgenus *Bombus senso stricto* . This bee is a generalist forager but is often associated with flowering plants close to wooded areas and blueberry fields. Currently this species is only known to occur in Pinery Provincial Park (COSEWIC 2014).	Low - this species is only known from Pinery Provincial Park.	Low - this species is only known from Pinery Provincial Park.	General	COSEWIC (Committee on the Status of Endangered Wildlife in Canada). 2014. COSEWIC assessment and status report on the Gypsy Cuckoo Bumble Bee Bombus bohemicus in Canada. Ottawa ON: Committee on the Status of Endangered Wildlife in Canada; [accessed 22 November 2019]. https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/cosewic/sr_Gypsy%20Cuckoo%20Bumble%20Bee_2014_e.pdf .ix + 56 p.
Arthropod	Monarch	*Danaus plexippus*	SC	SC	END	G4	S2N, S4B	OAA	In Ontario, monarch is found throughout the northern and southern regions of the province. This butterfly is found wherever there is milkweed (*Asclepias* spp.) plants for its caterpillars and wildflowers that supply a nectar source for adults. It is often found on abandoned farmland, meadows, open wetlands, prairies and roadsides, but also in city gardens and parks. Important staging areas during migration occur along the north shores of the Great Lakes (COSEWIC 2010).	Moderate - potential habitat present in fields and field edges	Moderate - potential habitat present throughout Study Area		COSEWIC (Committee on the Status of Endangered Wildlife in Canada). 2010. COSEWIC assessment and status report on the Monarch Danaus plexippus in Canada. Ottawa ON: Committee on the Status of Endangered Wildlife in Canada; [accessed 22 November 2019]. https://www.registrelep-sararegistry.gc.ca/virtual_sara/files/cosewic/sr_Monarch_0810_e1.pdf. vii + 43 p.
Arthropod	Mottled duskywing	*Erynnis martialis*	END	—	END	G3	S2	Range	In Ontario, the mottled duskywing is found in the same habitat as its food plant *Ceanothus* spp.: open or partially open, dry, sandy areas, or limestone alvars. These habitats are relatively uncommon and include dry open pine and pine oak woodland, other open dry woodlands, alvars, savannah and other dry open sandy habitats. Usually seen nectaring on wildflowers, or on wet sandy roads in the company of other duskywing species (Linton 2015).	Low - no habitat	Low - no habitat	General	Linton J. 2015. Recovery Strategy for the Mottled Duskywing (Erynnis martialis) in Ontario. Ontario Recovery Strategy Series. Peterborough ON: Ontario Ministry of Natural Resources; [accessed 29 November 2019]. http://www.ontla.on.ca/library/repository/mon/29008/331486.pdf. v + 38 p.
Arthropod	Rusty-patched bumble bee	*Bombus affinis*	END	END	END	G1	S1	Range	In Ontario, rusty-patched bumble bee is found in areas from the southern Great Lakes – St. Lawrence forest region southwards into the Carolinian forest. It is a habitat generalist, but it is typically found in open habitats, such as mixed farmland, savannah, marshes, sand dunes, urban and lightly wooded areas. It is cold –tolerant and can be found at high elevations. Most recent sightings in Ontario have been in oak savannah habitat with well-drained, sandy soils and moderately open canopy. It requires an abundance of flowering plants for forage. This species most often builds nests underground in old rodent burrows, but also in hollow tree stumps and fallen dead wood (Colla and Taylor-Pindar 2011). The only recent sightings in Ontario are from the Pinery Provincial Park.	Low - this species is only known from Pinery Provincial Park.	Low - this species is only known from Pinery Provincial Park.	Regulated In the geographic areas of: where species occurs south of 45o30'0'' north latitude (approximately south of Algonquin Park) Regulated Habitat: • any nesting or hibernation site and surrounding 30 m area • natural areas within 500 m of a rusty-patched bumble bee that provide suitable foraging conditions (i.e. prairie, savannah, woodland, marsh, bog, forest, sand dune, old field or similar areas); and if these areas extend beyond 500 m, those areas protected up to an additional 500 m • natural areas that provide suitable foraging conditions between Apr 1 to May 31 that fall between 500 m and 1000 m of a rusty-patched bumble bee • areas protected until 5 consecutive years of non-use • unsuitable habitat includes open water and built-up areas (e.g. roads, parking lots) • regulation does not apply to areas used in past 12 months for pasture, growing, producing or raising farm animals, producing agricultural crops, or growing a garden or lawn	Colla SR, Taylor-Pindar A. 2011. Recovery Strategy for the Rusty-patched Bumble Bee (Bombus affinis) in Ontario. Ontario Recovery Strategy Series. Peterborough ON: Ontario Ministry of Natural Resources; [accessed 29 November 2019]. https://www.ontario.ca/page/rusty-patched-bumble-bee-recovery-strategy. vi + 21 p.
Arthropod	West Virginia white	*Pieris virginiensis*	SC	—	—	G3?	S3	Range	In Ontario, west Virginia white is found primarily in the central and southern regions of the province. This butterfly lives in moist, mature, deciduous and mixed woodlands, and the caterpillars feed only on the leaves of toothwort (*Cardamine* spp.), which are small, spring-blooming plants of the forest floor. These woodland habitats are typically maple-beech-birch dominated. This species is associated with woodlands growing on calcareous bedrock or thin soils over bedrock (Burke 2013).	Low - no habitat	Low - no mature deciduous forests appear to be present.		Burke PS. 2013. Management Plan for the West Virginia White (Pieris virginiensis) in Ontario. Ontario Management Plan Series. Peterborough ON: Ontario Ministry of Natural Resources; [accessed 29 November 2019]. https://www.ontario.ca/page/west-virginia-white-management-plan. v + 44 p.
Arthropod	Yellow-banded bumble bee	*Bombus terricola*	SC	SC	SC	G5	S2	Range	Yellow-banded bumblebee is a forage and habitat generalist, occupying open woodlands, meadows, grasslands, farmlands and urban parks, and taking nectar from various flowering plants (COSEWIC 2015). It is an early emerging species, making it likely an important pollinator of early blooming wild flowering plants (e.g. wild blueberry) and agricultural crops (e.g., apple). Nest sites are often in abandoned rodent burrows in old fields and queens overwinter by burrowing into loose soil or rotting trees (COSEWIC 2015).	Moderate - potential habitat present in fields and field edges	Moderate - potential habitat present throughout Study Area		COSEWIC (Committee on the Status of Endangered Wildlife in Canada). 2015. COSEWIC assessment and status report on the Yellow-banded Bumble Bee Bombus terricola in Canada. Ottawa ON: Committee on the Status of Endangered Wildlife in Canada; [accessed 22 November 2019]. https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/cosewic/sr_Yellow-banded%20Bumble%20Bee_2015_e.pdf. ix + 60 p.

APPENDIX B
Species at Risk Screening

Taxon	Common Name	Scientific Name	Endangered Species Act, Reg. 230/08 SARO List Status[1]	Species at Risk Act, Schedule 1 List of Wildlife SAR Status[2]	COSEWIC Status[3]	Global Rarity Rank[4]	Provincial Rarity Rank[5]	Source(s)*	Ontario Habitat Descriptions	Probability of Occurrence on the Site	Probability of Occurrence in the Study Area	ESA Habitat Protection Provisions[6]	References
Bird	Bald eagle	*Haliaeetus leucocephalus*	SC	—	NAR	G5	S2N,S4B	Range	In Ontario, bald eagle nests are typically found near the shorelines of lakes or large rivers, often on forested islands. The large, conspicuous nests are typically found in large super-canopy trees along water bodies (Buehler 2000).	Low - no habitat	Low - no habitat		Buehler DA. 2000. Bald Eagle (Haliaeetus leucocophalus). In The Birds of North America Online (AF Poole and FB Gill, eds.), Version 2.0. Ithaca NY: Cornell Lab of Ornithology; [accessed 29 November 2019]. https://doi.org/10.2173/bna.506.
Bird	Bank swallow	*Riparia riparia*	THR	THR	THR	G5	S4B	OBBA	In Ontario, bank swallow breeds in a variety of natural and anthropogenic habitats, including lake bluffs, stream and riverbanks, sand and gravel pits, and roadcuts. Nests are generally built in a vertical or near-vertical bank. Breeding sites are typically located near open foraging sites such as rivers, lakes, grasslands, agricultural fields, wetlands and riparian woods. Forested areas are generally avoided (Garrison 1999).	Low - no habitat	Low - no habitat	General (Draft) Category 1 – Breeding colony, including burrows and substrate between them Category 2 – Area within 50 m of the front of breeding colony face Category 3 – Area of suitable foraging habitat within 500 m of the outer edge of breeding colony	Garrison BA. 1999. Bank Swallow (Riparia riparia). The Birds of North America Online (AF Poole and FB Gill, eds). Ithaca NY: Cornell Lab of Ornithology; [accessed 20 November 2019]. https://doi.org/10.2173/bna.414.
Bird	Barn swallow	*Hirundo rustica*	THR	THR	SC	G5	S4B	OBBA; NHIC	In Ontario, barn swallow breeds in areas that contain a suitable nesting structure, open areas for foraging, and a body of water. This species nests in human made structures including barns, buildings, sheds, bridges, and culverts. Preferred foraging habitat includes grassy fields, pastures, agricultural cropland, lake and river shorelines, cleared rights-of-way, and wetlands (COSEWIC 2011). Mud nests are fastened to vertical walls or built on a ledge underneath an overhang. Suitable nests from previous years are reused (Brown and Brown 2019).	Low - no habitat	Moderate - may be present on buildings	General Category 1 – Nest Category 2 – Area within 5 m of the nest Category 3 – Area between 5-200 m of the nest	Brown MB, Brown CR. 2019. Barn Swallow (Hirundo rustica). In The Birds of North America Online (P. G. Rodewald, ed), version 2.0. Ithaca NY: Cornell Lab of Ornithology; [accessed 20 November 2019]. https://doi.org/10.2173/bna.barswa.02. COSEWIC (Committee on the Status of Endangered Wildlife in Canada). 2011. COSEWIC assessment and status report on the Barn Swallow Hirundo rustica in Canada. Ottawa ON: Committee on the Status of Endangered Wildlife in Canada; [accessed 22 November 2019]. https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/cosewic/sr_barn_swallow_0911_eng.pdf. ix + 37 p.
Bird	Black tern	*Chlidonias niger*	SC	—	NAR	G4	S3B	Range	In Ontario, black tern breeds in freshwater marshlands where it forms small colonies. It prefers marshes or marsh complexes greater than 20 ha in area and which are not surrounded by wooded area. Black terns are sensitive to the presence of agricultural activities. The black tern nests in wetlands with an even combination of open water and emergent vegetation, and still waters of 0.5-1.2 m deep. Preferred nest sites have short dense vegetation or tall sparse vegetation often consisting of cattails, bulrushes and occasionally burreed or other marshland plants. Black terns also require posts or snags for perching (Weseloh 2007).	Low - no habitat	Low - no habitat		Weseloh C. 2007. Black Tern, pp. 590-591 in Cadman MD, Sutherland DA, Beck GG, Lepage D, Couturier AR, eds. Atlas of the Breeding Birds of Ontario, 2001-2005. Toronto ON: Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources and Ontario Nature. xxii + 706 p.
Bird	Bobolink	*Dolichonyx oryzivorus*	THR	THR	THR	G5	S4B	OBBA; NHIC	In Ontario, bobolink breeds in grasslands or graminoid dominated hayfields with tall vegetation (Gabhauer 2007). Bobolink prefers grassland habitat with a forb component and a moderate litter layer. They have low tolerance for presence of woody vegetation and are sensitive to frequent mowing within the breeding season. They are most abundant in established, but regularly maintained, hayfields, but also breed in lightly grazed pastures, old or fallow fields, cultural meadows and newly planted hayfields. Their nest is woven from grasses and forbs. It is built on the ground, in dense vegetation, usually under the cover of one or more forbs (Renfrew et al. 2015).	Moderate - open fields may provide suitable habitat	Moderate - open fields may provide suitable habitat	General Category 1 – Nest and area within 10 m of nest Category 2 – Area between 10 – 60 m of the nest or centre of approximated defended territory Category 3 - Area of continuous suitable habitat between 60 – 300 m of the nest or centre of approximated defended territory	Gabhauer MA. 2007. Bobolink, pp. 586-587 in Cadman MD, Sutherland DA, Beck GG, Lepage D, Couturier AT, eds. Atlas of the Breeding Birds of Ontario, 2001-2005. Toronto ON: Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources and Ontario Nature. xxii + 706 p. Renfrew R, Strong AM, Perlut NG, Martin SG, Gavin TA. 2015. Bobolink (Dolichonyx oryzivorus). In The Birds of North America (PG Rodewald, ed.), version 2.0. Ithaca NY: Cornell Lab of Ornithology; [accessed 29 November 2019]. https://doi.org/10.2173/bna.176.
Bird	Canada warbler	*Cardellina canadensis*	SC	THR	SC	G5	S4B	Range	In Ontario, breeding habitat for Canada warbler consists of moist mixed forests with a well-developed shrubby understory. This includes low-lying areas such as cedar and alder swamps, and riparian thickets (McLaren 2007). It is also found in densely vegetated regenerating forest openings. Suitable habitat often contains a developed moss layer and an uneven forest floor. Nests are well concealed on or near the ground in dense shrub or fern cover, often in stumps, fallen logs, overhanging stream banks or mossy hummocks (Reitsma et al. 2010).	Low - no habitat	Moderate - suitable habitat may be present in forested area to the north		McLaren P. 2007. Canada Warbler, pp. 528-529 in Cadman MD, Sutherland DA, Beck GG, Lepage D, Couturier AT, eds. Atlas of the Breeding Birds of Ontario, 2001-2005. Toronto ON: Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources and Ontario Nature. xxii + 706 p. Reitsma L, Goodnow M, Hallworth MT, Conway CJ. 2009. Canada Warbler (Cardellina canadensis). In The Birds of North America Online (A. Poole, ed.), version 2.0. Ithaca NY: Cornell Lab of Ornithology; [accessed 29 November 2019]. https://doi.org/10.2173/bna.421.
Bird	Cerulean warbler	*Setophaga cerulea*	THR	END	END	G4	S3B	Range	In Ontario, breeding habitat of cerulean warbler consists of second-growth or mature deciduous forest with a tall canopy of uneven vertical structure and a sparse understory. This habitat occurs in both wet bottomland forests and upland areas, and often contains large hickory and oak trees. This species may be attracted to gaps or openings in the upper canopy. The cerulean warbler is associated with large forest tracks but may occur in woodlots as small as 10 ha (COSEWIC 2010). Nests are usually built on a horizontal limb in the mid-story or canopy of a large deciduous tree (Buehler et al. 2013).	Low - no habitat	Low - no records for the Study Area or local landscape.	General	Buehler DA, Hamel PB, Boves T. 2013. Cerulean Warbler (Setophaga cerulean). In The Birds of North America (AF Poole, ed), version 2.0. Ithaca, NY: Cornell Lab of Ornithology; [accessed 29 November 2019]. https://doi.org/10.2173/bna.511 COSEWIC (Committee on the Status of Endangered Wildlife in Canada). 2010. COSEWIC assessment and status report on the Cerulean Warbler Dendroica cerulean in Canada. Ottawa ON: Committee on the Status of Endangered Wildlife in Canada; [accessed 22 November 2019]. https://www.sararegistry.gc.ca/virtual_sara/files/cosewic/sr_cerulean_warbler_e.pdf. x + 40 p.
Bird	Chimney swift	*Chaetura pelagica*	THR	THR	THR	G4G5	S3B	Range	In Ontario, chimney swift breeding habitat is varied and includes urban, suburban, rural and wooded sites. They are most commonly associated with towns and cities with large concentrations of chimneys. Preferred nesting sites are dark, sheltered spots with a vertical surface to which the bird can grip. Unused chimneys are the primary nesting and roosting structure, but other anthropogenic structures and large diameter cavity trees are also used (COSEWIC 2007).	Low - no habitat	Low - no habitat	General Category 1 – Human-made nest/roost, or natural nest/roost cavity and area within 90 m of natural cavity	COSEWIC (Committee on the Status of Endangered Wildlife in Canada). 2007. COSEWIC assessment and status report on the Chimney Swift Chaetura pelagica in Canada. Ottawa ON: Committee on the Status of Endangered Wildlife in Canada; [accessed 22 November 2019]. https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/cosewic/sr_chaetura_pelagica_e.pdf. vii + 49 p.

APPENDIX B
Species at Risk Screening

Taxon	Common Name	Scientific Name	Endangered Species Act, Reg. 230/08 SARO List Status[1]	Species at Risk Act, Schedule 1 List of Wildlife SAR Status[2]	COSEWIC Status[3]	Global Rarity Rank[4]	Provincial Rarity Rank[5]	Source(s)*	Ontario Habitat Descriptions	Probability of Occurrence on the Site	Probability of Occurrence in the Study Area	ESA Habitat Protection Provisions[6]	References
Bird	Common nighthawk	*Chordeiles minor*	SC	THR	SC	G5	S4B	Range	In Ontario, these aerial foragers require areas with large open habitat. This includes farmland, open woodlands, clearcuts, burns, rock outcrops, alvars, bogs, fens, prairies, gravel pits and gravel rooftops in cities (Sandilands 2007)	Moderate - open fields may provide suitable habitat	Moderate - open fields may provide suitable habitat		Sandilands A. 2007. Common Nighthawk, pp. 308-309 in Cadman, MD, Sutherland DA, Beck GG, Lepage D, Couturier AR, eds. Atlas of the Breeding Birds of Ontario, 2001-2005. Toronto ON: Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources and Ontario Nature. xxii + 706 p.
Bird	Eastern meadowlark	*Sturnella magna*	THR	THR	THR	G5	S4B	OBBA; NHIC	In Ontario, eastern meadowlark breeds in pastures, hayfields, meadows and old fields. Eastern meadowlark prefers moderately tall grasslands with abundant litter cover, high grass proportion, and a forb component (Hull 2019). They prefer well drained sites or slopes, and sites with different cover layers (Roseberry and Klimstra 1970).	Moderate - open fields may provide suitable habitat	Moderate - open fields may provide suitable habitat	General Category 1 – Nest and area within 10 m of the nest Category 2 – Area between 10 – 100 m of the nest or centre of approximated defended territory Category 3 – Area of continuous suitable habitat between 100 – 300 m of the nest or centre of approximated defended territory	Hull SD, Shaffer JA, Lawrence DI. 2019. The effects of management practices on grassland birds: Eastern Meadowlark (Sturnella magna). Jamestown ND: US Geological Survey; [accessed 02 December 2019]. https://pubs.usgs.gov/pp/1842/mm/pp1842MM.pdf. Roseberry JL, Klimstra WD. 1970. The nesting ecology and reproductive performance of the Eastern Meadowlark. The Wilson Bulletin 82(3): 243-267.
Bird	Eastern whip-poor-will	*Antrostomus vociferus*	THR	THR	THR	G5	S4B	Range	In Ontario, whip-poor-will breeds in semi-open forests with little ground cover. Breeding habitat is dependent on forest structure rather than species composition, and is found on rock and sand barrens, open conifer plantations and post-disturbance regenerating forest. Territory size ranges from 3 to 11 ha (COSEWIC 2009). No nest is constructed, and eggs are laid directly on the leaf litter (Mills 2007).	Low - no habitat	Low - no records for the Study Area or local landscape. Habitat is small and subject to human disturbance (high levels of noise and lighting).	General Category 1 – Nest and area within 20 m of nest Category 2 – Area between 20-170 m from nest or centre of approximated defended territory Category 3 – Area of suitable habitat within 170-500 m of the nest, or centre of approximated defended territory	COSEWIC (Committee on the Status of Endangered Wildlife in Canada). 2009. COSEWIC assessment and status report on the Whip-poor-will Caprimulgus vociferus in Canada. Ottawa ON: Committee on the Status of Endangered Wildlife in Canada; [accessed 02 December 2019]. https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/cosewic/sr_whip-poor-will_0809_e.pdf. vi + 28 p. Mills A. 2007. Whip-poor-will, pp. 312-313 in Cadman MD, Sutherland DA, Beck GG, Lepage D, Couturier AR, eds. Atlas of the Breeding Birds of Ontario, 2001-2005. Toronto ON: Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources and Ontario Nature. xxii + 706 p.
Bird	Eastern wood-pewee	*Contopus virens*	SC	SC	SC	G5	S4B	OBBA	In Ontario, eastern wood-pewee inhabits a wide variety of wooded upland and lowland habitats, including deciduous, coniferous, or mixed forests. It occurs most frequently in forests with some degree of openness. Intermediate-aged forests with a relatively sparse midstory are preferred. In younger forests with a relatively dense midstory, it tends to inhabit the edges. Also occurs in anthropogenic habitats providing an open forested aspect such as parks and suburban neighborhoods. Nest is constructed atop a horizontal branch, 1-2 m above the ground, in a wide variety of deciduous and coniferous trees (COSEWIC 2012).	Low - no habitat	Moderate - forested areas may provide habitat		COSEWIC (Committee on the Status of Endangered Wildlife in Canada). 2012. COSEWIC assessment and status report on the Eastern Wood-pewee Contopus virensin Canada. Ottawa ON: Committee on the Status of Endangered Wildlife in Canada; [accessed 02 December 2019]. https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/cosewic/sr_Eastern%20Wood-pewee_2013_e.pdf. x + 39 p.
Bird	Evening grosbeak	*Coccothraustes vespertinus*	SC	SC	SC	G5	S4B	OBBA	In Ontario, evening grosbeak breeds across northern Ontario, as far south as southern Georgian Bay, in open mature coniferous or mixed forests dominated by fir species, white spruce and/or trembling aspen (MECP 2019).	Low - no habitat	Moderate - forested areas may provide habitat		MECP (Ministry of Environment, Conservation and Parks). 2019. Evening Grosbeak. [updated 04 November 2019; accessed 02 December 2019]. https://www.ontario.ca/page/evening-grosbeak.
Bird	Golden-winged warbler	*Vermivora chrysoptera*	SC	THR	THR	G4	S4B	Range	In Ontario, golden-winged warbler breeds in regenerating scrub habitat with dense ground cover and a patchwork of shrubs, usually surrounded by forest. Their preferred habitat is characteristic of a successional landscape associated with natural or anthropogenic disturbance such as rights-of-way, and field edges or openings resulting from logging or burning. The nest of the golden-winged warbler is built on the ground at the base of a shrub or leafy plant, often at the shaded edge of the forest or at the edge of a forest opening (Confer et al. 2011).	Low - no habitat	Moderate - edge habitats may provide suitable habitat		Confer JL, Hartman P, Roth A. 2011. Golden-winged Warbler (Vermivora chrysoptera). In The Birds of North America (AF Poole ed), version 2.0. Ithaca, NY: Cornell Lab of Ornithology; [accessed 19 December 2018]. https://doi.org/10.2173/bna.20.
Bird	Grasshopper sparrow *pratensis* subspecies	*Ammodramus savannarum* (pratensis subspecies)	SC	SC	SC	G5	S4B	OBBA	In Ontario, grasshopper sparrow is found in medium to large grasslands with low herbaceous cover and few shrubs. It also uses a wide variety of agricultural fields, including cereal crops and pastures. Close-grazed pastures and limestone plains (e.g. Carden and Napanee Plains) support highest density of this bird in the province (COSEWIC 2013).	Moderate - open fields may provide suitable habitat	Moderate - open fields may provide suitable habitat		COSEWIC (Committee on the Status of Endangered Wildlife in Canada). 2013. COSEWIC assessment and status report on the Grasshopper Sparrow pratensis subspecies Ammodramus savannarum pratensis in Canada. Ottawa ON: Committee on the Status of Endangered Wildlife in Canada; [accessed 02 December 2019]. https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/cosewic/sr_Grasshopper%20Sparrow_2013_e.pdf. ix + 36 p.
Bird	Least bittern	*Ixobrychus exilis*	THR	THR	THR	G5	S4B	NHIC	In Ontario, least bittern breeds in marshes, usually greater than 5 ha, with emergent vegetation, relatively stable water levels and areas of open water. Preferred habitat has water less than 1 m deep (usually 10 – 50 cm). Nests are built in tall stands of dense emergent or woody vegetation (Woodliffe 2007). Clarity of water is important as siltation, turbidity, or excessive eutrophication hinders foraging efficiency (COSEWIC 2009).	Low - no habitat	Low - no habitat	General (as of June 30, 2013)	COSEWIC (Committee on the Status of Endangered Wildlife in Canada). 2009. COSEWIC assessment and update status report on the Least Bittern Ixobrychus exilis in Canada. Ottawa ON: Committee on the Status of Endangered Wildlife in Canada; [accessed 02 December 2019]. https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/cosewic/sr_least_bittern_0809_e.pdf. vi + 36 p. Woodliffe PA. 2007. Least Bittern, pp. 156-157 in Cadman MD, Sutherland DA, Beck GG, Lepage D, Couturier AR, eds. Atlas of the Breeding Birds of Ontario, 2001-2005. Toronto ON: Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources and Ontario Nature. xxii + 706 p.

APPENDIX B
Species at Risk Screening

Taxon	Common Name	Scientific Name	Endangered Species Act, Reg. 230/08 SARO List Status[1]	Species at Risk Act, Schedule 1 List of Wildlife SAR Status[2]	COSEWIC Status [3]	Global Rarity Rank[4]	Provincial Rarity Rank[5]	Source(s)*	Ontario Habitat Descriptions	Probability of Occurrence on the Site	Probability of Occurrence in the Study Area	ESA Habitat Protection Provisions[6]	References
Bird	Olive-sided flycatcher	*Contopus cooperi*	SC	THR	SC	G4	S4B	Range	In Ontario, olive-sided flycatcher breeding habitat consists of natural openings in coniferous or mixed forests, including bogs, burns, riparian zones, and cutover areas. They are also found in semi-open forest stands and early successional forest when tall snags and residual live trees are present. In the boreal forest it is often associated with muskeg, bogs, fens and swamps dominated by spruce and tamarack. Open areas with tall trees or snags for perching are used for foraging (COSEWIC 2007). Nests are usually built on horizontal branches of conifers (Peck and James 1987).	Low - no habitat	Moderate - forested areas may provide habitat		COSEWIC (Committee on the Status of Endangered Wildlife in Canada). 2007. COSEWIC assessment and status report on the Olive-sided Flycatcher Contopus cooperi in Canada. Ottawa ON: Committee on the Status of Endangered Wildlife in Canada; [accessed 02 December 2019]. https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/cosewic/srOlive-sidedFlycatcher2018e.pdf. vii + 25 p. Peck GK, James RD. 1987. The breeding birds of Ontario: nidiology and distribution. Vol. 2: Passerines. Toronto ON: Royal Ontario Museum. 397 p.
Bird	Peregrine falcon (anatum/tundrius subspecies)	*Falco peregrinus anatum/tundrius*	SC	SC	Not at Risk	G4	S3B	Range	In Ontario, peregrine falcon breeds in areas containing suitable nesting locations and sufficient prey resources. Such habitat includes both natural locations containing cliff faces (heights of 50 - 200 m preferred) and anthropogenic landscapes including urban centres containing tall buildings, open pit mines and quarries, and road cuts. Peregrine falcons nest on cliff ledges and crevices and building ledges. Nests consist of a simple scrape in the substrate (COSEWIC 2017).	Low - no habitat	Low - no habitat		COSEWIC (Committee on the Status of Endangered Wildlife in Canada). 2017. COSEWIC assessment and update status report on the Peregrine Falcon Falco peregrinus (pealei subspecies – Falco peregrinus and pealei anatum/tundrius – Falco peregrinus anatum/tundrius) in Canada. Ottawa ON: Committee on the Status of Endangered Wildlife in Canada; [accessed 02 December 2019]. https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/cosewic/srPeregrineFalcon2017e.pdf. vii + 45 p.
Bird	Red-headed woodpecker	*Melanerpes erythrocephalus*	END	END	END	G5	S4B	Range	In Ontario, red-headed woodpecker breeds in open, deciduous woodlands or woodland edges and are often found in parks, cemeteries, golf courses, orchards and savannahs (Woodliffe 2007). They may also breed in forest clearings or open agricultural areas provided that large trees are available for nesting. They prefer forests with little or no understory vegetation. They are often associated with beech or oak forests, beaver ponds and swamp forests where snags are numerous. Nests are excavated in the trunks of large dead trees (Frei et al. 2017).	Low - no habitat	Moderate - semi-open habitats may provide suitable habitat	General (as of Jan 27, 2022)	Frei B, Smith KG, Withgott JH, Rodewald PG, Pyle P, Patten MA. 2017. Red-headed Woodpecker (Melanerpes erythrocephalus). In The Birds of North America (PG Rodewald, ed), version 2.1. Ithaca, NY: Cornell Lab of Ornithology; [accessed 02 December 2019]. https://doi.org/10.2173/bna.rehwoo.02.1. Woodliffe PA. 2007. Red-headed Woodpecker, pp. 320-321 in Cadman MD, Sutherland DA, Beck GG, Lepage D, Couturier AR, eds. Atlas of the Breeding Birds of Ontario, 2001-2005. Toronto ON: Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources and Ontario Nature. xvii + 706 p.
Bird	Rusty blackbird	*Euphagus carolinus*	SC	SC	SC	G4	S4B	Range	In Ontario, rusty blackbird breeds in swamps, fens, bogs and beaver ponds of boreal or mixed forests. It may also breed in dense vegetation along creeks, and on the edges of riparian forests or pasture edges (COSEWIC 2017). Edge habitat associated with disturbances such as clear cut or burn regeneration zones may be favoured. Rusty blackbirds nest in small trees or shrubs, close to, or over water. Nests may be in living or dead trees and stumps but have also been found on the ground (Avery 2013).	Low - no habitat	Low - no habitat		Avery ML. 2013. Rusty Blackbird (Euphagus carolinus). In The Birds of North America (AF Poole, ed), version 2.0. Ithaca, NY: Cornell Lab of Ornithology; [accessed 19 December 2018]. https://doi.org/10.2173/bna.200. COSEWIC (Committee on the Status of Endangered Wildlife in Canada). 2017. COSEWIC assessment and status report on the Rusty Blackbird Euphagus carolinus in Canada. Ottawa ON: Committee on the Status of Endangered Wildlife in Canada; [accessed 02 December 2019]. https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/cosewic/sr_Rusty%20Blackbird_2017_e.pdf. xi + 64 p.
Bird	Short-eared owl	*Asio flammeus*	SC	SC	THR	G5	S2N,S4B	Range	In Ontario, short-eared owl breeds in a variety of open habitats including grasslands, tundra, bogs, marshes, clear-cuts, burns, pastures and occasionally agricultural fields. The primary factor in determining breeding habitat is proximity to small mammal prey resources (COSEWIC 2008). Nests are built on the ground at a dry site and usually adjacent to a clump of tall vegetation used for cover and concealment (Gahbauer 2007).	Moderate - open fields may provide suitable habitat	Moderate - open fields may provide suitable habitat		COSEWIC (Committee on the Status of Endangered Wildlife in Canada). 2008. COSEWIC assessment and update status report on the Short-eared Owl Asio flammeus in Canada. Ottawa ON: Committee on the Status of Endangered Wildlife in Canada; [accessed 02 December 2019]. https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/cosewic/sr_shorteared_owl_0808_e.pdf. vi + 24 p. Gahbauer MA. 2007. Short-eared Owl, pp. 302-303 in Cadman MD, Sutherland DA, Beck GG, Lepage D, Couturier AR, eds. Atlas of the Breeding Birds of Ontario, 2001-2005. Toronto ON: Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources and Ontario Nature. xxii + 706 p.
Bird	Wood thrush	*Hylocichla mustelina*	SC	THR	THR	G4	S4B	OBBA	In Ontario, wood thrush breeds in moist, deciduous hardwood or mixed stands that are often previously disturbed, with a dense deciduous undergrowth and with tall trees for singing perches. This species selects nesting sites with the following characteristics: lower elevations with trees less than 16 m in height, a closed canopy cover (>70 %), a high variety of deciduous tree species, moderate subcanopy and shrub density, shade, fairly open forest floor, moist soil, and decaying leaf litter (COSEWIC 2012).	Low - no habitat	Moderate - forested areas may provide habitat		COSEWIC (Committee on the Status of Endangered Wildlife in Canada). 2012. COSEWIC assessment and status report on the Wood Thrush Hylocichla mustelina in Canada. Ottawa ON: Committee on the Status of Endangered Wildlife in Canada; [accessed 02 December 2019]. https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/cosewic/sr_Wood%20Thrush_2013_e.pdf. ix + 46 p.
Fish	American Eel	*Anguilla rostrata*	END	—	THR	G4	S1?	Range	In Ontario, American eel is native to the Lake Ontario, St. Lawrence River and Ottawa River watersheds. Their current distribution includes lakes Huron, Erie, and Superior and their tributaries. The Ottawa River population is considered extirpated. The preferred habitat of the American eel is cool water of lakes and streams with muddy or silty substrates in water temperatures between 16 and 19°C. The American eel is a catadromous fish that lives in fresh water until sexual maturity then migrates to the Sargasso Sea to spawn (Burridge et al. 2010; Eakins 2016).	Low - no habitat	Low - no habitat	General (as of June 30, 2013)	Burridge ME, Holm E, Mandrak NE. 2010. The ROM Field Guide to Freshwater Fishes of Ontario. Toronto, ON: Royal Ontario Museum. 464 p. Eakins RJ. 2016. Ontario Freshwater Fishes Life History Database. [1999-current; accessed 02 December 2019]. http://www.ontariofishes.ca.

APPENDIX B
Species at Risk Screening

Taxon	Common Name	Scientific Name	Endangered Species Act, Reg. 230/08 SARO List Status[1]	Species at Risk Act, Schedule 1 List of Wildlife SAR Status[2]	COSEWIC Status[3]	Global Rarity Rank[4]	Provincial Rarity Rank[5]	Source(s)*	Ontario Habitat Descriptions	Probability of Occurrence on the Site	Probability of Occurrence in the Study Area	ESA Habitat Protection Provisions[6]	References
Fish	Bridle shiner	*Notropis bifrenatus*	SC	SC	SC	G3	S2	Range	In Ontario, bridle shiner is a species found only in the St. Lawrence River and its tributaries. Preferred habitat conditions include substrates of sand, silt or organic debris and relatively warm, clear water. Bridle shiner are freshwater fish species that inhabit slow-moving areas of unpolluted streams with abundant aquatic vegetation. Bridle shiner is not acid tolerant and so distribution in Precambrian shield may be limited. Typical spawning habitat is in water depths of 45-120 cm over medium to high density of submerged aquatic vegetation, and fine substrates of clay, silt or sand (Boucher et al. 2011).	Low - no habitat	Low - no habitat		Boucher J, Berubé M, Boyko A, Bourgeois M. 2011. Management plan for the Bridle Shiner (Notropis bifrenatus) in Canada. Species at Risk Act Management Plan Series. Ottawa ON: Fisheries and Oceans Canada; [accessed 02 December 2019]. http://publications.gc.ca/collections/collection_2011/mpo-dfo/En3-5-14-2010-eng.pdf. v + 43 p.
Fish	Channel darter - St. Lawrence populations	*Percina copelandi*	SC	SC	SC	G4TNR	S2	Range	In Ontario, channel darter is found in the lower Great Lakes basin along the shores of Lake Erie, Detroit River, St. Clair River, Lake St. Clair, Ottawa River and some of its tributaries, and in drainages of the Bay of Quinte. Channel darter is a freshwater member of the perch family of fishes. Channel darter can be found in three general types of habitats, depending on which aquatic system they occupy: 1) in lakes, they are found in gravel and coarse sand beach areas; 2) in large river systems, they are typically found in gravel and cobble shoals and riffles; and, 3) in small- to medium-sized rivers, they are typically found in the riffles and pools. Communal spawning occurs in the spring and early summer in upstream areas with moderate to fast current and over fine gravel or small rocks (COSEWIC 2016).	Low - no habitat	Low - no habitat	General (as of June 30, 2013)	COSEWIC (Committee on the Status of Endangered Wildlife in Canada). 2016. COSEWIC assessment and update status on report on the channel darter Percina copelandi Lake Erie populations, Lake Ontario populations, and St. Lawrence populations, in Canada. Ottawa ON: Committee on the Status of Endangered Wildlife in Canada; [accessed 02 December 2019]. https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/cosewic/sr_Channel%20Darter_2016_e.pdf. xvi + 68 p.
Fish	Lake sturgeon - Great Lakes / Upper St.Lawrence population	*Acipenser fulvescens*	END	—	THR	G3G4TNR	S2	Range	In Ontario, lake sturgeon, a large prehistoric freshwater fish, is found in all the Great Lakes and in all drainages of the Great Lakes and of Hudson Bay. This species typically inhabits highly productive shoal areas of large lakes and rivers. They are bottom dwellers and prefer depths between 5-10 m and mud or gravel substrates. Small sturgeons are often found on gravelly shoals near the mouths of rivers. They spawn in depths of 0.5 to 4.5 m in areas of swift water or rapids. Where suitable spawning rivers are not available, such as in the lower Great Lakes, they are known to spawn in wave action over rocky ledges or around rocky islands (Golder 2011).	Low - no habitat	Low - no habitat	General	Golder (Golder Associates Ltd). 2011. Recovery Strategy for Lake Sturgeon (Acipenser fulvescens) – Northwestern Ontario, Great Lakes-Upper St. Lawrence River and Southern Hudson Bay-James Bay populations in Ontario. Ontario Recovery Strategy Series. Peterborough ON: Ontario Ministry of Natural Resources; [accessed 02 December 2019]. https://files.ontario.ca/environment-and-energy/species-at-risk/stdprod_086034.pdf. 77 p.

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Fish	Northern brook lamprey - Great Lakes / Upper St.Lawrence population	*Ichthyomyzon fossor*	SC	SC	SC	G4	S3	Range	In Ontario, northern brook lamprey occurs in rivers draining into Lakes Superior, Huron and Erie, as well as in the Ottawa and St. Lawrence Rivers. It is found in clear streams of varying sizes. Adults prefer riffle and run areas of cold-water streams and rivers with gravel and sand substrates. Spawning habitat usually includes a swift current and coarse gravel or rocky substrate, with which males construct inconspicuous nests (COSEWIC 2007).	Low - no habitat	Low - no habitat		COSEWIC (Committee on the Status of Endangered Wildlife in Canada). 2007. COSEWIC assessment and update status report on the northern brook lamprey Ichthyomyzon fossor (Great Lakes – Upper St. Lawrence populations and Saskatchewan – Nelson population) in Canada. Ottawa ON: Committee on the Status of Endangered Wildlife in Canada; [accessed 02 December 2019]. https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/cosewic/sr_ichthyomyzon_fossor_e.pdf. vi + 30 p.
Fish	Northern sunfish - Great Lakes / Upper St.Lawrence population	*Lepomis peltastes*	SC	SC	SC	G5TNR	S3	Range	In Ontario, northern sunfish is most often found in shallow areas of warm lakes, ponds, and watercourses with little current. This fish prefers clear water and is intolerant of turbidity and siltation. Substrates usually consists of sand and gravel, although larger substrate material is typical in the Moira and Trent watersheds. Spawning occurs in shallow areas with sandy or gravel substrate and nursery areas consist of shallow areas with mixed vegetation and mineral substrate (COSEWIC 2016).	Low - no habitat	Low - no habitat		COSEWIC (Committee on the Status of Endangered Wildlife in Canada). 2016. COSEWIC assessment and status report on the Northern Sunfish Lepomis peltastes, Saskatchewan - Nelson River populations and the Great Lakes - Upper St. Lawrence populations, in Canada. Ottawa ON: Committee on the Status of Endangered Wildlife in Canada; [accessed 02 December 2019]. https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/cosewic/sr_Northern%20Sunfish_2016_e.pdf. xv + 51 p.
Fish	River redhorse	*Moxostoma carinatum*	SC	SC	SC	G4	S2	Range	In Ontario, river redhorse is known to occur in the Mississippi River, Ottawa River, Madawaska River, Grand River, Trent River, and Thames River systems. They inhabit moderate to large rivers. The majority of their time is spent in pool habitats with slow-moving water and abundant vegetation. Spawning occurs in areas of shallow, moderate to fast-flowing waters in riffle-run habitats with coarse substrates of gravel and cobble (DFO 2019).	Low - no habitat	Low - no habitat		DFO (Fisheries and Oceans Canada). 2016. River redhorse (Moxostoma carinatum). [modified 19 December 2016; accessed 02 December 2019]. http://www.dfo-mpo.gc.ca/species-especes/profiles-profils/riverredhorse-chevalierriviere-eng.html
Fish	Silver lamprey - Great Lakes / Upper St.Lawrence population	*Ichthyomyzon unicuspis*	SC	SC	END	G5TNR	S3	Range	In Ontario, silver lamprey is known to occur in the Great Lakes and its tributaries, St. Lawrence River, Lake Nipissing, Lake-of-the-Woods and its tributaries, and the Ottawa River. Silver lamprey is a parasitic freshwater species that undertake spawning migrations in rivers and streams. They are often confused with sea lamprey. Adults prefer the clear waters of large streams, rivers, and lakes. Adults migrate in flowing water with stoney or gravelly bottom material for nesting. Larvae seek out slow flowing areas initially with thick organic layers where they will grow until moving out into predominantly sandy environments where they reside until they reach adulthood (COSEWIC 2012).	Low - no habitat	Low - no habitat		COSEWIC (Committee on the Status of Endangered Wildlife in Canada). 2011. COSEWIC assessment and status report on the Silver Lamprey, Great Lakes - Upper St. Lawrence populations and Saskatchewan - Nelson Rivers populations Ichthyomyzon unicuspisin Canada. Ottawa ON: Committee on the Status of Endangered Wildlife in Canada; [accessed 02 December 2019]. https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/cosewic/sr_silver_lamprey_0911_eng.pdf. xiii + 55 p.
Lichen	Flooded jellyskin	*Leptogium rivulare*	—	SC	SC	G3G5	S3	Range	In Ontario, flooded jellyskin is found in the eastern region of the province. This lobed, leaf-like lichen grows on the lower trunks of trees in hardwood swamps where flooding occurs in the spring. The most common tree host is black ash, but it has also been recorded on silver maple, trembling aspen, bur oak and white cedar. Trees must be live to support the lichen. These seasonal pond habitats typically occur over top of calcareous bedrock, such as limestone. There is unlikely to be a minimum size requirement for the area of flooded forest habitat available to the lichen, as long as adequate flooding is present (Environment Canada 2013; COSEWIC 2015).	Low - no habitat	Moderate - habitat may be present in forested wetlands to the north	General (as of June 30, 2013)	COSEWIC (Committee on the Status of Endangered Wildlife in Canada). 2015. COSEWIC assessment and status report on the flooded jellyskin Leptogium rivulare in Canada. Ottawa ON: Committee on the Status of Endangered Wildlife in Canada; [accessed 02 December 2019]. https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/cosewic/sr_Flooded%20Jellyskin_2015_e.pdf. xii + 48 p. Environment Canada. 2013. Recovery Strategy for the Flooded Jellyskin Lichen (Leptogium rivulare) in Canada. Species at Risk Act Recovery Strategy Series. Ottawa ON: Environment Canada; [accessed 02 December 2019]. http://publications.gc.ca/collections/collection_2013/ec/En3-4-147-2013-eng.pdf. 23 p.
Lichen	Pale-bellied frost lichen	*Physconia subpallida*	END	END	END	GNR	S2S3	Range	In Ontario, pale-bellied frost lichen grows on trees in mature, deciduous forests with relatively open understory, but moderate to high canopy cover. Common host trees include ash, black walnut, hop-hornbeam, and elm, although in Ontario, it is most often found on hop-hornbeam. This lichen has also been found growing on fence rails and rocks (Lewis 2011).	Low - no habitat	Moderate - forested areas may provide habitat	Regulated In the geographic areas of: Algonquin Provincial Park, counties of Haliburton, Hastings, Lanark, Lennox and Addington, Peterborough and Renfrew; townships of Central Frontenac, North Frontenac, and South Frontenac within County of Frontenac, townships of Athens, Elizabethtown-Kitley, Merrickville-Wolford and Rideau Lakes within County of Leeds and Grenville, and township of South Algonquin in District of Nipissing; Municipalities of Central Frontenac, Northern Frontenac, Lanark Highlands, Addington Highlands and Greater Madawaska Regulated Habitat: • host tree on which the lichen exists and area within 50 m of trunk • area within 100 m of lichen that falls within water body, watercourse, or area belonging to ELC community and that is (i) suitable for natural colonization from existing population of lichen or (ii) contributes to maintenance of suitable microsite characteristics for the lichen to exist	Lewis CL. 2011. Recovery Strategy for the Pale-bellied Frost Lichen (Physconia subpallida) in Ontario. Ontario Recovery Strategy Series. Peterborough ON: Ontario Ministry of Natural Resources; [accessed 02 December 2019]. https://www.ontario.ca/page/pale-bellied-frost-lichen-recovery-strategy.
Mammal	Eastern small-footed myotis	*Myotis leibii*	END	—	—	G4	S2S3	BCI	In Ontario, eastern small-footed myotis is not known to roost in trees, but there is very little known about its roosting habits. The species generally roosts on the ground under rocks, in rock crevices, talus slopes and rock piles, but it occasionally inhabits buildings. Entrances of caves or abandoned mines where humidity is low, and temperatures are cool and sometimes subfreezing may be used as hibernacula (Humphrey 2017).	Low - no habitat	Low - no habitat	General	Humphrey C. 2017. Recovery Strategy for the Eastern Small-footed Myotis (Myotis leibii) in Ontario. Ontario Recovery Strategy Series. Peterborough ON: Ontario Ministry of Natural Resources; [accessed 02 December 2019]. https://files.ontario.ca/mnrf_sar_rs_esfm_final_accessible.pdf vii + 76 p.

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Mammal	Little brown myotis	*Myotis lucifugus*	END	END	END	G3	S3	BCI	In Ontario, this species' range is extensive and covers much of the province. It will roost in both natural and man-made structures. Roosting colonies require a number of large dead trees, in specific stages of decay and that project above the canopy in relatively open areas. May form nursery colonies in the attics of buildings within 1 km of water. Caves or abandoned mines may be used as hibernacula, but high humidity and stable above freezing temperatures are required (ECCC 2018).	Low - no habitat	Moderate - forested areas may provide habitat	General	ECCC (Environment and Climate Change Canada). 2018. Recovery Strategy for the Little Brown Myotis (Myotis lucifugus), the Northern Myotis (Myotis septentrionalis), and the Tri-colored Bat (Perimyotis subflavus) in Canada. Species at Risk Act Recovery Strategy Series. Ottawa ON: Environment and Climate Change Canada; [accessed 02 December 2019]. https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/plans/Rs-TroisChauveSourisThreeBats-v01-2019Nov-Eng.pdf. ix + 172 p.
Mammal	Northern myotis	*Myotis septentrionalis*	END	END	END	G1G2	S3	BCI	In Ontario, this species' range is extensive and covers much of the province. It will usually roost in hollows, crevices, and under loose bark of mature trees. Roosts may be established in the main trunk or a large branch of either living or dead trees. Caves or abandoned mines may be used as hibernacula, but high humidity and stable above freezing temperatures are required (ECCC 2018).	Low - no habitat	Moderate - forested areas may provide habitat	General	ECCC (Environment and Climate Change Canada). 2018. Recovery Strategy for the Little Brown Myotis (Myotis lucifugus), the Northern Myotis (Myotis septentrionalis), and the Tri-colored Bat (Perimyotis subflavus) in Canada. Species at Risk Act Recovery Strategy Series. Ottawa ON: Environment and Climate Change Canada; [accessed 02 December 2019]. https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/plans/Rs-TroisChauveSourisThreeBats-v01-2019Nov-Eng.pdf. ix + 172 p.
Mammal	Tri-colored bat	*Perimyotis subflavus*	END	END	END	G2G3	S3?	BCI	In Ontario, tri-colored bat may roost in foliage, in clumps of old leaves, hanging moss or squirrel nests. They are occasionally found in buildings although there are no records of this in Canada. They typically feed over aquatic areas with an affinity to large-bodied water and will likely roost in close proximity to these. Hibernation sites are found deep within caves or mines in areas of relatively warm temperatures. These bats have strong roost fidelity to their winter hibernation sites and may choose the exact same spot in a cave or mine from year to year (ECCC 2018).	Low - no habitat	Moderate - forested areas may provide habitat	General	ECCC (Environment and Climate Change Canada). 2018. Recovery Strategy for the Little Brown Myotis (Myotis lucifugus), the Northern Myotis (Myotis septentrionalis), and the Tri-colored Bat (Perimyotis subflavus) in Canada. Species at Risk Act Recovery Strategy Series. Ottawa ON: Environment and Climate Change Canada; [accessed 02 December 2019]. https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/plans/Rs-TroisChauveSourisThreeBats-v01-2019Nov-Eng.pdf. ix + 172 p.
Mollusc	Hickorynut	*Obovaria olivaria*	END	END	END	G4	S1?	Range	In Ontario, hickorynut is primarily found in murky, low-gradient rivers with clay-sand or clay-gravel substrate. This mussel is generally found on sandy substrates in deep water, usually exceeding 2-3 m, with a moderate to strong current (COSEWIC 2011).	Low - no habitat	Low - no habitat	General	COSEWIC (Committee on the Status of Endangered Wildlife in Canada). 2011. COSEWIC assessment and status report on the Hickorynut Obovaria olivaria in Canada. Ottawa ON: Committee on the Status of Endangered Wildlife in Canada; [accessed 02 December 2019]. https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/cosewic/sr_hickorynut_0911_eng.pdf. x + 46 p.
Reptile	Blanding's turtle - Great Lakes / St.Lawrence population	*Emydoidea blandingii*	THR	END	END	G4	S3	ORAA; NHIC	In Ontario, Blanding's turtle will use a range of aquatic habitats, but favor those with shallow, standing or slow-moving water, rich nutrient levels, organic substrates and abundant aquatic vegetation. They will use rivers but prefer slow-moving currents and are likely only transients in this type of habitat. This species is known to travel great distances over land in the spring in order to reach nesting sites, which can include dry conifer or mixed forests, partially vegetated fields, and roadsides. Suitable nesting substrates include organic soils, sands, gravel and cobble. They hibernate underwater and infrequently under debris close to water bodies (COSEWIC 2016).	Low - no habitat: only record in vicinity is located west of Highway 416.	Low - no habitat: only record in vicinity is located west of Highway 416.	General Category 1 – Nest and area within 30 m or overwintering sites and area within 30 m Category 2 – Wetland complex (i.e. all suitable wetlands or waterbodies within 500 m of each other) that extends up to 2 km from occurrence, and the area within 30 m around those suitable wetlands or waterbodies Category 3 – Area between 30 – 250 m around suitable wetlands/waterbodies identified in category 2, within 2 km of an occurrence	COSEWIC (Committee on the Status of Endangered Wildlife in Canada). 2016. COSEWIC assessment and update status report on the Blanding's Turtle Emydoidea blandingii (Nova Scotia population and Great Lakes/St. Lawrence population) in Canada. Ottawa ON: Committee on the Status of Endangered Wildlife in Canada; [accessed 02 December 2019]. https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/cosewic/sr_Blanding%E2%80%99s%20Turtle_2016_e.pdf. xix + 110 p.
Reptile	Eastern ribbonsnake - Great Lakes population	*Thamnophis sauritius*	SC	SC	SC	G5	S4	Range	In Ontario, eastern ribbonsnake is semi-aquatic, and is rarely found far from shallow ponds, marshes, bogs, streams or swamps bordered by dense vegetation. They prefer sunny locations and bask in low shrub branches. Hibernation occurs in mammal burrows, rock fissures or even ant mounds (COSEWIC 2012).	Low - no habitat	Low - no habitat		COSEWIC (Committee on the Status of Endangered Wildlife in Canada). 2012. COSEWIC assessment and status report on the Eastern Ribbonsnake Thamnophis sauritus in Canada. Ottawa ON: Committee on the Status of Endangered Wildlife in Canada; [accessed 02 December 2019]. https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/cosewic/sr_coulevre_mnc_e_ribbonsnake_1113_e.pdf. xii + 39 p.
Reptile	Northern map turtle	*Graptemys geographica*	SC	SC	SC	G5	S3	Range	In Ontario, northern map turtle prefers large waterbodies with slow-moving currents, soft substrates, and abundant aquatic vegetation. Ideal stretches of shoreline contain suitable basking sites, such as rocks and logs. Along Lakes Erie and Ontario, this species occurs in marsh habitat and undeveloped shorelines. It is also found in small to large rivers with slow to moderate flow. Hibernation takes place in soft substrates under deep water (COSEWIC 2012).	Low - no habitat	Low - no habitat		COSEWIC (Committee on the Status of Endangered Wildlife in Canada). 2012. COSEWIC assessment and status report on the Northern Map Turtle Graptemys geographica in Canada. Ottawa ON: Committee on the Status of Endangered Wildlife in Canada; [accessed 02 December 2019]. https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/cosewic/sr_tortue_geog_n_map_turtle_1113_e.pdf. xi + 63 p.
Reptile	Snapping turtle	*Chelydra serpentina*	SC	SC	SC	G5	S4	ORAA; NHIC	In Ontario, snapping turtle uses a wide range of waterbodies, but shows preference for areas with shallow, slow-moving water, soft substrates and dense aquatic vegetation. Hibernation takes place in soft substrates under water. Nesting sites consist of sand or gravel banks along waterways or roadways (COSEWIC 2008).	Low - no habitat	Low - no habitat		COSEWIC (Committee on the Status of Endangered Wildlife in Canada). 2008. COSEWIC assessment and status report on the Snapping Turtle Chelydra serpentina in Canada. Ottawa ON: Committee on the Status of Endangered Wildlife in Canada; [accessed 02 December 2019]. https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/cosewic/sr_snapping_turtle_0809_e.pdf. vii + 47 p.

APPENDIX B
Species at Risk Screening

Taxon	Common Name	Scientific Name	Endangered Species Act, Reg. 230/08 SARO List Status[1]	Species at Risk Act, Schedule 1 List of Wildlife SAR Status[2]	COSEWIC Status[3]	Global Rarity Rank[4]	Provincial Rarity Rank[5]	Source(s)*	Ontario Habitat Descriptions	Probability of Occurrence on the Site	Probability of Occurrence in the Study Area	ESA Habitat Protection Provisions[6]	References
Reptile	Stinkpot or Eastern musk turtle	*Sternotherus odoratus*	SC	THR	SC	G5	S3	Range	In Ontario, eastern musk turtle is very rarely out of water and prefers permanent bodies of water that are shallow and clear, with little or no current and soft substrates with abundant organic materials. Abundant floating and submerged vegetation is preferred. Hibernation occurs in soft substrates under water. Eggs are sometimes laid on open ground, or in shallow nests in decaying vegetation, shallow gravel or rock crevices (COSEWIC 2012).	Low - no habitat	Low - no habitat		COSEWIC (Committee on the Status of Endangered Wildlife in Canada). 2012. COSEWIC assessment and status report on the Eastern Musk Turtle Sternotherus odoratus in Canada. Ottawa ON: Committee on the Status of Endangered Wildlife in Canada; [accessed 02 December 2019]. https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/cosewic/sr_Eastern%20Musk%20Turtle_2013_e.pdf. xiii + 68 p.
Vascular Plant	American ginseng	*Panax quinquefolius*	END	END	END	G3G4	S2	Range	In Ontario, American ginseng is found in moist, undisturbed and relatively mature deciduous woods often dominated by sugar maple. It is commonly found on well-drained, south-facing slopes. American ginseng grows under closed canopies in well-drained soils of glacier origin that have a neutral pH (ECCC 2018).	Low - no habitat	Low - no habitat	General Category 1 – Area occupied by American ginseng and area of forest or treed swamp ELC community classes within 100 m of occupied area Category 2 – Area of forest or treed swamp ELC community classes between 100-150 m of occupied area, and contiguous with category 1	ECCC (Environment and Climate Change Canada). 2018. Recovery Strategy for the American Ginseng (Panax quinquefolius) in Canada. Species at Risk Act Recovery Strategy Series. Ottawa ON: Environment and Climate Change Canada; [accessed 02 December 2019]. https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/plans/rs_american_ginseng_e_final.pdf. vii + 32 p.
Vascular Plant	Black ash	*Fraxinus nigra*	END (temporary suspension of protection until Jan 2024)	—	THR	G5	S3	NHIC	Found throughout Ontario in moist ecosystems; commonly found in northern swampy woodlands (MNRF 2018). This species typically grows on mucky or peaty soils and is considered a facultative wetland species (Reznicek et al. 2011).	Low - no habitat	Moderate - may be present in forested wetlands to the north	No protection until Jan 2024 per temporary suspension order	MNRF (Ministry of Natural Resources and Forestry). 2019. Black Ash. [modified 16 October 2019; accessed 04 December 2019]. https://www.ontario.ca/page/black-ash. Reznicek AA, Voss EG, Walters BS. 2011. Fraxinus nigra. Ann Arbour MI: University of Michigan; [accessed 19 December 2018]. https://michiganflora.net/species.aspx?id=1733.
Vascular Plant	Butternut	*Juglans cinerea*	END	END	END	G4	S2?	NHIC	In Ontario, butternut is found along stream banks, on wooded valley slopes, and in deciduous and mixed forests. It is commonly associated with beech, maple, oak and hickory (Voss and Reznicek 2012). Butternut prefers moist, fertile, well-drained soils, but can also be found in rocky limestone soils. This species is shade intolerant (Farrar 1995).	Low - none observed	Moderate - may be present in forested habitat to the north, >50m from site boundary.	General (as of June 30, 2013)	Farrar JL. 1995. Trees in Canada. Markham, ON: Fitzhenry & Whiteside Limited and Ottawa, ON: Canadian Forest Service, Natural Resources Canada. 502 p. Voss EG, Reznicek AA. 2012. Field Manual of Michigan Flora. Ann Arbour MI: University of Michigan Press. 990 p.
Vascular Plant	Eastern prairie fringed-orchid	*Platanthera leucophaea*	END	END	END	G2G3	S2	Range	In Ontario, eastern prairie fringed-orchid grows in wet prairies, fens, bogs, wet meadows, and wet successional fields. It grows in full sun in neutral to mildly calcareous substrates, and occasionally grows along roadsides or lake margins (Eastern Prairie Fringed-orchid Recovery Team 2010). This species is found only in southern Ontario, and only two locations are currently known on sand spits along the shore of Lake Erie.	Low - no habitat	Low - no habitat	Regulated In the geographic areas of: the City of Ottawa; Counties of Bruce, Essex, Grey, Lambton, Lanark, Lennox and Addington, and Simcoe; Municipality of Chatham-Kent; Regional Municipality of York; and United Counties of Leeds and Grenville, and United Counties of Stormont, Dundas and Glengarry. Regulated Habitat: • fens, tallgrass prairies, and moist old fields	Eastern Prairie Fringed-orchid Recovery Team. 2010. Recovery strategy for the Eastern Prairie Fringed-orchid (Platanthera leucophaea) in Ontario. Ontario Recovery Strategy Series. Peterborough ON: Ontario Ministry of Natural Resources; [accessed 02 December 2019]. https://www.ontario.ca/page/eastern-prairie-fringed-orchid-recovery-strategy. vi + 30 p.

Notes:

[1] *Endangered Species Act* (ESA), 2007. General (O.Reg 242/08 last amended 1 April 2021 as O. Reg 228/21). Species at Risk in Ontario List (O.Reg 230/08 last amended 26 January 2022 as O. Reg. 24/22); Schedule 1 (Extirpated - EXP), Schedule 2 (Endangered - END), Schedule 3 (Threatened - THR), Schedule 4 (Special Concern - SC)

[2] *Species at Risk Act* (SARA), 2002. Schedule 1 (Last amended 01 September 2021); Part 1 (Extirpated), Part 2 (Endangered), Part 3 (Threatened), Part 4 (Special Concern)

[3] Committee on the Status of Endangered Wildlife in Canada (COSEWIC) http://www.cosewic.gc.ca/

[5] Provincial Ranks (SRANK) are Rarity Ranks assigned to a species or ecological communities, by the Natural Heritage Information Centre (NHIC). These ranks are not legal designations. SRANKS are evaluated by NHIC on a continual basis and updated lists produced annually. SX (Presumed Extirpated), SH (Possibly Extirpated - Historical), S1 (Critically Imperiled), S2 (Imperiled), S3 (Vulnerable), S4 (Apparently Secure), S5 (Secure), SNA (Not Applicable), S#S# (Range Rank), S? (Not ranked yet), SAB (Breeding Accident), SAN (Non-breeding Accident), SX (Apparently Extirpated). Last assessed November 2019.

[4] Global Ranks (GRANK) are Rarity Ranks assigned to a species based on their range-wide status. GRANKS are assigned by a group of consensus of Conservation Data Centres (CDCs), scientific experts and the Nature Conservancy. These ranks are not legal designations. G1 (Extremely Rare), G2 (Very Rare), G3 (Rare to uncommon), G4 (Common), G5 (Very Common), GH (Historic, no record in last 20yrs), GU (Status uncertain), GX (Globally extinct), ? (Inexact number rank), G?

[6] General Habitat Protection is applied when a species is newly listed as endangered or threatened on the SARO list under the ESA, 2007. The definition of general habitat applies to areas that a species currently depends on. These areas may include dens and nests, wetlands, forests and other areas essential for breeding, rearing, feeding, hibernation and migration. General habitat protection will also apply to all listed endangered or threatened species without a species-specific habitat regulation as of June 30, 2013 (ESA 2007, c.6, s.10 (2)). Regulated Habitat is species-specific habitat used as the legal description of that species habitat. Once a species-specific habitat regulation is created, it replaces general habitat protection. Refer to O.Reg 242/08 for full details regarding regulated habitat.

[7] Refer to the individual species' federal recovery strategy for a full description of the critical habitat (http://www.sararegistry.gc.ca/sar/recovery/recovery_e.cfm)

*Species Codes derived from the following sources: Birds – 53rd AOU Supplement (2012); Amphibians – Marsh Monitoring Program (Bird Studies Canada 2003); Fish – Golder; Reptiles – Golder.

*NHIC (Natural Heritage Information Centre); ROM (Royal Ontario Museum); OBBA (Ontario Breeding Bird Atlas); Herp Atlas (Reptiles and Amphibians of Ontario); Odonata Atlas (of Ontario); Mammal Atlas (of Ontario); BCI (Bat Conservation International); Butterfly Atlas (Ontario Butterfly Atlas)

'—' No status

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