Kilgour & Associates Ltd.
Environmental Consultants

January 31, 2024 **Our File: HUME1416.2**

Mr. Phil Klugman
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Via E-mail: pklugman@brofort.com

Dear Mr. Klugman

Subject: Review of the EIS for commercial development at 6165 Thunder Road considering an updated site plan

1.0 INTRODUCTION

The purpose of this memo is to provide a minor review and update to the Environmental Impact Study ("EIS") for the proposed development at 6165 Thunder Road, Ottawa, Ontario, (the "Site) produced by Kilgour & Associates Ltd ("KAL") and dated October 14, 2022. That EIS (appended to this memo) was written to support the construction of a commercial building and associated infrastructure (e.g., parking area and landscaping) on the Site. A subsequent memo provided updates confirming the absence of two species at risk (SAR) trees known to occur in the vicinity of the Site (Black Ash and Butternut). This memo addresses minor updates to the site plan and reviews associated changes to mitigation measures and permitting requirements.

2.0 UPDATED SITE PLAN

The original site plan included a single access to Thunder Road and a parking area on the north side of the Site. Development was confined to the meadow (terrestrial) ecosite, outside of mapped wetlands on the north side of the Site. The parking area, which was the closest point of development to the marsh and swamp wetlands on the north side of the Site, was set back 43 m from the marsh. The proposed commercial building encompassed 3,623 m^2 footprint.

The updated site plan includes an increase to the proposed commercial building (3,686m^2), with associated infrastructure (Figure 1). Proposed parking areas have been relocated to the east and south sides of the building, while the north portion of the development area comprises a truck loading area and an additional access point to Thunder Road. The loading area, which in the updated site plan is the closest point of development to the wetland areas, adheres to the agreed-upon 30 m setback from the wetlands (Figure 1). As such, there will still be no encroachment into wetland areas as a result of the revised development plan and no additional wetland permits or approvals are required as a result of the revisions to the site plan. Surface water mitigation measures provided in the EIS will be followed, thereby avoiding impacts to the wetlands as a result of the proposed development.

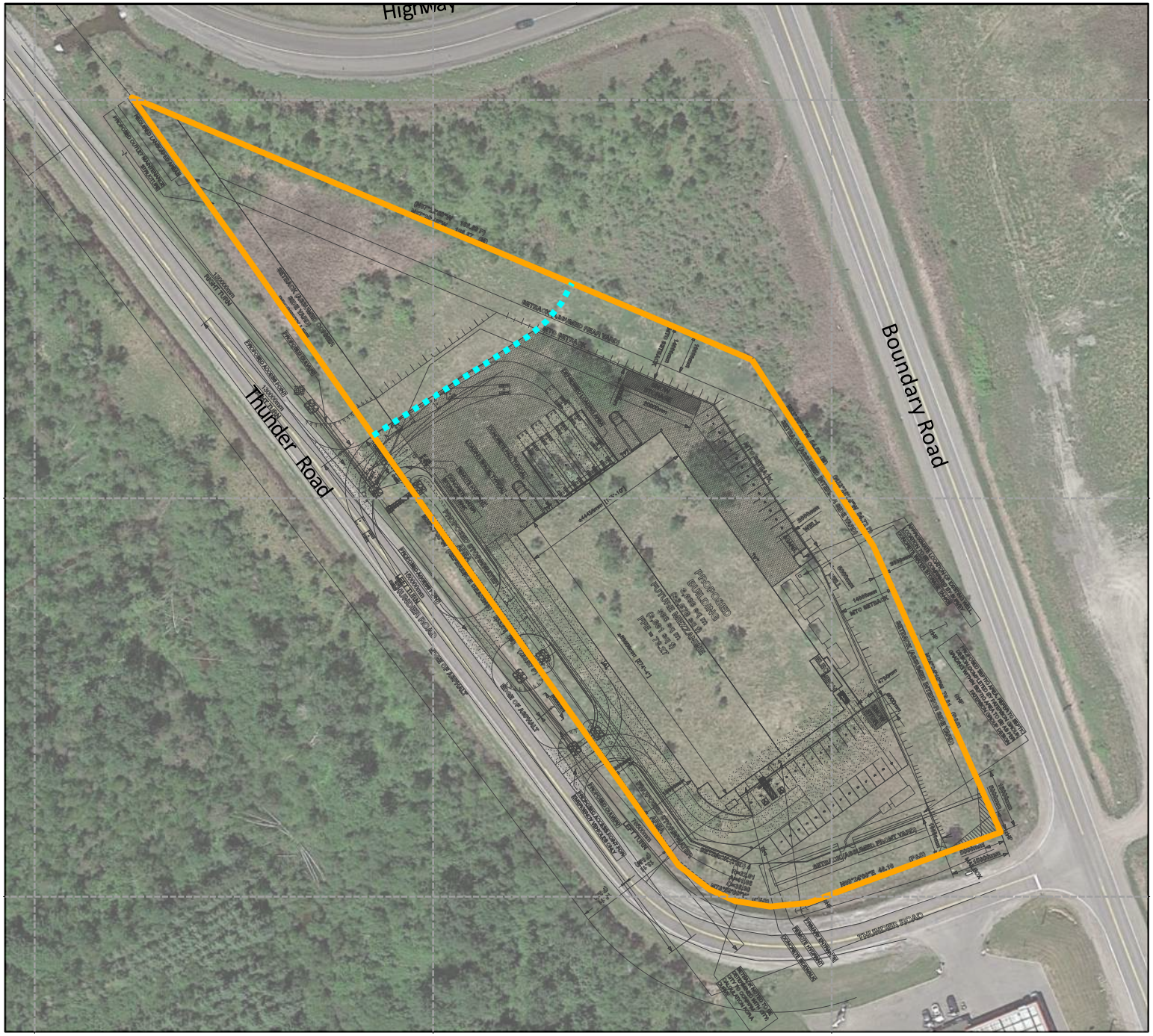

Figure 1 Proposed development plan

Legend

- Site Boundary
- 30 m Wetland Setback

N

0 30 m

Project: Hume 1416
Map File: Hume 1416.map
Universal Transverse Mercator - Zone 18 (N)
Printed on: 2025-01-30

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It is anticipated that tree clearing for the proposed development will commence March 1, 2025 and be completed by April 1, 2025, with site preparation works to begin mid-June 2025.

3.0 CONCLUSION

This memo describes the updated site plan for the proposed development at 6165 Thunder Road. It confirms that all development components will adhere to the agreed-upon 30 m setback from the wetlands. With the surface water mitigation measures provided in the EIS in place, impacts to the wetlands on-site are not anticipated.

Questions on the EIS and/or this memo can be addressed to the undersigned.

Respectfully submitted,

KILGOUR & ASSOCIATES LTD.

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cc: Peter Hume (HP Urban Inc.)
Maren Nielsen (KAL)

Environmental Impact Study for proposed development at 6165 Thunder Road, Ottawa, Ontario

Final Report

October 14, 2022

Submitted To:

Peter Hume
HP Urban Inc.
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KILGOUR & ASSOCIATES LTD.
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EXECUTIVE SUMMARY

This Environmental Impact Study (EIS) was prepared by Kilgour & Associates Ltd. (KAL) on behalf of HP Urban Inc. in support of their application for a proposed development on a property at 6165 Thunder Road in Ottawa, Ontario ("the Site"). The property is situated south of Highway 417, between Boundary Road to the east and Thunder Road to the west. In the City of Ottawa, an EIS is required when development or site alteration is proposed in or adjacent to natural heritage features. The purposes of this EIS are to identify 1) natural heritage features on or adjacent to the Site, 2) potential impacts of the proposed development on those features, and 3) mitigation measures to minimize or eliminate those impacts. The requirement of an EIS for the proposed development was triggered by 1) potential impacts to species at risk (SAR) and SAR habitat; and 2) proximity of the proposed development to a watercourse north of the Site, requiring appropriate setbacks.

The proposed project will comprise a commercial building and associated infrastructure, including a parking area and landscaping. Road access would include one point of entry from Thunder Road. The proposed development would require considerable vegetation clearing within a meadow, with scattered trees and shrubs. Based on the current development plans, the proposed development will avoid two unevaluated wetlands (cattail marsh and deciduous swamp) in the north portion of the Site, as the closest point of infrastructure is 43 m away and no landscaping should be done within the wetlands.

Background information for the Site and surrounding area was obtained from online databases and geographic information system mapping applications to review relevant information. Field studies of the Site were conducted during the summer of 2022 to confirm the findings of the background review. These studies included delineation of vegetation communities, breeding bird surveys, and a tree survey.

The proposed project has potential to interact with ten SAR listed as Endangered or Threatened in Ontario, including Barn Swallow, Bobolink, Eastern Meadowlark, Eastern Whip-poor-will, four species of bats, Black Ash, and Butternut. It is recommended that appropriate vegetation clearing windows be followed to minimize impacts to birds, bats, snakes, and Monarch. Fencing should be installed around the project perimeter, especially along the wetland interface to ensure smaller wetland animals, such as turtles, do not access the construction site.

This EIS provides a set of mitigation measures for employment in the design and construction of the proposed development, such as the use of standard erosion and sediment control measures, specific mitigation measures to prevent impacts to SAR, and appropriate development setbacks. Our assessment within this report of the potential for impacts to the natural heritage system is based on the implementation of these mitigation measures. It is our professional opinion that the proposed development could proceed without significant negative impacts on natural features or their ecological functions if all mitigation measures provided within this report are followed.

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List of Acronyms and Abbreviations

cm – centimetres
CRZ – critical root zone
DBH – Diameter at breast height
DFO – Department of Fisheries and Oceans (Fisheries and Oceans Canada)
ECCC – Environment and Climate Change Canada
e.g. – *exempli gratia*
EIS – Environmental Impact Study
ELC – Ecological Land Classification
ESC – erosion and sediment control
ESA – *Endangered Species Act*
FWCA – *Fish and Wildlife Conservation Act*
ha – hectare
i.e. – id est
KAL – Kilgour & Associates Ltd.
km – kilometre
m – metre
MBCA – *Migratory Birds Convention Act*
MECP – Ministry of Environment, Conservation and Parks
MNRF – Ministry of Natural Resources and Forestry
NHIC – Natural Heritage Information Centre
PPS – Provincial Policy Statement
SAR – species at risk
SARA – *Species at Risk Act*
SWH – Significant Wildlife Habitat
TRC – Tree Conservation Report

1.0 INTRODUCTION

This report is an Environmental Impact Study (EIS) prepared by Kilgour & Associates Ltd. (KAL; Appendix A) on behalf of HP Urban Inc. in support of a proposed development at 6165 Thunder Road Ottawa, Ontario ("the Site"; Figure 1). The legal land description for the Site is: Part of Lot 1 Concession 9 (Ottawa Front) Part 1 Plan 5R-11663 PIN 04324-0163. The proposed development would comprise an 11 m tall, 3,623 square m commercial building and associated infrastructure (e.g., parking area and landscaping).

In the City of Ottawa, an EIS is required when development or site alteration is proposed in or adjacent to natural heritage features, as outlined in the Official Plan (City of Ottawa, 2021). The purposes of an EIS are to:

- Identify natural heritage features on or adjacent to the Site;
- Assess potential impacts of the proposed development to existing features; and
- Recommend mitigation measures to minimize or eliminate identified impacts.

2.0 ENVIRONMENTAL POLICY CONTEXT

Natural heritage policies and legislation relevant to this EIS are outlined below.

2.1 The Provincial Policy Statement, 2020

The Provincial Policy Statement (PPS) was issued under Section 3 of the *Planning Act* (Government of Ontario, 1990a). The current PPS came into effect May 1, 2020 (Government of Ontario, 2020). Natural features are afforded protections under Section 2.1 of the PPS, via the official plans and environmental policies of the municipal jurisdictions in which development is proposed. Protections may include maintenance, restoration, and improved function of diversity, connectivity, ecological function, and biodiversity of natural heritage systems. These protections restrict development and site alteration in significant natural areas (e.g., significant habitat of endangered and threatened species, significant wetlands, significant coastal wetlands, significant woodlands, significant valleylands, significant wildlife habitat (SWH), Areas of Natural and Scientific Interest (ANSI), and fish habitat) unless it can be demonstrated that there will be no negative effects on the features and ecological functions of those natural areas. Technical guidance for implementing the natural heritage policies of the PPS is found within the second edition of the *Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005* (NHRM: Ministry of Natural Resources (MNR), 2010). This manual recommends the approach and technical criteria for protecting natural heritage features and areas in Ontario. This manual further addresses the width of adjacent lands to be considered when evaluating potential negative impacts, such as areas within 120 m of protected natural heritage features.


Figure 1 Location of the Site
Legend
Site boundary
N
0
100 m
Project: Hume 1416
Map File: Hume 1416.map
Universal Transverse Mercator - Zone 18 (N)
Printed on: 2022-09-16
KILGOUR & Associates
Boundary Road
Highway 417
Thunder Road
502120 m
502130 m
502140 m
502150 m
502160 m
502170 m
464800 m
464900 m
465000 m
465100 m
465200 m
465300 m
465400 m

2.2 City of Ottawa Official Plan, 2021

The City of Ottawa Official Plan (2021) provides direction for future growth in the City and is a policy framework to guide physical development to 2031 in accordance with the PPS. The Official Plan was first approved in 2003 and is typically updated every five years. The Official Plan includes a Natural Heritage Features map, providing additional information on wetlands, watercourses, and wooded areas within the City boundaries (City of Ottawa, 2021).

2.3 *Species at Risk Act*, 2002

The federal *Species at Risk Act* (SARA; Government of Canada, 2002) is administered by Environment and Climate Change Canada (ECCC) and provides direction to protect and ensure the survival of wildlife species in Canada. The purpose of the SARA is to prevent populations of wildlife from becoming Extirpated, Endangered, or Threatened, provide recovery Endangered or Threatened species, and to manage other species to prevent them from becoming Endangered or Threatened.

All species listed on Schedule 1 of SARA are afforded protection on federal lands. Aquatic species and species of migratory birds protected by the *Migratory Birds Convention Act* (MBCA; 1994) and listed as Endangered, Threatened, or Extirpated under Schedule 1 of SARA are protected wherever they occur in Canada, regardless of land ownership.

2.4 *Endangered Species Act*, 2007

The provincial *Endangered Species Act* (ESA; Government of Ontario, 2007) is administered by the Ministry of Environment, Conservation, and Parks (MECP) and provides protection for species at risk (SAR) and their habitat. The ESA states that it is illegal to harm the habitat of species listed as Extirpated, Endangered, and Threatened. It is also illegal to kill, harm, harass, possess, transport, buy, or sell Extirpated, Endangered, and Threatened species, whether it is living or dead. Species listed as Endangered, Threatened, or Extirpated and their habitats (e.g., areas essential for breeding, rearing, feeding, hibernation, and migration) are automatically afforded legal protection under the ESA.

2.5 *Fisheries Act*, 1985

The federal *Fisheries Act* (Government of Canada, 1985) is administered by Fisheries and Oceans Canada (DFO) and provides protections to fish, fish habitat, and fisheries. Specifically, the *Fisheries Act* in its current version provides: 1) Protection for all fish and fish habitat; 2) Prohibition against the "harmful alteration, disruption or destruction of fish habitat"; and 3) Prohibition against causing "the death of fish by means other than fishing".

Projects with a scope that does not fall within DFO's defined standards and codes of practice require submission of a request for review to DFO.

2.6 *Migratory Birds Convention Act*, 1994

Nesting migratory birds are protected under the MBCA (Government of Canada, 1994). No work is permitted that would result in the destruction of active nests or the wounding or killing of bird species protected under

the MBCA and/or associated regulations (e.g., SARA). The "incidental take" of migratory birds and the disturbance, destruction, or taking of the nest of a migratory bird is prohibited. "Incidental take" is the killing or harming of migratory birds due to actions that are not primarily focused on taking migratory birds (e.g., economic development) and no permits exist for the incidental take of migratory birds or their nest/eggs as a result of activities that are not focused on taking migratory birds. These prohibitions apply throughout the year. The Government of Canada has compiled nesting calendars that apply across Canada that can be used to greatly reduce the risk of harming/destroying active nests by ensuring works that may impact nests are performing outside of the nesting period.

2.7 *Fish and Wildlife Conservation Act*, 1997

The provincial *Fish and Wildlife Conservation Act* (FWCA; Government of Ontario, 1997) governs the hunting and trapping of a variety of wildlife including mammals, birds, reptiles, amphibians, and fish in Ontario, thereby facilitating the protection of wildlife and their habitat. The FWCA outlines the prohibition of hunting or trapping specially protected species and the requirement for provincially issued licenses for the hunting or trapping of "furbearing" or "game" animals. Examples of specifically protected animals include, for example, Southern Flying Squirrel (*Glaucomys volans*), Northern Harrier (*Circus cyaneus*), American Kestrel (*Falco sparverius*), Blue Jay (*Cyanocitta cristata*), Midland Painted Turtle (*Chrysemus picta marginata*), Northern Watersnake (*Nerodia sipedon*), and Gray Treefrog (*Hyla versicolor*). In particular, raptors that are not protected under the MBCA (including Peregrine Falcon) are protected under the FWCA.

2.8 *Conservation Authorities Act*, 1990

Conservation Authorities were created to address erosion, flooding, and drought concerns regionally by managing at the watershed level. Conservation Authorities were given the ability to regulate under Section 28 of the *Conservation Authorities Act* (Government of Ontario, 1990b). The Act provides mechanisms to regulate works and site alterations that have potential to affect erosion, flooding, land conservation, and alterations to waterbodies within their jurisdiction. It is the obligation of all Conservation Authorities to implement Ontario Regulations 42/06 and 146/06 to 182/06 *Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses* under Section 28 of the *Conservation Authorities Act* for relevant works.

3.0 PROPERTY IDENTIFICATION

The Site is approximately 1.65 hectares (ha) in size and is located at 6165 Thunder Road, Ottawa, Ontario (Lat: 45.346029°N and Long: -75.444758°W; Figure 1). The zoning of the property is Rural Commercial (RC). The Site is dominated by open meadow with trees and shrubs interspersed. Unevaluated wetlands (cattail marsh and deciduous swamp; 0.17 ha combined) are located on the along the northwestern portion of the Site.

The Site is bordered by:

- Unevaluated wetlands, a watercourse, Highway 417, and forest to the north;
- Boundary Road and a large warehouse facility to the east;

- Thunder Road, a gas station, agricultural fields, forest, and unevaluated wetlands to the south; and
- Residential properties, forest (including a conifer plantation), watercourse, and unevaluated wetlands to the west.

4.0 METHODOLOGY

4.1 Desktop and Background Data Review

4.1.1 Background Review

Background information was obtained from online databases and geographic information system mapping applications to review relevant information. Aerial imagery was used to identify existing features and confirm information found in the background review. Background information was obtained from available resources, which include:

- Species at Risk in Ontario (SARO; Ministry of Environment, Conservation, and Parks (MECP, 2022);
- Species at Risk Public Registry (Government of Canada, 2022);
- Natural Heritage Information Centre (NHIC; Ministry of Natural Resources, and Forestry (MNRF, 2022a);
- Land Information Ontario (MNRF, 2022b);
- Aquatic Species at Risk Map (DFO, 2022);
- Ontario Reptile and Amphibian Atlas (Ontario Nature, 2019);
- Ontario Breeding Birds Atlas (Birds Canada et al., 2009);
- Ontario Butterfly Atlas (Toronto Entomologists' Association, 2022);
- eBird (Cornell Lab of Ornithology, 2022);
- iNaturalist (California Academy of Sciences and National Geographic Society, 2022);
- Bumble Bee Watch (Wildlife Preservation Canada et al., 2022);
- Recovery Strategy for the Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*), and Tri-colored Bat (*Perimyotis subflavus*) in Ontario (Humphrey and Fotherby, 2019);
- Recovery Strategy for the Eastern Small-footed Myotis (*Myotis leibii*) in Ontario (Humphrey, 2017);
- Fish ON-Line (MNRF, 2022c);
- City Stream Watch (South Nation Conservation et al., 2017).

4.1.2 Agency Consultation

The review of existing information included a preliminary SAR screening for species listed under the federal SARA and provincial ESA. The screening identified SAR having some potential to occur in or near the Site. The screening was completed following the *Draft Client's Guide to Preliminary Screening for Species at Risk* (MECP, 2019a). The results of the screening were sent to MECP on August 31, 2022, to confirm the information collected (Appendix B). A response had not yet been received at the time of writing this report, though it is considered unlikely that MECP would indicate potential for SAR beyond those already considered in this EIS.

The Site is located within the jurisdictions of the City of Ottawa and South Nation Conservation (SNC). A pre-consultation meeting was held between the City of Ottawa and SNC on April 28, 2022. Based on this pre-consultation meeting, the scope of this EIS focuses on 1) species at risk (SAR) and potential SAR habitat on the Site; and 2) potential interactions with a watercourse located off-site to the north, with the need to define appropriate setbacks from the watercourse.

4.2 Field Surveys

KAL undertook a field program in summer 2022 to document existing ecological conditions on the Site and to confirm the results of the background review.

4.2.1 Vegetation

4.2.1.1 Ecological Land Classification

Vegetation communities on the Site were identified and mapped in the field on August 25, 2022, using standard Ecological Land Classification (ELC) methods for Ontario (Lee et al., 1998). This method provides a consistent approach to identify, describe, and map vegetation communities or physiographic features on the landscape based on dominant plant species and soil composition. This method results in a standardized description of each vegetation community to capture the natural diversity and variability of communities within a site and to provide insight into available habitat and the type of species that may be present. More specifically, the classifications from ELC provide a basis for determining whether potential habitat for a given SAR or other ecological value may be present.

Desktop review of available aerial imagery and preliminary field visits informed how the Site may be divided into vegetation communities based on variation in land cover, topography, and vegetation structure. The dominant plant species were recorded within each proposed ecosite in the field to further divide ecosites into vegetation types (the finest resolution in ELC), where possible. Soil samples were taken using a 120 centimetre (cm) long soil auger to characterize community substrates. Representative photos of each ELC unit on the Site were taken and are included with the community descriptions in this report.

4.2.1.2 Tree Survey

A detailed tree survey was performed for the Site on August 31, 2022, following Tree Conservation Report (TCR) guidelines set forth by the City (City of Ottawa, 2021). All trees with a diameter at breast height (DBH) >10 cm on the Site were identified, enumerated, mapped, their DBH measured, and their general health and

condition documented. Butternut (*Juglans cinerea*) and Black Ask (*Fraxinus nigra*) trees (Endangered under the ESA) were also specifically searched for. The TCR for the project is available in Appendix E.

4.2.2 Breeding Bird Surveys

Morning breeding bird surveys were performed using point counts following the Ontario Breeding Bird Atlas Guide for Participants (Birds Canada et al., 2001; Birds Canada et al., 2021). Breeding bird surveys are to be completed from survey stations that, combined, provide suitable viewing of all habitats on a site on calm weather days with light wind (less than 3 on the Beaufort Scale[1]) and no precipitation. Per the Ontario Breeding Bird Atlas, two rounds of surveys are to take place between sunrise and five hours after sunrise between May 24 and July 10. Surveys took place during the mornings of June 28 and July 08, 2022.

A total of two breeding bird survey stations were established in representative habitats on the Site (Figure 2). All incidental observations were recorded while moving between survey points, as well as during other visits to the Site. Birds were identified by song and/or direct visual observation.

Bird species were classed as regionally rare based on an analysis of data from the Atlas of Breeding Birds of Ontario (Cadman et al., 1987) based on Hill's Site Regions, now Ecoregions. The *Ontario Wetland Evaluation System: Southern Manual* (MNRF, 2014) also assisted with classifying regionally significant breeding birds in are (region 6). The federal and provincial significance of bird species were classed based on species' listings under Schedule 1 of SARA and the ESA, and species tracked by NHIC (MNRF, 2022a) for non-SAR species considered provincially significant.

5.0 RESULTS

5.1 Landforms, Soils, and Geology

According to the Agricultural Land Use Systems of the Regional Municipality of Ottawa-Carleton (Map of Nepean), the Site is located in the built-up (urban related uses, industrial, etc.) area (Huffman and Dumanski, 1983). The Site is situated adjacent to the St. Thomas formation, which is characterized by medium to strongly acid fine sand fluvial or eolian material, with main surface textures characterized as fine sand, loamy find sand, or fine sandy loam (Schut and Wilson, 1987). Drainage within that soil unit was poor, and the slope class indicated level conditions (Schut and Wilson, 1987). The Site appeared to have similar characteristics. Topography on the site was level. During the ELC site visit, soil samples were taken using a 120 cm hand-held soil auger. The soil in the meadow (MEFM1-1) was moist sand with pebbles to depths of 25 cm, overlaying rock. The cattail marsh (MASM1-1) had standing water at the surface and the soil was composed of clay with gleys. A 50 cm soil core was taken in the deciduous swamp (SWDO3-1) and indicated moist muck and detritus to 30 cm, transitioning to saturated sand, with the water table occurring at 40 cm.

[1] The Beaufort Wind Force Scale is an empirical measure that relates wind speed to observed conditions at sea or land. The scale is as follows: **0**: calm, smoke rises vertically, wind speed <1 km/hr; **1**: light air, smoke drift indicates wind direction, leaves and wind vanes are stationary, wind speed = 1.1 – 5.5 km/hr; **2**: light breeze, wind felt on exposed skin, leaves rustle, wind vanes begin to move, wind speed = 5.6-11 km/hr; **3**: gentle breeze, leaves and small twigs constantly moving, light flags extended, wind speed – 12-19 km/hr.

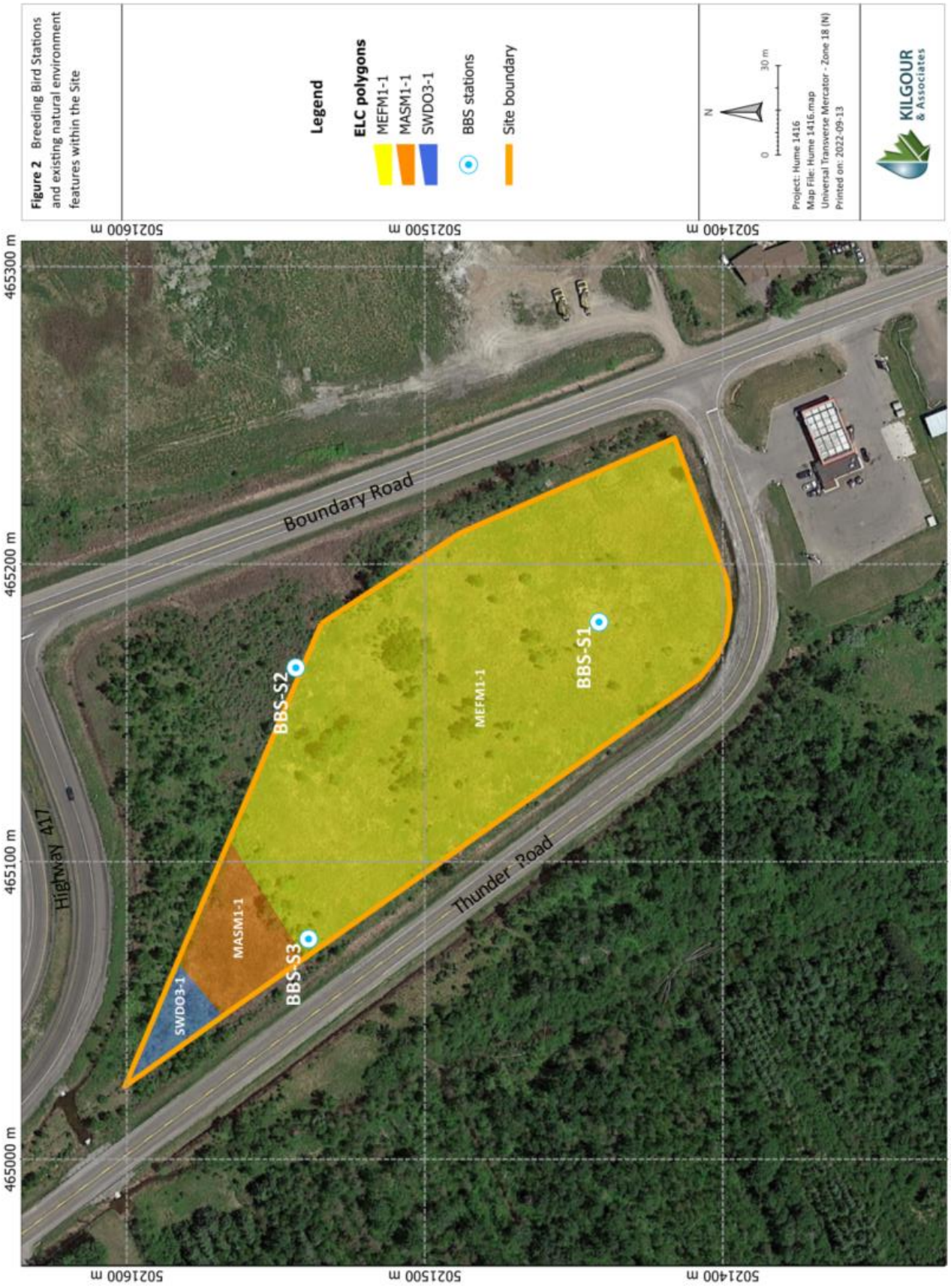


Figure 2 Breeding Bird Stations and existing natural environment features within the Site
Legend
ELC polygons
MEFM1-1
MASM1-1
SWDO3-1
BBS stations
Site boundary
N
0
30 m
Project: Hume 1416
Map File: Hume 1416.map
Universal Transverse Mercator - Zone 18 (N)
Printed on: 2022-09-13
KILGOUR & Associates
502160O m
502150O m
502140O m
465300 m
465200 m
465100 m
465000 m
Boundary Road
Thunder Road
Highway 417
BBS-S1
BBS-S2
BBS-S3
MEFM1-1
MASM1-1
SWDO3-1

5.2 Surface Water

The Official Plan's natural heritage system (east) map displays a watercourse, and associates culverts, approximately 20 m northwest of the Site connecting an unevaluated wetland west of Thunder Road and an unevaluated wetland north of Highway 417 (City of Ottawa, 2021). There are two unevaluated wetlands on northwestern portion of the Site (discussed in Section 5.3.1). There is also an unevaluated wetland (ELC type SWTM3-6) that coincides with the north property boundary and encompasses the northeastern corner of an adjacent property between Thunder Road, Boundary Road, and Highway 417. Finally, there is a roadside ditch that runs along Thunder Road and Boundary Road.

5.3 Vegetation

5.3.1 Ecological Land Classification

As displayed in Figure 2, there are three ELC units across the Site. The largest unit is meadow dominated by Canada Goldenrod (*Solidago canadensis*), Common Milkweed (*Asclepias syriaca*), and grasses with trees and shrubs interspersed. The remaining two units are wetland; a Common Cattail (*Typha latifolia*) marsh and a deciduous swamp (Figure 2).

5.3.1.1 Goldenrod Forb Meadow (MEFM1-1)

A Goldenrod Forb Meadow type (MEFM1-1; Figure 3) comprises the majority of the Site. The meadow was forb and grass dominated with scattered trees and shrubs. The dominant trees and shrubs scattered within the meadow were Eastern Cottonwood (*Populus deltoides*), White Willow (*Salix alba*), and Sandbar Willow (*Salix exigua*), with White Birch (*Betula papyrifera*) and Alder Buckthorn (*Rhamnus frangula*). There was a cluster of trees in the centre of the meadow consisting of Trembling Aspen (*Populus tremuloides*), White Poplar (*Populus alba*), and Manitoba Maple (*Acer negundo*), with Staghorn Sumac (*Rhus typhina*) along the edge. The dominant forbs were Canada Goldenrod (*Solidago canadensis*) closely followed by Common Milkweed, with Purple Loosestrife (*Lythrum salicaria*; invasive species), Queen Anne's Lace (*Daucus carota*), Cow Vetch (*Vicia cracca*), and Bull Thistle (*Cirsium vulgare*; invasive species). The dominant grasses were Kentucky Bluegrass (*Poa pratensis*) and Perennial Ryegrass (*Lolium perenne*) with Reed Canary Grass (*Phalaris arundinacea*). There was Common Cattail in the roadside ditch along Thunder Road and scattered within the centre of the meadow were rock piles.

Figure 3 Goldenrod Forb Meadow (MEFM1-1) (Photo taken August 25, 2022)

5.3.1.2 Cattail Mineral Shallow Marsh (MASM1-1)

A Cattail Mineral Shallow Marsh (MASM1-1; Figure 4) was located near the northwest end of the Site. It was dominated by Common Cattail and was relatively small (0.13 ha). The marsh had approximately 10-15 cm of standing water at the time of the site visit.

Figure 4 Cattail Mineral Shallow Marsh (MASM1-1) (Photo taken August 25, 2022)

5.3.1.3 White Birch – Poplar Organic Deciduous Swamp (SWDO3-1)

The deciduous swamp in the northwest corner of the Site was characterized as a White Birch – Poplar Organic Deciduous Swamp type (SWDO3-1; Figure 5). Only 0.05 ha of the swamp occurs on the Site, but it extends east off the Site. The canopy was relatively open and dominated by young White Birch, White Willow, and Balsam Poplar (*Populus balsamifera*), while the subcanopy had Sandbar Willow. Groundcover was characterized by Sensitive Fern (*Onoclea sensibilis*) and Common Cattail with Purple Loosestrife, Horsetail (*Equisetum spp.*), and stained leaf litter.

Figure 5 White Birch – Poplar Organic Deciduous Swamp (SWD03-1) (Photo taken August 25, 2022)

5.3.2 Tree Survey

The TCR prepared for the Site includes a comprehensive tree inventory and assessment of the fate of trees on the Site (Appendix E). Trees were scattered in the meadow, bordering the marsh, and in the swamp. Only the trees in the meadow will be affected by the proposed development. The Site contains three trees with a DBH >30 cm from three species: White Willow (*Salix alba*), Trembling Aspen (*Populus tremuloides*), and White Poplar (*Populus alba*). No Butternut or Black Ash were observed on Site.

5.4 Breeding Bird Surveys

Weather conditions during the three breeding bird surveys are provided in Table 1.

Table 1 Summary of dates and weather conditions of morning breeding bird surveys

Date	Wind (Beaufort Scale)	Air Temperature (°C)	Cloud Cover (%)	Precipitation
2022-06-28	2	19 to 21	90 to 20	None
2022-07-08	2 to 3	22 to 21	40 to 25	None

A total of 28 bird species were observed on the Site via morning breeding bird surveys and incidental observations (Table 2). The following bird species were commonly observed on the Site, detected at all survey stations on both survey dates: American Goldfinch (*Spinus tristis*), Common Yellowthroat (*Geothlypis trichas*), House Wren (*Troglodytes aedon*), Red-winged Blackbird (*Agelaius phoeniceus*), Song Sparrow (*Melospiza melodia*), and White-throated Sparrow (*Zonotrichia albicollis*).

Table 2 Breeding Bird Survey Results

Common Name	Scientific Name	Station(s) Observed	Date(s) Observed	Highest Breeding Evidence[1]
Alder Flycatcher	*Empidonax alnorum*	BBS-S2, BBS-S3	2022-06-28, 2022-07-08	Probable
American Crow	*Corvus brachyrhynchos*	BBS-S2, BBS-S3	2022-06-28, 2022-07-08, 2022-08-25 (Inc.)	Probable
American Goldfinch	*Spinus tristis*	BBS-S1, BBS-S2, BBS-S3	2022-06-28, 2022-07-08, 2022-08-25 (Inc.) 2022-08-31 (inc.)	Probable
American Redstart	*Setophaga ruticilla*	BBS-S1	2022-06-28	Possible
American Robin	*Turdus migratorius*	BBS-S1, BBS-S2	2022-06-28, 2022-07-08	Probable
Black-capped Chickadee	*Poecile atricapillus*	NA	2022-08-25 (Inc.)	NA
Blue Jay	*Cyanocitta cristata*	BBS-S1, BBS-S3	2022-06-28, 2022-07-08, 2022-08-25 (Inc.)	Probable
Cedar Waxwing	*Bombycilla cedrorum*	BBS-S1, BBS-S2, BBS-S3	2022-07-08, 2022-08-25 (Inc.) 2022-08-31 (inc.)	Possible
Common Yellowthroat	*Geothlypis trichas*	BBS-S1, BBS-S2, BBS-S3	2022-06-28, 2022-07-08	Probable
Chestnut-sided Warbler	*Setophaga pensylvanica*	BBS-S1	2022-07-08 (Inc.)	Possible
Downy Woodpecker	*Dryobates pubescens*	NA	2022-08-25 (Inc.)	NA
Eastern Phoebe	*Sayornis phoebe*	BBS-S3	2022-07-08	Possible
Gray Catbird	*Dumetella carolinensis*	BBS-S2	2022-07-08	Possible
House Wren	*Troglodytes aedon*	BBS-S1, BBS-S2, BBS-S3	2022-06-28, 2022-07-08	Probable
Indigo Bunting	*Passerina cyanea*	BBS-S1, BBS-S3	2022-07-08	Possible

Common Name	Scientific Name	Station(s) Observed	Date(s) Observed	Highest Breeding Evidence[1]
Northern Flicker	*Colaptes auratus*	BBS-S1, BBS-S3	2022-06-28, 2022-07-08, 2022-08-25 (Inc.)	Probable
Ovenbird	*Seiurus aurocapilla*	BBS-S3	2022-07-08	Possible
Ring-billed Gull	*Larus delawarensis*	NA	2022-08-31 (inc.)	NA
Red-eyed Vireo	*Vireo olivaceus*	BBS-S3	2022-06-28	Possible
Red-winged Blackbird	*Agelaius phoeniceus*	BBS-S1, BBS-S2, BBS-S3	2022-06-28, 2022-07-08	Probable
Song Sparrow	*Melospiza melodia*	BBS-S1, BBS-S2, BBS-S3	2022-06-28, 2022-07-08, 2022-08-25 (Inc.) 2022-08-31 (inc.)	Probable
Swamp Sparrow	*Melospiza georgiana*	BBS-S2, BBS-S3	2022-06-28, 2022-07-08	Probable
Turkey Vulture	*Cathartes aura*	BBS-S2	2022-06-28	Possible
Veery	*Catharus fuscescens*	BBS-S3	2022-06-28	Possible
Warbling Vireo	*Vireo gilvus*	BBS-S1	2022-07-08 (Inc.)	Possible
White-throated Sparrow	*Zonotrichia albicollis*	BBS-S1, BBS-S2, BBS-S3	2022-06-28, 2022-07-08	Probable
Yellow-bellied Sapsucker	Sphyrapicus varius	BBS-S3	2022-06-28	Possible
Yellow Warbler	*Setophaga petechia*	BBS-S1, BBS-S2, BBS-S3	2022-06-28	Possible

Inc. = Incidentally observed.

[1]Breeding evidence is based on the following:

- **Observed** = Species observed in its breeding season (no breeding evidence).
- **Possible** = Species observed in its breeding season in suitable breeding habitat; singing male(s) present or breeding calls heard in suitable nesting habitat in breeding season.
- **Probable** = At least seven individuals singing or producing other sounds associated with breeding (e.g., calls or drumming), all heard during the same visit and in suitable nesting habitat during the species' breeding season; pair observed in suitable nesting habitat in nesting season; permanent territory presumed through registration of territorial song or the occurrence of an adult bird at the same place in breeding habitat on at least two days a week or more apart during the breeding season; courtship or display, including interaction between a male and a female or two males, including courtship feeding or copulation; visiting probable nest site; agitated behaviour or anxiety calls of an adult; brood patch on adult female or cloacal protuberance on adult male; nest building or excavation of nest hole by a wren or a woodpecker.
- **Confirmed** = Nest-building or excavation of nest hole by a species other than a wren or a woodpecker; distraction display or injury feigning; used nest or eggshells found (occupied or laid within the period of the survey); recently fledged young (nidicolous species) or downy young (nidifugous species), including incapable of sustained flight; adult leaving or entering nest sites in circumstances indicating an occupied nest; adult carrying fecal sac; adult carrying food for young; nest containing eggs; nest with young seen or heard.

No at-risk bird species or regionally significant bird species (Cadman et al., 1987; MNRF, 2014) were observed.

5.5 Species at Risk

An assessment of species listed under SARA and ESA was completed to identify species having some potential to occur on or near the Site, including Extirpated, Endangered, Threatened, and Special Concern species. Species listed as Extirpated, Endangered, and Threatened are afforded species and habitat protection under the ESA. Federal protections under SARA are always in force for listed species of fish and migratory birds. For species of other groups, SARA normally only applies on federal lands or on projects having some level of participation with or oversight by the federal government. However, SARA-based protections can be imposed by ministerial order on a case-by-case basis in situations where provincial-level protections are deemed inadequate to otherwise protect a species. Such protections are not expected to apply to the Site.

The SAR assessment evaluated whether the Site would or could provide suitable habitat for SAR and whether they have potential to interact with future development of the Site. An assessment of the potential for SAR and their potential habitat was completed based on the results of the field surveys, ELC (i.e., habitat availability), and a desktop review that considered known species ranges, historic observation records, and preferred habitat requirements of these species (Appendix C). A total of 39 SAR were identified with some potential (low/moderate/high) to occur on or within 120 metre (m) of the Site. Of those, 17 SAR had a moderate to high potential to occur on the Site and/or interact with the project (Table 3). Those with a moderate potential are known to occur within 10 kilometre (km) of the Site, and suitable habitat for the species exists on the Site. SAR with a high potential are those that are known to occur on or adjacent to the Site (i.e., were observed by KAL during field surveys), with suitable habitat for the species on the Site. All other SAR with potential to occur in the region based on their documented ranges, occurrence records, and/or suitable habitat were assessed as having a low, negligible, or no potential to occur on the Site due to lack of occurrence records and/or suitable habitat (Appendix C).

Table 3 Species at risk with moderate or high potential to interact with the project [1]

Common Name	Taxonomic Name	Status under Endangered Species Act	Status under Species at Risk Act (Schedule 1)	Potential to Interact with Development of the Site
Birds				
Barn Swallow	*Hirundo rustica*	Threatened (Special Concern as of Jan 25, 2023)	Threatened (Special Concern as of Jan 25, 2023)	Moderate
Bobolink	*Dolichonyx oryzivorus*	Threatened	Threatened	Moderate
Common Nighthawk	*Chordeiles minor*	Special Concern	Threatened	Moderate
Eastern Meadowlark	*Sturnella magna*	Threatened	Threatened	Moderate
Eastern Whip-poor-will	*Antrostomus vociferus*	Threatened	Threatened	Moderate
Grasshopper Sparrow	*Ammodramus savannarum*	Special Concern	Special Concern	Moderate
Rusty Blackbird	*Euphagus carolinus*	Special Concern	Special Concern	Moderate
Mammals				

Common Name	Taxonomic Name	Status under Endangered Species Act	Status under Species at Risk Act (Schedule 1)	Potential to Interact with Development of the Site
Eastern Small-footed Myotis	*Myotis leibii*	Endangered	Not Listed	Moderate
Little Brown Myotis	*Myotis lucifugus*	Endangered	Endangered	Moderate
Northern Myotis	*Myotis septentrionalis*	Endangered	Endangered	Moderate
Tri-colored Bat	*Perimyotis subflavus*	Endangered	Endangered	Moderate
Amphibians				
Western Chorus Frog	*Pseudacris triseriata*	Not Listed	Threatened (Great Lakes-St. Lawrence population)	Moderate
Reptiles				
Midland Painted Turtle	*Chrysemys picta marginata*	Not Listed	Special Concern	Moderate
Snapping Turtle	*Chelydra serpentina*	Special Concern	Special Concern	Moderate
Arthropods				
Monarch	*Danaus plexippus*	Special Concern	Special Concern	High
Vascular Plants				
Black Ash	*Fraxinus nigra*	Endangered	No Status	Moderate
Butternut	*Juglans cinerea*	Endangered	Endangered	Moderate

[1] Rows highlighted in yellow indicate species ranked as Threatened or Endangered under the ESA that have a moderate to high likelihood of occurring on the Site.

SAR presented in Table 3 that are not listed or are listed as Special Concern under the ESA are not considered further as SAR in this report because they do not receive individual or habitat protection under the ESA (whereas Threatened and Endangered species do). However, individuals of these species are protected under other regulations addressing wildlife conservation generally, such as the FWCA, MBCA, and the PPS. In addition, species listed as Special Concern under the ESA may receive habitat protection if they are observed in habitats that meet the criteria for designation as SWH for Special Concern Species (MNRF, 2015a). Species of Species Concern will be discussed with SWH in Section 7.4. The remainder of this EIS focuses on species ranked as Threatened or Endangered under the ESA with a moderate to high likelihood of occurring on the Site (i.e., species highlighted in yellow in Table 1 above).

5.6 Significant Natural Heritage Features

The Site does not contain significant wetlands, significant coastal wetlands, significant woodlands, significant valleylands, ANSI (life/earth science), fish habitat, greenspace linkages, or potentially significant wildlife corridors. Note that there is potential fish habitat within the watercourse located approximately 20 m northwest of the Site. Further, the Site may contain significant habitat of endangered and threatened species, and has the potential to contain the following SWH: special concern and rare wildlife species, reptile hibernacula, turtle nesting areas, and amphibian breeding habitat (wetland) (MNRF, 2015a) (Table 4).

Guidelines and criteria for the identification of SWH in ecoregion 6E are provided by MNRF (2015a). SWH are identified based on the presence of certain habitat types (identified through ELC codes) and the presence and/or groupings of certain species (Appendix D). Since the Site and/or within 120 m of the Site has a

moderate to high potential to provide habitat for nine species listed as Special Concern under the ESA (Table 3), suitable habitat areas for these species may meet the criteria for SWH for Special Concern and Rare Species. The species include: Canada Warbler, Common Nighthawk, Eastern Wood-Pewee, Grasshopper Sparrow, Olive-sided Flycatcher, Rusty Blackbirds, Wood Thrush, Snapping Turtle, and Monarch. However, for four of these Species of Special Concern (Canada Warbler, Eastern Wood-Pewee, Olive-sided Flycatcher, and Wood Thrush) there is only suitable habitat within the large forest approximately 20 m west of the Site, and not on the Site itself.

Monarch was the only Species of Special Concern detected on the Site. A KAL biologist detected Monarch (adults and a caterpillar) in the meadow (MEFM1-1) during three site visits. The Site provides confirmed breeding habitat for Monarch. Although the following species were not observed during site visits, the meadow may also provide suitable breeding habitat for Grasshopper Sparrow and Common Nighthawk, while the swamp (SWDO3-1) may provide marginally suitable migratory stopover habitat for Rusty Blackbird.

The cattail marsh (MASM1-1) in the northwestern corner of the Site may provide habitat for Snapping Turtle (and Painted Turtle) while the deciduous swamp (SWDO3-1) may provide habitat and act as a corridor during seasonal movements. The watercourse approximately 20 m northwest of the Site could provide additional habitat as well as function as a corridor. Lastly, the meadow (MEFM1-1) may provide suitable turtle nesting habitat.

Scattered within the centre of the meadow (MEFM1-1) are rock piles and two mammal burrows that may meet the SWH criteria for reptile (snake) hibernacula (MNRF, 2015a). Confirmation of this potential SWH would require field studies confirming the presence of five or more individuals or individuals of two or more snake species within the rock feature(s) during the pre-hibernation and spring emergence periods (MNRF, 2015a).

Figure 6 Potential suitable snake hibernacula located within the development footprint.

The marsh (MASM1-1) may also meet the SWH criteria for amphibian breeding habitat (MNRF, 2015a). Confirmation of this potential SWH would require field studies confirming the presence of breeding population of listed amphibian species (MNRF, 2015a).

Additional field surveys would be required to confirm the use of the Site by Special Concern SAR (MNRF, 2015a). Note that even though SWH is defined following provincial-level (i.e., MNRF) guidelines, the protection of confirmed SWH is on a municipal basis.

5.7 Incidental Wildlife Observations

Incidental wildlife observations made during the site visits included Monarch (species of Special Concern). Adult Monarch butterflies were observed in the meadow (MEFM1-1) during three site visits (June 28, July 8, and August 25, 2022). A Monarch caterpillar (Figure 7) was observed in the meadow on Common Milkweed on August 25, 2022, indicating that they are breeding on the Site. Incidental bird observations are recorded in Table 2 above.

Figure 7 Monarch caterpillar on Common Milkweed in meadow (MEFM1-1).

6.0 DESCRIPTION OF THE PROPOSED PROJECT

The proposed development would comprise an 11 m tall, 3,623 m^2 commercial building and associated infrastructure (e.g., parking area and landscaping) (Figure 8). The client's preliminary site plan depicts 6 m of landscaping along Thunder Road. This landscaping would intersect the wetlands in the northwestern portion of the Site. However, KAL recommends that landscaping end a minimum of 5 m before the wetland boundary begins to minimize impact to the Cattail Mineral Shallow Marsh (MASM1-1) and the Poplar Organic Deciduous Swamp (SWDO3-1) in the northwestern portion of the Site. Encroaching on the wetlands should be avoided. The parking area, which is the closest point of development to the wetlands, will be situated 43 m southeast of the marsh. Since the watercourse is approximately 20 m northwest of the Site it will be approximately 63 m from of the proposed development.

The proposed development is 14.6 m from the northeast property boundary, which coincides with an unevaluated wetland (ELC unit SWTM3-6). The unevaluated wetland northeast of the Site should not be impacted by development actives. The preliminary site plan depicts a 10 m setback from the northeastern property boundary.

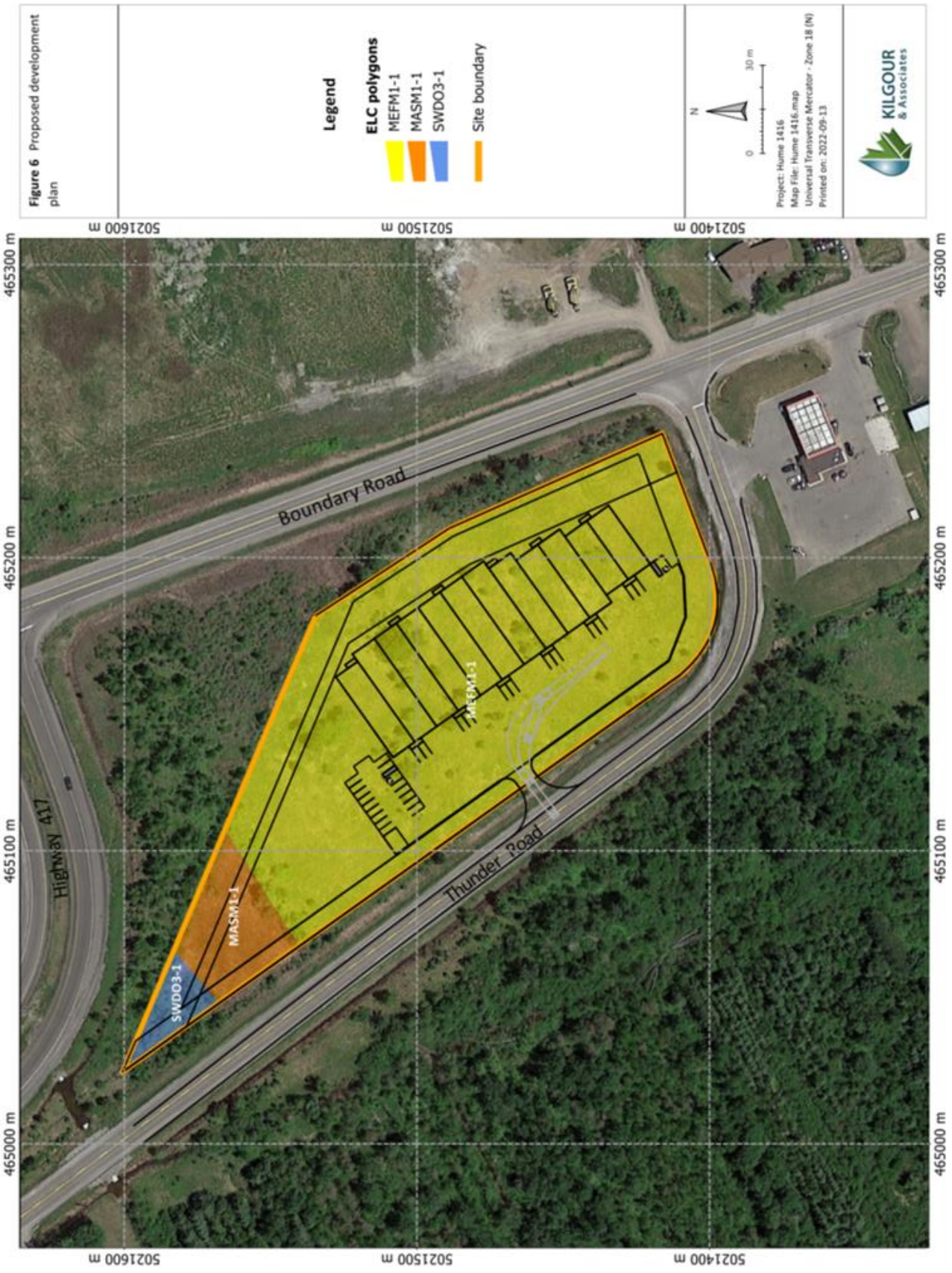


Figure 6 Proposed development plan

7.0 IMPACT ASSESSMENT AND MITIGATION

7.1 Surface Water

The only surface water features on the Site are the cattail marsh and deciduous swamp in the northwest corner of the Site. The marsh was characterized by dominant Common Cattail and is not anticipated to provide fish habitat, as it is not connected to the watercourse northwest of the Site. The watercourse located approximately 20 m northwest of the Site will not be directly impacted by the proposed development.

To protect wetlands, there associated habitats, and the broader catchment during construction, an erosion and sediment control (ESC) plan will be required and must be developed to the satisfaction of SNC. The ESC plan should include:

- A multi-faceted approach to provide ESC.
- Silt fence paired with sturdy construction fence along the project perimeter. This fencing can also act as a wildlife exclusion measure for smaller and less mobile animals that may occupy or traverse through the wetlands, such as amphibians, turtles, and snakes.
- During landscaping activities install a silt fence 10 m (minimum) outside the marsh (MASM1-1).
- Since an unevaluated wetland (ELC unit SWTM3-6) coincides with the northeast property boundary a silt fence should be installed 10 m southwest of the property boundary to protect the wetland from development activities.
- Regularly inspecting and maintaining the ESC measures during all phases of the project.
- Retention of existing vegetation and stabilization of exposed soils with native vegetation where possible.
- Keeping the ESC measures in place until all disturbed ground has been permanently stabilized.
- Using biodegradable ESC materials where possible and removing all exposed non-biodegradable ESC materials once the Site is stabilized.
- Limiting the duration of soil exposure and phasing project works.
- Limiting the size of disturbed areas by minimizing nonessential clearing and grading.
- Minimizing the total slope length and the gradient of disturbed areas.
- Refueling of machinery should occur >30 m from surface water features and all machinery will remain on the project-side of silt and construction fence.
- Maintaining overland sheet flow and avoiding concentrated flows.
- Storing/stockpiling materials >30 m away from the wetland and other surface water features.

- Fencing stockpiled material (<150 millimetre gravel) during the turtle nesting period (late May to early July) (MNRF, 2015c).
- Regularly inspecting the Site for signs of sedimentation during all phases of work and taking corrective action if required.
- Developing a response plan to be implemented immediately in the event of a spill of a deleterious substance.
- Keeping an emergency spill kit on the Site.
- Stopping work and containing deleterious substances to prevent dispersal.
- Reporting any spills of sewage, oil, fuel, or other deleterious material whether near or directly into a surface water feature.

7.2 Vegetation

No rare or unique vegetation communities or at-risk vegetation species were observed on the Site. Tree clearing within the meadow will be required to accommodate site grading and development. Some of the existing trees and shrubs in the meadow may be retained to the extent possible. The tress along the marsh and in the swamp will be retained if no landscaping occurs in the wetlands as recommended. The following general protection measures are recommended during construction to limit impacts to trees:

- Tree removal on the Site should be limited to that which is necessary to accommodate construction.
- To minimize impacts to retained trees during development:
    - Erect a fence beyond the critical root zone (CRZ; i.e., 10x the diameter at breast height) of trees. The fence should be highly visible (orange construction fence) and paired with erosion control fencing. Pruning of branches of branches is recommended in areas of potential conflict with construction equipment;
    - Do not place any material or equipment within the CRZ of trees;
    - Do not attach any signs, notices, or posters to any trees;
    - Do not raise or lower the existing grade within the CRZ of trees without approval;
    - Tunnel or bore when digging within the CRZ of a tree;
    - Do not damage the root system, trunk, or branches of any remaining trees; and
    - Ensure that exhaust fumes from all equipment are not directed toward any tree's canopy.

- Ensure equipment is clean prior to vegetation removal to avoid introducing invasive species to the Site, and clean equipment prior to leaving Site to avoid spreading invasives (e.g., Common Reed) elsewhere.

- KAL recommends that, to the extent possible, native plants be incorporated into Site landscaping for the benefit of local wildlife and pollinators. Further, it is recommended that plantings encompass a variety of native flowering species with different blooming periods to provide varied food sources for native pollinators. Planting Common Milkweed is strongly suggested as a large patch that supports breeding Monarch will be removed during construction. It is also recommended to the use of herbicides within and surrounding the planted habitat.

7.3 Species at Risk

Ten SAR ranked as Threatened or Endangered under the ESA have a moderate to high potential to interact with future development on the Site (i.e., may be present during development), based on previous observation records and the presence of potentially suitable habitat. The purpose of the site visits were to confirm the presence of potential habitat for SAR.

The general wildlife mitigation measures provided in Section 7.5, while not species-specific, are anticipated to protect the SAR that may potentially occur on the Site. Additional species-specific mitigation measures, however, are provided below.

7.3.1 Barn Swallow

Barn Swallows nest in buildings (e.g., barns), bridges, and culverts near open areas that are used for foraging. Nests are typically constructed on a horizontal ledge or attached to a vertical wall near an overhang. They forage over open and semi-open habitats including agricultural fields, grasslands, wetlands, water features, and residential areas (Heagy et al., 2014). Note that the Barn Swallow General Habitat Description (MECP, 2021a) outlines the various categories of habitat and their protection.

Although there is no suitable nesting habitat on the Site, the meadow (MEFM1-1) and marsh (MASM1-1) could provide suitable foraging habitat, while the buildings, culverts, and house within 120 m could provide suitable nesting habitat. Further, there is suitable foraging habitat approximately 20 m southwest of the Site over an agricultural field. As there is no nesting habitat on the Site, the potential to negatively impact Barn Swallow is low. However, in an effort to reduce potential impacts, tree, vegetation, and general site clearing should take place during the fall and winter (September 1 to March 31).

7.3.2 Bobolink and Eastern Meadowlark

Bobolink and Eastern Meadowlark are obligate grassland species that nest on the ground. They breed and forage in tall grasslands and open areas including hayfields, pastures, agricultural fields, abandoned fields, and cultural meadows that are ≥ 5 ha in size. Ideal nesting habitat contains tall grass with abundant litter and grass cover, low shrub and woody vegetation cover, and very little bare ground (McCracken et al., 2013; MECP, 2021b; MECP, 2021c).

The habitat on the Site is marginally suitable as the meadow (MEFM1-1) is only 1.47 ha, not grass-dominated (it is a mix of forbs and grasses), and has patches of trees. However, in an effort to reduce potential impacts, tree, vegetation, and general site clearing should take place during the late fall and winter (September 1 to March 31).

7.3.3 Eastern Whip-poor-will

Eastern Whip-poor-will nest in open areas with well-drained soils, moderate tree cover, and limited shrub/herbaceous cover including early successional forests, rock barrens, savannahs, old burns, and sparse conifer plantations (MECP, 2019b). They are an area-sensitive species associated with forests >100 ha (OMNR, 2000). Eastern whip-poor-will typically forage within 500 m of their nest in habitats with perches and low tree cover. They forage over prairies, wetlands, regenerating clearcuts, and agricultural fields (MECP, 2019b).

The Site may provide suitable foraging habitat for Eastern Whip-poor-will; however, there does not appear to be suitable nesting habitat. The large forest approximately 20 m west of the Site may provide suitable nesting habitat. In an effort to reduce potential impacts, tree, vegetation, and general site clearing should take place during the fall and winter (September 1 to March 31).

7.3.4 Species at Risk Bats

Little Brown Myotis predominantly form maternity roosts in anthropogenic structure such as buildings, barns, bridges, and bat boxes. They will also roost in cavities of canopy trees, within foliage, under tree bark, and crevices on cliffs. Little Brown Myotis forage over water, including wetlands and riparian zones, as well as in open areas, such as forest edges, open canopy forests, ponds, and roads (Humphrey and Fotherby, 2019).

Northern Myotis roost under raised bark and in tree cavities and crevices, but can also roost in anthropogenic structures (e.g., under shingles). They forage along and within forests, as well as in hayfields and pastures adjacent to mixed forests (Humphrey and Fotherby, 2019).

Tri-colored Bats roost in dead leaf clusters, dense clusters of live foliage, and arboreal lichens. They typically select oak and maple trees for roosting. Foraging occurs in forested riparian areas, over water, and within gaps in forest canopies (Humphrey and Fotherby, 2019; MNRF, 2017).

Little is known about the Eastern Small-footed Myotis' exact summer habitat use. They roost in a variety of habitats including rocky habitats, in buildings, under bridges, and snags. Eastern Small-footed Myotis forage in forests, riparian forests, and over water bodies (Humphrey, 2017).

Although these SAR bats are likely in the region (as they have large ranges) the Site does not provide suitable roosting habitat, as it does not contain forest or buildings. The marsh (MASM1-1) and open meadow (MEFM1-1) areas on the Site would provide suitable foraging habitat. These bats depend on forested habitats and anthropogenic structures for roosting. The forests approximately 20 m west of Site and the buildings and house adjacent to the Site would provide suitable roosting habitat for all four SAR bats.

To prevent impacts to bats, no clearing of trees on Site should take place during the bat roosting window, between April 1 and September 30 (inclusive), without a qualified biologist first confirming the absence of

bats (MNRF, 2015b; MECP (C. Hann) personal communication with KAL (K. Black), July 30, 2021). If tree clearing is conducted between October 1 and March 31, no interactions with bats are anticipated, and therefore, significant negative impacts to SAR bats would be avoided.

7.3.5 Black Ash

Black Ash is a predominantly wetland species that occurs in swamps, floodplains, and fens. The deciduous swamp (SWDO3-1) on-site may provide suitable habitat.

Black Ash was listed as Endangered under the ESA on January 26, 2022; subsequently, however, the Minister of MECP ordered by regulation O.Reg. 23/22 that ESA protections for Black Ash be temporarily suspended for a two-year period following its listing (Government of Ontario, 2022). The regulation allows activities that impact Black Ash and its habitat to proceed without the requirement for an ESA authorization or exemption during the two-year period. A recovery strategy and associated policy will be developed during this time.

7.3.6 Butternut

Butternut are often found along stream banks as they prefer to grow in moist, well-drained loams; however the species can tolerate a large range of soil types. Butternut is intolerant of shade and competition, as they require ample sunlight to grow (Poisson and Ursic, 2013). The moist edge habitat along the deciduous swamp (SWDO3-1), cattail marsh (MASM1-1), and roadside ditch running along Thunder Road may provide suitable habitat for Butternut.

Butternut trees were searched for during site visits, and no Butternut were identified on the Site. Therefore, no mitigations are required to reduce impact to Butternut. However, if a Butternut is identified on the Site in the future and may be impacted by development, a Butternut assessment following the MECP's Butternut assessment guidelines (MECP, 2021b) must be completed. The assessment evaluates the tree's health for the purpose of compliance with the ESA. If for any reason construction is delayed two or more years (summer 2024 or later), another survey for Butternut must be completed.

7.4 Significant Wildlife Habitat

As mentioned in Section 5.6, SWH was assessed based on the MNRF's guidelines and criteria for the identification of SWH in ecoregion 6E (MNRF, 2015a). SWH are identified based on the presence of certain habitat types (identified through ELC codes) and the presence and/or groupings of certain species (Appendix D).

Table 4 Summary of the types of Significant Wildlife Habitat on the Site

Type of Significant Wildlife Habitat	Rationale and Mitigation
Reptile Hibernacula (candidate)	Potential suitable habitat for reptile hibernacula is present on the Site. Scattered within the centre of the meadow (MEFM1-1) are rock piles and two mammal burrows that may provide subterranean access; however, it is unknown if snakes are using the features. Based on historic aerial imagery it appears that there was a gravel pad on the Site. The rock piles are likely from these activities. If that is the

Type of Significant Wildlife Habitat	Rationale and Mitigation
	case the rocks may not be deep enough in the ground to allow snakes access below the frost line (3.5 feet deep). Based on the client's current development plan many of the rock piles and mammal burrows on the Site will be removed as they fall within the project footprint. To limit potential impacts to snakes, it is recommended that initial earthworks be done between early May and/or early September when snakes are out of hibernation (MNRF, 2016; MNRF, 2018).
Turtle Nesting Areas (candidate)	Although there is no turtle overwintering habitat on the Site (as the cattail marsh is likely too shallow to support successful overwintering) there is suitable turtle nesting habitat. The meadow (MEFM1-1) adjacent to the marsh (MASM1-1) may provide suitable nesting habitat. However, it is unknown if turtles are using the feature in this way. It is recommended that initial site clearing take place between October and May to limit the potential for interactions with turtle nests. A mitigation measure for turtle nesting areas is to ensure the project footprint is fenced off (i.e., silt fence) during the turtle nesting period (late May to early July) (MNRF, 2015c). This should be done to ensure that turtles are not nesting in areas that may be disturbed or destroyed due to construction activities.
Amphibian Breeding Habitat – Wetland (candidate)	The marsh (MASM1-1) may provide suitable amphibian breeding habitat. Standard protections include a buffer of 30 m around wetlands. Based on the client's development plan the marsh should receive a buffer of a minimum of 30 m and should be remain unharmed.
Special Concern and Rare Wildlife Species (confirmed)	There is suitable habitat on the Site for the following five species of Special Concern: Common Nighthawk, Grasshopper Sparrow, Rusty Blackbird, Snapping Turtle, and Monarch. Monarch was the only Species of Special Concern detected on the Site. Monarchs breed and forage in a range of habitat types where wildflowers and nectar are abundant. Breeding habitat is dependent on milkweed as caterpillars feed solely on this species. Adult butterflies forage on nectar from a variety of wildflowers (e.g., asters, goldenrods, milkweed) (ECCC, 2016). The ecosite associated with Monarch (MEFM1-1) would be SWH. The City of Ottawa typically does not require protection of this class of SWH. Regardless, initial site clearing of vegetation should not take place between late May and late September (ECCC, 2016). Further, as mentioned in section 7.2, Common Milkweed planting or seeding should occur in the remaining meadow areas at the north end of the Site as part of the landscape plan.

Note that even though SWH is defined on a provincial level by MNRF, the protection of confirmed SWH is a municipal matter. As such, the City of Ottawa is responsible for designating an area as SWH and determining the appropriate protections and /or mitigation measures.

7.5 General Wildlife Mitigation Measures

The following mitigation measures shall be implemented during future construction to generally protect wildlife and potential SWH areas:

- Areas shall not be altered or cleared during sensitive times of year for wildlife (breeding season; early spring to early summer) unless mitigation measures are implemented and/or the habitat has been inspected by a qualified Biologist.
    - Clearing of trees and/or vegetation **should not take place April 1 to September 30** inclusive unless a qualified Biologist has determined that no birds are nesting or suitable bat roosting trees are present. The bird nest sweep would be valid for five days.
        - The MBCA protects the nests and young of migratory breeding birds in Canada. The timing of nesting for birds in the area spans April 1 to August 31 (Government of Canada, 2018).
        - The breeding and roosting period for bats is recognized as April 1 to September 30 (MNRF, 2015b; MECP (C. Hann) personal communication with KAL (K. Black), July 30, 2021).
        - Monarch breed in Ontario from late May to late September (ECCC, 2016).
    - **Initial earthworks should not take place early September to early May** while snakes are hibernating (MNRF, 2016; MNRF, 2018).
- Develop an ESC plan. Install sediment control fence and inspect/maintain it periodically and after each rain event to ensure its integrity and continued function.
- Ensure that a qualified biologist develops a wildlife management plan for the construction process and delivers environmental compliance and biodiversity training to all site workers to implement the plan. The plan should include (but not be limited to) requirements to:
    - Utilize silt fence paired with sturdy construction fence along the project perimeter and around soil stockpiles to serve as a wildlife exclusion measure to prevent smaller animals from accessing/utilizing temporary habitats on the Site (e.g., prevent turtles from nesting in stockpiles on the Site).
    - Check the entire work site for wildlife prior to beginning work each day.
    - Do not harm, feed, or unnecessarily harass wildlife.
    - Manage waste to prevent attracting wildlife to the work site. Effective mitigation measures include litter prevention and keeping all trash secured in wildlife-proof containers and promptly removing it from the work site, especially during warm weather.

- Enforce a speed limit of 20 km/h during the active season (April 1 to September 30) to reduce wildlife mortality.

- Manage stockpiles and equipment at the work site to prevent wildlife from being attracted to artificial habitat. Cover and contain any piles of soil, fill, brush, rocks, and other loose materials and cap ends of pipes where necessary to keep wildlife out. Ensure that trailers, bins, boxes, and vacant buildings are secured at the end of each workday to prevent access by wildlife.

A summary of the recommended timeline discussed above is as follows:

- Mow the Site during the fall of 2022 to deter grassland birds from breeding on the Site in the spring.
- Cut trees during the winter (between September 30 and April 1) to avoid birds and bats.
- Complete initial site grubbing in early May, after snakes have left the potential hibernacula but before the mowed meadow grows back. Pre-stress the Site two weeks prior to grubbing to allow wildlife time to relocate (City of Ottawa, 2015).

8.0 CONCLUSION

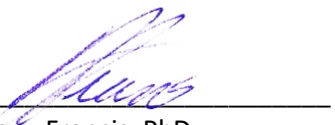
This report provides a set of mitigation measures for employment in the design and construction of the proposed development. The assessment of the potential for impacts to the natural heritage system is based on the implementation of these mitigation measures. Based on our professional opinion, we do not expect the proposed construction of a long-term care home to result in negative impacts to existing natural features or ecological functions if the recommended mitigation measures provided in this report are implemented.

9.0 CLOSURE

This report was prepared for exclusive use by HP Urban Inc. and may be distributed only by HP Urban Inc. Questions relating to the data and interpretation can be addressed to the undersigned.

Respectfully submitted,

KILGOUR & ASSOCIATES LTD.



Anthony Francis, PhD
Project Manager and Senior Review

Kesia Miyashita, MSc
Senior Biologist

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10.2 Personal Communications

Hann, Carolyn. Species at Risk Specialist, Kemptville District. Ministry of Environment, Conservation, and Parks (MECP). Communication with KAL (K. Black), July 30, 2021.

Appendix A Qualifications of Report Authors

Kesia Miyashita, MSc

Ms. Miyashita has over six years of experience in environmental consulting and more than ten seasons of field experience in ecosystems in Alberta and British Columbia. During her career in environmental consulting, Ms. Miyashita has completed environmental assessments for a variety of major infrastructure projects and urban developments. Her expertise is in vascular and non-vascular plant ecology, with experience in both terrestrial and wetland ecosystems; she has performed vegetation community inventories, rare plant surveys, and weed surveys in a variety of natural environments, including native forest, urban nature preserves, grasslands, and wetlands. Ms. Miyashita joined Kilgour & Associates Ltd. in May of 2021 and has since contributed to numerous Environmental Impact Study and tree conservation reports, delineation of natural heritage features and SAR surveys. Ms. Miyashita is a Professional Biologist with the Alberta Society of Professional Biologists and a Qualified Wetland Science Practitioner in the province of Alberta.

Anthony Francis, PhD

Dr. Francis is a Senior Ecologist with 20 years' consulting experience to both government agencies and private industry. He has worked on a diversity of projects relating to species at risk (SAR), invasive species, terrestrial and aquatic habitat, environmental effects monitoring and mitigation, and fate/effects of contaminants. Within each of these subject areas, Dr. Francis has completed projects addressing specific site concerns and broader policy initiatives. Dr. Francis' academic background is in spatial ecology with a focus on tree species diversity. As a Senior Ecologist at KAL, he regularly completes TCRs, Environmental Impact Statements, and Integrated Environmental Reviews for land development projects throughout Ottawa and eastern Ontario. He is also a certified Butternut Health Assessor (BHA #104).

Appendix B MECP Species at Risk Correspondence

August 31, 2022 **Our File: HUME 1416**

Management Biologist
Permissions and Compliance Section
Ontario Ministry of Environment, Conservation and Parks
10-1 Campus Drive
Kemptville, ON
K0G 1J0

Reference: Species at risk information request for 6165 Thunder Road, Ottawa, Ontario

1.0 INTRODUCTION

This letter is a request for information relating to the potential presence of species at risk (SAR) for the proposed development at 6165 Thunder Road, Ottawa, Ontario. This letter includes a desktop review of SAR occurrence records using the resources and guidelines outlined in the draft document, *Client's Guide to Preliminary Screening for Species at Risk* (Ministry of the Environment, Conservation and Parks (MECP), 2019). We (Kilgour & Associates Ltd.; KAL) are seeking confirmation from MECP regarding the list of SAR that may occur on or near the project site. Potential impacts to SAR will be assessed via an Environmental Impact Study (EIS) that we will be preparing for our client. If impacts to SAR are anticipated, we will recommend that our client notifies MECP and engages in consultation to further consider potential impacts, avoidance and/or mitigation measures, and whether the project may require authorization under the *Endangered Species Act* (ESA).

1.1 Site Overview

The site is 1.65 ha in size and is located at 6165 Thunder Road (Figure 1). The zoning of the property is Rural Commercial, and it is currently used a vacant naturalized lot. The site is dominated by meadow interspersed with deciduous tree stands and shrub-dominated patches.

The centroid coordinates of the subject project area are:

Latitude: 45.345872°, Longitude: -75.444667°

The site is bordered by:

- Wetlands to the north;
- Commercial areas to the east;
- Commercial and forested lands to the south; and
- Forested lands to the west.

Figure 1 Location and existing conditions of the site

2.0 SPECIES AT RISK RESOURCES REVIEW AND RESULTS

We reviewed the following online resources to determine SAR occurrences on and/or nearby the site.

- Aquatic Species at Risk Map (DFO, 2022)
- Ontario Ministry of Natural Resources and Forestry (MNRF)
    - Natural Heritage Information Centre (MNRF, 2022a)

- Land Information Ontario Provincially Tracked Species Grid Detail (MNRF, 2022b)
- Recovery Strategy for the Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*), and Tri-colored Bat (*Perimyotis subflavus*) in Ontario (Humphrey and Fotherby, 2019)
- Recovery Strategy for the Eastern Small-footed Myotis (*Myotis leibii*) in Ontario (Humphrey, 2017)

- Species at Risk in Ontario (MECP, 2022)
- Species at Risk Public Registry (Government of Canada, 2022)
- Atlas of the Breeding Birds of Ontario 2001-2005 (Birds Canada et al., 2009)
- Ontario Reptile and Amphibian Atlas (Ontario Nature, 2019)
- iNaturalist (California Academy of Sciences and National Geographic Society, 2022)
- eBird (Cornell Lab of Ornithology, 2022)
- Bumble Bee Watch (Wildlife Preservation Canada et al., 2022)
- Ontario Butterfly Atlas (Toronto Entomologists' Association, 2022)
- City Stream Watch (South Nation Conservation et al., 2017)

The results of the SAR desktop review are indicated in Table 1. Note that occurrence data in Table 1 from the Natural Heritage Information Centre (MNRF, 2022a), Land Information Ontario (MNRF, 2022b), eBird (Cornell Lab of Ornithology, 2022), and iNaturalist (California Academy of Sciences and National Geographic Society, 2022) are occurrences within ~5 km of the site. SAR occurrence data from the Ontario Breeding Birds Atlas (Birds Canada et al., 2009) and the Ontario Reptile and Amphibian Atlas (Ontario Nature, 2019) are based on the 10 x 10 km Atlas square that the site falls in (18VR62).

Table 1 List of species at risk with potential to occur on or near the project site based on our desktop review

Species Name (*Scientific name*)	Information Source
Birds	
Bald Eagle (*Haliaeetus leucocephalus*)	Cornell Lab of Ornithology (2022)
Bank Swallow (*Riparia riparia*)	Birds Canada et al. (2009); Cornell Lab of Ornithology (2022)
Barn Swallow (*Hirundo rustica*)	Birds Canada et al. (2009); MNRF (2022a); Cornell Lab of Ornithology (2022)

Species Name (*Scientific name*)	Information Source
Black Tern (*Chlidonias niger*)	Cornell Lab of Ornithology (2022)
Bobolink (*Dolichonyx oryzivorus*)	Birds Canada et al. (2009); MNRF (2022a); MNRF (2022b); Cornell Lab of Ornithology (2022)
Canada Warbler (*Cardellina canadensis*)	Cornell Lab of Ornithology (2022)
Chimney Swift (*Chaetura pelagica*)	Birds Canada et al. (2009); Cornell Lab of Ornithology (2022)
Common Nighthawk (*Chordeiles minor*)	Cornell Lab of Ornithology (2022)
Eastern Meadowlark (*Sturnella magna*)	Birds Canada et al. (2009); MNRF (2022a); MNRF (2022b); Cornell Lab of Ornithology (2022)
Eastern Whip-poor-will (*Antrostomus vociferus*)	Cornell Lab of Ornithology (2022)
Eastern Wood-Pewee (*Contopus virens*)	Birds Canada et al. (2009); Cornell Lab of Ornithology (2022)
Evening Grosbeak (*Coccothraustes vespertinus*)	Cornell Lab of Ornithology (2022)
Grasshopper Sparrow (*Ammodramus savannarum*)	Cornell Lab of Ornithology (2022)
Henslow's Sparrow (*Ammodramus henslowii*)	MNRF (2022a); MNRF (2022b)
Least Bittern (*Ixobrychus exilis*)	Birds Canada et al. (2009); MNRF (2022a); Cornell Lab of Ornithology (2022)
Lesser Yellowlegs (*Tringa flavipes*) *	Cornell Lab of Ornithology (2022)
Loggerhead Shrike (*Lanius ludovicianus*)	MNRF (2022a); MNRF (2022b)
Olive-sided Flycatcher (*Contopus cooperi*)	Cornell Lab of Ornithology (2022)
Peregrine Falcon (*Falco peregrinus*)	Cornell Lab of Ornithology (2022)
Red Knot (*Calidris canutus rufa*)	Cornell Lab of Ornithology (2022)
Rusty Blackbird (*Euphagus carolinus*)	Cornell Lab of Ornithology (2022)
Wood Thrush (*Hylocichla mustelina*)	Birds Canada et al. (2009); MNRF (2022a); Cornell Lab of Ornithology (2022)
Mammals	
Eastern Small-footed Myotis (*Myotis leibii*)	Humphrey (2017)
Little Brown Myotis (*Myotis lucifugus*)	Humphrey and Fotherby (2019)
Northern Myotis (*Myotis septentrionalis)*	Humphrey and Fotherby (2019)
Tri-colored Bat (*Perimyotis subflavus*)	Humphrey and Fotherby (2019)
Amphibians	
Western Chorus Frog (*Pseudacris triseriata*)	Ontario Nature (2019); MNRF (2022a)
Reptiles	
Blanding's Turtle (*Emydoidea blandingii*)	Ontario Nature (2019); MNRF (2022a)
Midland Painted Turtle (*Chrysemys picta marginata*)	Ontario Nature (2019); MNRF (2022a); California Academy of Sciences and National Geographic Society (2022)
Snapping Turtle (*Chelydra serpentina*)	Ontario Nature (2019); MNRF (2022a); MNRF (2022b)
Arthropods	
Monarch (*Danaus plexippus*)	California Academy of Sciences and National Geographic Society (2022); Toronto Entomologists' Association (2022); South Nation Conservation et al. (2017)
Vascular Plants	

Species Name (*Scientific name*)	Information Source
Black Ash (*Fraxinus nigra*)	MNRF (2022a)
Butternut (*Juglans cinerea*)	MNRF (2022a)

* Lesser Yellowlegs is not currently listed under the ESA or SARA (currently it is listed as Threatened under COSEWIC). However, it will be added to SARO as Threatened on Jan 25, 2023. As the project likely will not commence until after Jan 25, 2023, it has been included here.

The Natural Heritage Information Centre (NHIC; MNRF, 2022a) database also noted the occurrences of restricted species in the vicinity of the site. As information on these species is not publicly available, we are seeking clarification from MECP whether there are any records of restricted species on the subject property.

The local conservation authority (South Nation Conservation) does not have a SAR geodatabase, but relevant reports were reviewed with appropriate SAR information included in Table 1.

We note that observation records on eBird (Cornell Lab of Ornithology, 2022) and iNaturalist (California Academy of Sciences and National Geographic Society, 2022) are crowd-sourced and rely heavily on data submitted by volunteer citizen scientists that are not necessarily vetted by experts. As such, observation records from these sources are considered non-confirmed by KAL, but are included in this preliminary SAR screening based on guidelines set forth by MECP (2019).

3.0 CLOSURE

Thank you for considering this SAR information request for 6165 Thunder Road. We look forward to any comments you may have. Questions relating to the contents of this letter can be addressed to the undersigned.

Respectfully submitted,

KILGOUR & ASSOCIATES LTD.

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Appendix C Regional Species at Risk Screening

Species Name (*Taxonomic Name*)	Status under *Endangered Species Act* (ESA)	Status under Schedule 1 of the *Species at Risk Act* (SARA)	Observation Record Sources (within 10 km of the Site)	Habitat Description	Suitable Habitat on or Adjacent (within 120 m) to the Site	Potential to Interact with Development of the Site (None, Negligible, Low, Moderate, or High)[1]
Birds						
Bald Eagle (*Haliaeetus leucocephalus*)	**Special Concern**	**Not at Risk**	Cornell Lab of Ornithology (2022)	Nest in mature forests near open water. In large trees such as pine and poplar.	There does not appear to be suitable habitat on or adjacent to the Site.	Low
Bank Swallow (*Riparia riparia*)	**Threatened**	**Threatened**	Birds Canada et al. (2009); Cornell Lab of Ornithology (2022)	Colonial nester; burrows in eroding silt or sand banks, sand pit walls, and human-made sand piles. Often found on banks of rivers and lakes.	There does not appear to be suitable habitat on or adjacent to the Site.	Low
Barn Swallow (*Hirundo rustica*)	**Threatened (Special Concern as of Jan 25, 2023)**	**Threatened**	Birds Canada et al. (2009); MNRF (2022a); Cornell Lab of Ornithology (2022)	Nests on barns and other structures. Forages in open areas for flying insects. Lives in close association with humans and prefers to nest on structures such as open barns, under bridges, and in culverts.	The Site contains suitable foraging habitat (meadow and marsh) but does not contain suitable nesting habitat. Buildings culverts, and a house on adjacent properties may provide suitable nesting habitat within 120 m of the Site.	Moderate
Black Tern (*Chlidonias niger*)	**Special Concern**	**Not at Risk**	Cornell Lab of Ornithology (2022)	Build floating nests in loose colonies in shallow marshes with abundant emergent vegetation, especially in cattails.	There does not appear to be suitable habitat on or adjacent to the Site.	Low
Bobolink (*Dolichonyx oryzivorus*)	**Threatened**	**Threatened**	Birds Canada et al. (2009); MNRF (2022a); MNRF (2022b); Cornell Lab of Ornithology (2022)	Breeds in hayfields, pastures, agricultural fields, and abandoned fields with tall grass that are ≥5 ha, and preferably >30 ha.	The habitat on the Site is marginally suitable, as the meadow is only 1.47 ha and is not grass-dominated. There also appears to be suitable habitat southwest of the Site.	Moderate
Canada Warbler (*Cardellina canadensis*)	**Special Concern**	**Threatened**	Cornell Lab of Ornithology (2022)	Prefers moist forests with dense shrub layers. Nests located on or near the ground on mossy logs or roots, along stream banks or on hummocks. Area-sensitive species that usually require a minimum of 30 ha of continuous forest for breeding habitat (OMNR, 2000).	There does not appear to be suitable habitat on the Site; however, the forest ~20 m west of the Site may provide suitable habitat.	Low
Cerulean Warbler (*Setophaga cerulea)*	**Threatened**	**Endangered**	n/a	Prefers mature deciduous forests. Area-sensitive species that require large forests (>100 ha) (OMNR, 2000).	There does not appear to be suitable habitat on the Site; however, the forest ~20 m west of the Site may provide marginally suitable habitat.	Negligible
Chimney Swift (*Chaetura pelagica*)	**Threatened**	**Threatened**	Birds Canada et al. (2009); Cornell Lab of Ornithology (2022)	Nests in traditional-style open brick chimneys (and rarely in hollow trees). Tends to stay close to water.	The Site contains suitable foraging habitat but does not contain suitable nesting or roosting habitat. There is only one house within 120 m of the Site, and it is unknown if it has a traditional-style, uncapped chimney.	Low
Common Nighthawk (*Chordeiles minor*)	**Special Concern**	**Threatened**	Cornell Lab of Ornithology (2022)	Nests in a wide variety of open sites, including beaches, fields, and gravel rooftops with little to no ground vegetation. They also nest in cultivated fields, orchards, urban parks, mine tailings and along gravel roads/railways but tend to occupy more natural sites.	The open areas on the Site may provide suitable nesting and foraging habitat. Although it is marginal habitat as it is surrounded by roads. There also may be suitable habitat within the forest ~20 m west of the Site.	Moderate
Eastern Meadowlark (*Sturnella magna*)	**Threatened**	**Threatened**	Birds Canada et al. (2009); MNRF (2022a); MNRF (2022b); Cornell Lab of Ornithology (2022)	Breeds in hayfields, pastures, agricultural fields, and abandoned fields with tall grass that are ≥5 ha, and preferably >30 ha.	The habitat on the Site is marginally suitable, as the meadow is only 1.47 ha and is not grass-dominated. There also appears to be suitable habitat southwest of the Site.	Moderate

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Eastern Whip-poor-will (*Antrostomus vociferus*)	**Threatened**	**Threatened**	Cornell Lab of Ornithology (2022)	Suitable breeding habitats generally include open and half treed areas and often exhibit a scattered distribution of treed and open space. Lays eggs directly on the forest floor. Roosts are typically located in forest habitat on a low branch or directly on the ground. Home range size varies from 20 to 500 ha (mean 136 ha) (ECCC, 2018).	The Site contains suitable foraging habitat but does not contain suitable nesting habitat. However, the forest ~20 m west of the Site may provide suitable nesting habitat.	Moderate
Eastern Wood-Pewee (*Contopus virens*)	**Special Concern**	**Special Concern**	Birds Canada et al. (2009); Cornell Lab of Ornithology (2022)	Woodland species often found in the mid-canopy layer near clearings and edges of intermediate age and mature deciduous and mixed forests with little understory.	There does not appear to be suitable habitat on the Site; however, the forest ~20 m west of the Site likely provides suitable habitat.	Low
Evening Grosbeak (*Coccothraustes vespertinus*)	**Special Concern**	**Special Concern**	Cornell Lab of Ornithology (2022)	Nests in trees or large shrubs. Prefers mature coniferous forests (fir and/or spruce dominated), but will also use deciduous forests, parklands, and orchards. Its abundance is strongly linked to the cycle of Spruce Budworm.	There does not appear to be suitable habitat on or adjacent to the Site.	Low
Golden Eagle (*Aquila chrysaetos*)	**Endangered**	**Not at Risk**	n/a	Nests in remote, undisturbed areas, usually building their nests on ledges on a steep cliff/riverbank or large trees if needed. Most hunting is done near open areas such as large bogs or tundra. Migration only; no reported nests in Ottawa.	There does not appear to be suitable habitat on or adjacent to the Site.	Negligible
Golden-winged Warbler (*Vermivora chrysoptera*)	**Special Concern**	**Threatened**	n/a	Ground-nests in areas of young shrubs surrounded by mature forest. Often found in areas that have recently been disturbed such as field edges, hydro or utility right-of-ways, or logged areas. Requires >10 ha of habitat (OMNR, 2000).	There does not appear to be suitable habitat on the Site. However, the forest ~20 m west of the Site may provide suitable habitat.	Negligible
Grasshopper Sparrow (*Ammodramus savannarum*)	**Special Concern**	**Special Concern**	Cornell Lab of Ornithology (2022)	Lives in open grassland areas with well-drained sandy soil. Will also nest in hayfields and pastures, as well as alvars, prairies, and occasionally grain crops such as barley. It prefers areas that are sparsely vegetated, and its nests are well hidden in the field, woven from grasses in a small cup-like shape.	The sparse open meadow areas on the Site provides marginally suitable habitat.	Moderate
Henslow's Sparrow (*Ammodramus henslowii*)	**Endangered**	**Endangered**	MNRF (2022a); MNRF (2022b)	Prefers poorly drained grasslands with tall, dense grass where it can easily conceal its small ground nest. Tends to avoid fields that have been grazed or are crowded with trees and shrubs. Prefer ≥50 ha areas, but can inhabit ≥5 ha.	There does not appear to be suitable habitat on or adjacent to the Site. Although the meadow has moist soil it is only 1.47 ha in size.	Low
Horned Grebe (*Podiceps auritus*)	**Special Concern**	**Special Concern**	n/a	Nest in small ponds, marshes, and shallow bays that contain areas of open water and emergent vegetation. Migrant only; no reported nests in Ottawa.	There does not appear to be suitable habitat on or adjacent to the Site.	Negligible
Hudsonian Godwit (*Limosa haemastica*)	**Threatened**	**No Status**	n/a	They use a wide variety of habitats during migration, such as freshwater marshes, saline lakes, flooded fields, shallow ponds, coastal	There does not appear to be suitable habitat on or adjacent to the Site.	Negligible

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				wetlands, and mudflats. Migrant only; breeds in far north.		
Least Bittern (*Ixobrychus exilis*)	**Threatened**	**Threatened**	Birds Canada et al. (2009); MNRF (2022a); Cornell Lab of Ornithology (2022)	Found in a variety of wetland habitats, but strongly prefers cattail marshes with a mix of open pools and channels. They prefer larger marshes >5 ha in size and are intolerant of loss of habitat and human disturbance (OMNR, 2000).	There does not appear to be suitable habitat on or adjacent to the Site.	Low
Lesser Yellowlegs (*Tringa flavipes*)	**No Status (Threatened as of Jan 25, 2023)**	**No Status**	Cornell Lab of Ornithology (2022)	Breeds in boreal wetlands. Nests on dry ground or forest openings near peatlands, marshes, and ponds in the boreal forest and taiga. Migrant only; nests in far north (Government of Canada, 2021).	There does not appear to be suitable habitat on or adjacent to the Site.	Low
Loggerhead Shrike (*Lanius ludovicianus*)	**Endangered**	**Endangered**	MNRF (2022a); MNRF (2022b)	Prefers grazed pastures or other grasslands with scattered low trees and shrubs, especially hawthorns. Lives in fields or alvars (areas of exposed bedrock) with short grass, which makes it easier to spot prey.	There does not appear to be suitable habitat on or adjacent to the Site. Although the habitat on Site has the correct characteristics, there are no hawthorns or barbed wire fences.	Low
Louisiana Waterthrush (*Seiurus motacilla*)	**Threatened**	**Threatened**	n/a	Found in large tracts of mature deciduous or mixed forests in steep, forested ravines with running streams. Clear headwater streams and associated wetlands are preferred sites, but it will also inhabit wooded swamps (Environment Canada, 2011).	There does not appear to be suitable habitat on or adjacent to the Site.	Negligible
Olive-sided Flycatcher (*Contopus cooperi*)	**Special Concern**	**Threatened**	Cornell Lab of Ornithology (2022)	Found along coniferous or mixed forest edges and openings. Will use forests that have been logged or burned if there are ample tall snags and trees to use for foraging perches.	There does not appear to be suitable habitat on the Site; however, the forest ~20 m west of the Site may provide suitable habitat.	Low
Peregrine Falcon (*Falco peregrinus*)	**Special Concern**	**Special Concern**	Cornell Lab of Ornithology (2022)	Nests on tall, steep cliff ledges close to large bodies of water. Urban peregrines raise their young on ledges of tall buildings, even in busy downtown areas.	There does not appear to be suitable habitat on or adjacent to the Site.	Low
Red Knot (*Calidris canutus rufa*)	**Endangered**	**Endangered**	Cornell Lab of Ornithology (2022)	Prefer open beaches, mudflats, and coastal lagoons where they feast on molluscs, crustaceans, and other invertebrates. Migrant only; nests in far north.	There does not appear to be suitable habitat on or adjacent to the Site.	Low
Red-headed Woodpecker (*Melanerpes erythrocephalus*)	**Endangered**	**Endangered**	n/a	Lives in open woodland and woodland edges and is often found in parks, golf courses, and cemeteries. These areas typically have many dead trees, which the birds use for nesting and perching.	The Site may provide marginally suitable nesting habitat.	Low
Red-necked Phalarope (*Phalaropus lobatus*)	**Special Concern**	**Special Concern**	n/a	Lives in coastal and inland marshes where it feeds in shallow ponds and nests on the grassy edges. Always near water during migration. Migrant only; nests in far north.	There does not appear to be suitable habitat on or adjacent to the Site.	Negligible

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Rusty Blackbird (*Euphagus carolinus*)	**Special Concern**	**Special Concern**	Cornell Lab of Ornithology (2022)	Prefers wet wooded or shrubby areas. Nests at edges of boreal wetlands and coniferous forests. These areas include bogs, marshes, and beaver ponds.	The small swamp on the north end of the Site may provide marginally suitable migratory stopover habitat. Further, the forest ~20 m west of the Site may contains swamps and provide migratory stopover habitat (as Rusty Blackbirds tend to nest farther north).	Moderate
Short-eared Owl (*Asio flammeus*)	**Special Concern (Threatened as of Jan 25, 2023)**	**Special Concern**	n/a	Lives in open areas such as grasslands, marshes, and tundra where it nests on the ground and hunts for small mammals.	There does not appear to be suitable habitat on the Site; however, the agricultural field southwest of the Site may provide suitable breeding habitat.	Negligible
Wood Thrush (*Hylocichla mustelina*)	**Special Concern**	**Threatened**	Birds Canada et al. (2009); MNRF (2022a); Cornell Lab of Ornithology (2022)	Lives in mature deciduous and mixed forests. They seek moist stands of trees with well-developed undergrowth and tall trees for singing and perching. Prefers nesting in large forest mosaics, but will also use fragmented forests. Usually build nests in Sugar Maple or American Beech.	There does not appear to be suitable habitat on the Site; however, the forest ~20 m west of the Site may provide suitable habitat.	Low
Yellow Rail (*Coturnicops noveboracensis*)	**Special Concern**	**Special Concern**	n/a	Lives deep in the reeds, sedges, and marshes of shallow wetlands, where they nest on the ground. The marshy areas used by Yellow Rails have an overlying dry mat of dead vegetation that is used to make roofs for nests.	There does not appear to be suitable habitat on or adjacent to the Site.	Negligible
Mammals						
Algonquin Wolf (*Canis* sp.)	**Threatened**	**Special Concern**	n/a	Not restricted to a specific habitat type but typically occurs in deciduous and mixed forest landscapes.	This species only occurs in Algonquin Provincial Park and surrounding townships, along with other areas in central Ontario including in and around Killarney Provincial Park, Kawartha Highlands Signature Site, and Queen Elizabeth II Wildlands (MECP, 2019a).	None
Eastern Cougar (*Puma concolor*)	**Endangered**	**No Status**	n/a	Lives in large, undisturbed forests or other natural areas where there is little human activity.	There does not appear to be suitable habitat on or adjacent to the Site.	Negligible
Eastern Small-footed Myotis (*Myotis leibii*)	**Endangered**	**Not Listed**	Humphrey (2017)	In the spring and summer, Eastern Small-footed Myotis will roost in a variety of habitats, including in or under rocks, in rock outcrops, in buildings, under bridges, or in caves, mines, or hollow trees. Overwinters in caves and abandoned mines.	The marsh on the Site would provide suitable foraging habitat, but there does not appear to be suitable roosting habitat on the Site. The forest ~20 m west of the Site would provide suitable roosting habitat.	Moderate
Gray Fox (*Urocyon cinereoargenteus*)	**Threatened**	**Threatened**	n/a	Lives in deciduous forests and marshes. Their dens are usually found in dense shrubs close to a water source, but they will also use rocky areas, hollow trees, and underground burrows dug by other animals.	The range of this species has recently been reduced to west of Lake Superior in the Rainy River District and on Pelee Island in west Lake Eerie (MECP, 2020a).	None
Little Brown Myotis (*Myotis lucifugus*)	**Endangered**	**Endangered**	Humphrey and Fotherby (2019)	During the day they roost in trees and buildings. They often select attics, abandoned buildings, and barns for summer colonies where they can raise their young. They can squeeze through very tiny spaces (as small as six	The marsh and meadow on the Site would provide suitable foraging habitat, but there does not appear to be suitable roosting habitat on the Site. The buildings and house adjacent to the Site and the forest ~20 m west of the	Moderate

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				millimetres across) allowing them access to many different roosting areas.	Site would provide suitable roosting habitat.	
Northern Myotis / Northern Long-eared Bat (*Myotis septentrionalis*)	**Endangered**	**Endangered**	Humphrey and Fotherby (2019)	Associated with deciduous and mixed forests, choosing to roost under loose bark and in the cavities of trees. They forage along and within forests as well as in hayfields and pastures adjacent to mixed forests.	The meadow on the Site may provide marginal foraging habitat, but there does not appear to be suitable roosting habitat on the Site. The forest ~20 m west of the Site would provide suitable roosting and foraging habitat.	Moderate
Tri-colored Bat / Eastern Pipistrelle (*Perimyotis subflavus*)	**Endangered**	**Endangered**	Humphrey and Fotherby (2019)	Roosts mainly in trees during summer; overwinters in caves and mines along with other species, but often uses deeper parts of the hibernaculum. Foraging occurs in forested riparian areas, over water, and within gaps in forest canopies.	The marsh on the Site would provide suitable foraging habitat, but there does not appear to be suitable roosting habitat on the Site. The forest ~20 m west of the Site would provide suitable roosting habitat.	Moderate
Amphibians						
Western Chorus Frog (*Pseudacris triseriata*)	**Not Listed**	Great Lakes/ St. Lawrence population: **Threatened**	Ontario Nature (2019); MNRF (2022a)	Inhabits forest openings around woodland ponds but can also be found in or near damp meadows, marshes, bottomland swamps, and temporary ponds in open country, or even urban areas.	There may be vernal pools in the deciduous swamp on the Site that could provide breeding habitat. Further, there may be vernal pools in forest openings or open areas within 120 m of the Site that could support breeding.	Moderate
Reptiles						
Blanding's Turtle (*Emydoidea blandingii*)	**Threatened**	**Endangered**	Ontario Nature (2019); MNRF (2022a)	Quiet lakes, streams, and wetlands with abundant emergent vegetation. Also frequently occurs in adjacent upland forests.	There does not appear to be suitable habitat on or adjacent to the Site.	Low
Eastern Milksnake (*Lampropeltis triangulum*)	**Not Listed**	**Special Concern**	n/a	Found in variety of open, scrubby or edge habitats, including pastures.	The forest edges and open areas on and adjacent to the Site may provide suitable habitat.	Low
Eastern Musk Turtle / Stinkpot (*Sternotherus odoratus*)	**Special Concern**	**Special Concern**	n/a	Found in ponds, lakes, marshes, and rivers that are generally slow-moving, have abundant emergent vegetation, and muddy bottoms that they burrow into for winter hibernation.	There does not appear to be suitable habitat on or adjacent to the Site.	Negligible
Eastern Ribbonsnake *(Thamnophis sauritus)*	**Special Concern**	**Special Concern**	n/a	The Eastern Ribbonsnake is semi-aquatic. It is most frequently found along the edges of shallow ponds, streams, marshes, swamps, or bogs bordered by dense vegetation that provides cover. Abundant exposure to sunlight is also required, and adjacent upland areas may be used for nesting.	The marsh and swamp on the Site may provide marginally suitable habitat.	Low
Midland Painted Turtle (*Chrysemys picta marginata*)	**Not Listed**	**Special Concern**	Ontario Nature (2019); MNRF (2022a); California Academy of Sciences and National Geographic Society (2022)	Inhabits waterbodies, such as ponds, marshes, lakes and slow-moving creeks that have a soft bottom and provide abundant basking sites and aquatic vegetation. Often bask on shorelines or on logs and rocks that protrude from the water.	The marsh on Site would provide suitable habitat.	Moderate
Northern Map Turtle (*Graptemys geographica*)	**Special Concern**	**Special Concern**	n/a	Lives in rivers and lakeshores where it basks on emergent rocks and fallen trees throughout the spring and summer. In winter, they hibernate on the bottom of	There does not appear to be suitable habitat on or adjacent to the Site.	Negligible

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				deep, slow-moving sections of river.		
Snapping Turtle (*Chelydra serpentina*)	**Special Concern**	**Special Concern**	Ontario Nature (2019); MNRF (2022a); MNRF (2022b)	Spend most of their lives in the water. Prefer shallow waters so they can hide under the soft mud and leaf litter with only their noses exposed to the surface to breathe.	The marsh and swamp on Site would provide suitable habitat.	Moderate
Spiny Softshell (*Apalone spinifera*)	**Endangered**	**Endangered**	n/a	Found primarily in rivers and lakes but also in creeks, ditches, and ponds near rivers. Habitat requirements are open sand or gravel nesting areas, shallow muddy or sandy areas to bury in, deep pools for hibernation, areas for basking, and suitable habitat for crayfish and other food species.	There does not appear to be suitable habitat on or adjacent to the Site.	Negligible
Spotted Turtle (*Clemmys guttata*)	**Endangered**	**Endangered**	n/a	Semi-aquatic and prefers ponds, marshes, bogs, and even ditches with slow-moving, unpolluted water and an abundant supply of aquatic vegetation.	There does not appear to be suitable habitat on or adjacent to the Site.	Negligible
Wood Turtle (*Glyptemys insculpta*)	**Endangered**	**Threatened**	n/a	Prefers clear rivers, streams, or creeks with a slight current and sandy or gravelly bottom. Wooded areas are essential habitat, but they are found in other habitats such as wet meadows, swamps, and fields.	There does not appear to be suitable habitat on or adjacent to the Site.	Negligible
Arthropods						
American Bumble bee (*Bombus pensylvanicus*)	**No Status (Special Concern as of Jan 25, 2023)**	**No Status**	n/a	Habitat generalist. Requires a variety of habitat throughout it's life stages. Often found in or adjacent to open fields and meadows, grasslands, farmlands, and other undisturbed open habitats (Government of Canada, 2019).	The open meadow areas on and adjacent to the Site would provide suitable habitat.	Low
Bogbean Buckmoth (*Hemileuca* sp. 1)	**Endangered**	**Endangered**	n/a	Restricted to open, chalky, low shrub fens containing large amounts of bogbean, an emergent wetland flowering plant.	There does not appear to be suitable habitat on or adjacent to the Site.	Negligible
Gypsy Cuckoo Bumble Bee (*Bombus bohemicus*)	**Endangered**	**Endangered**	n/a	Live in diverse habitats including open meadows, mixed farmlands, urban areas, boreal forest, and montane meadows. Host nests occur in abandoned underground rodent burrows and rotten logs.	Currently only known to occur in Pinery Provincial Park (MECP, 2019b).	None
Macropis Cuckoo Bee *(Epeoloides pilosulus)*	**Not Listed**	**Endangered**	n/a	Found in habitats supporting both Macropis bees and their food plant, Yellow Loosestrife (*Lysimachi*a).	Has not been observed in Ontario in over 45 years (COSEWIC, 2011).	None
Monarch (*Danaus plexippus*)	**Special Concern**	**Special Concern**	California Academy of Sciences and National Geographic Society (2022); Toronto Entomologists' Association (2022);	Milkweeds are the sole food plant for Monarch caterpillars. These plants predominantly grow in open and periodically disturbed habitats such as roadsides, fields, wetlands, prairies, and open forests.	The open meadow areas on and adjacent to the Site would provide suitable habitat. Milkweed was abundant on Site. KAL biologist observed adults and a caterpillar Monarch in the meadow (MEFM1-1) on the Site.	High

Species Name (*Taxonomic Name*)	Status under *Endangered Species Act* (ESA)	Status under Schedule 1 of the *Species at Risk Act* (SARA)	Observation Record Sources (within 10 km of the Site)	Habitat Description	Suitable Habitat on or Adjacent (within 120 m) to the Site	Potential to Interact with Development of the Site (None, Negligible, Low, Moderate, or High)[1]
			South Nation Conservation et al. (2017); KAL (2022)			
Mottled Duskywing (*Erynnis martialis*)	**Endangered**	**No Status**	n/a	Requires host plants such as the New Jersey Tea and Prairie Redroot. These plants grow in dry, well-drained soils or alvar habitat within oak woodland, pine woodland, roadsides, riverbanks, shady hillsides, and tall grass prairies.	There does not appear to be suitable habitat on or adjacent to the Site.	Negligible
Nine-spotted Lady Beetle (*Coccinella novemnotata*)	**Endangered**	**No Status**	n/a	Occurs within agricultural areas, suburban gardens, parks, coniferous forests, deciduous forests, prairie grasslands, meadows, riparian areas, and isolated natural areas.	There have been no records of this species in Ontario since the mid-1990s (MECP, 2019c).	None
Rapids Clubtail *(Gomphus quadricolor)*	**Endangered**	**Endangered**	n/a	Inhabits a wide variety of riverine habitats ranging in size from the St. Lawrence River to small creeks. Larvae are typically found in microhabitats with slow to moderate flow and fine sand or silt substrates where they burrow into the stream bed. Adults disperse from the river after emerging and feed in the forest canopy and other riparian vegetation.	There are no records of this species in Ottawa (MECP, 2019d).	None
Rusty-patched Bumble Bee (*Bombus affinis*)	**Endangered**	**Endangered**	n/a	Can be found in open habitat such as mixed farmland, urban settings, savannah, open woods, and sand dunes.	The range of this species is limited to southwestern Ontario (MECP, 2019e).	None
Suckley's Cuckoo Bumble Bee (*Bombus suckleyi*)	**No Status (Endangered as of Jan 25, 2023)**	**No Status**	n/a	Habitat generalist. Host nests occur in meadows, old fields, farmlands, croplands, urban areas, and woodlands (Government of Canada, 2020).	The open meadow areas on and adjacent to the Site would provide suitable habitat, while the forest adjacent to the Site may provide additional suitable habitat.	Low
Transverse Lady Beetle (*Coccinella transversoguttata*)	**Endangered**	**Special Concern**	n/a	Able to live in a wide range of habitats, including agricultural areas, suburban gardens, parks, coniferous forests, deciduous forests, prairie grasslands, meadows, and riparian areas.	There have been no records of the species in Ontario since 1990 (MECP, 2020b).	None
West Virginia White butterfly (*Pieris virginiensis*)	**Special Concern**	**No Status**	n/a	Lives in moist, deciduous woodlots. Requires a supply of toothwort, a small, spring-blooming plant that is a member of the mustard family, since it is the only food source for larvae.	There does not appear to be suitable habitat on the Site; however, the forest ~20 m west of the Site may provide suitable habitat (the presence of toothwort is unknown).	Negligible
Yellow-banded Bumble Bee (*Bombus terricola*)	**Special Concern**	**Special Concern**	n/a	This species is a forage habitat generalist, able to use a variety of nectaring plants and environmental conditions. Can be found in mixed woodlands, particularly for nesting and overwintering, as well as a variety of open habitat such as native grasslands, farmlands, and urban areas.	The open meadow areas on and adjacent to the Site would provide suitable habitat, while the forest adjacent to the Site may provide additional suitable habitat.	Low
Fish						
American Eel (*Anguilla rostrata*)	**Endangered**	**No Status**	n/a	Primarily nocturnal, hiding in soft substrate or submerged vegetation during the day.	There does not appear to be suitable habitat on or adjacent to the Site.	Negligible

Species Name (*Taxonomic Name*)	Status under *Endangered Species Act* (ESA)	Status under Schedule 1 of the *Species at Risk Act* (SARA)	Observation Record Sources (within 10 km of the Site)	Habitat Description	Suitable Habitat on or Adjacent (within 120 m) to the Site	Potential to Interact with Development of the Site (None, Negligible, Low, Moderate, or High)[1]
Bridle Shiner (*Notropis bifrenatus*)	**Special Concern**	**Special Concern**	n/a	Prefers clear water with abundant vegetation over silty or sandy substrate.	There does not appear to be suitable habitat on or adjacent to the Site.	Negligible
Channel Darter (*Percina copelandi*)	**Special Concern**	**Special Concern**	n/a	Prefers clean streams and lakes with moderate current over sandy or rocky substrate.	There does not appear to be suitable habitat on or adjacent to the Site.	Negligible
Cutlip Minnow (*Exoglossum maxillingua)*	**Threatened**	**Special Concern**	n/a	Lives in warmer rivers and creeks with clear, slow-moving water, and a rocky or gravel bottom.	There does not appear to be suitable habitat on or adjacent to the Site.	Negligible
Lake Sturgeon (*Acipenser fulvescens*)	**Endangered**	**No Status**	n/a	Only found in large lakes and rivers. Forages in cool water, 4-9 m deep over soft substrate; spawns in shallower, fast-flowing areas over rocks or gravel.	There does not appear to be suitable habitat on or adjacent to the Site.	Negligible
Northern Brook Lamprey (*Ichthyomyzon fossor*)	**Special Concern**	**Special Concern**	n/a	Inhabits clear, coolwater streams. The larval stage requires soft substrates such as silt and sand for burrowing which are often found in the slow-moving portions of a stream. Adults are found in areas associated with spawning, including fast flowing riffles comprised of rock or gravel.	There does not appear to be suitable habitat on or adjacent to the Site.	Negligible
Northern Sunfish (*Lepomis peltastes*)	**Special Concern**	**Special Concern**	n/a	Lives in shallow vegetated areas of quiet, slow flowing rivers and streams, as well as warm lakes and ponds with sandy banks or rocky bottoms.	There does not appear to be suitable habitat on or adjacent to the Site.	Negligible
River Redhorse (*Moxostoma carinatum*)	**Special Concern**	**Special Concern**	n/a	Prefers fast-flowing, clear rivers over rocky substrate.	There does not appear to be suitable habitat on or adjacent to the Site.	Negligible
Silver Lamprey (*Ichthyomyzon unicuspis*)	**Special Concern**	**Special Concern**	n/a	Requires clear water where they can find fish hosts, relatively clean stream beds of sand and organic debris for larvae to live in, and unrestricted migration routes for spawning. Larvae live 4-7 years in burrows (prefer soft substrates); filter-feed on plankton.	There does not appear to be suitable habitat on or adjacent to the Site.	Negligible
Molluscs						
Hickorynut (*Obovaria olivaria*)	**Endangered**	**Endangered**	n/a	Live on the sandy beds in large, wide, deep rivers – usually more than two or three metres deep – with a moderate to strong current. Ottawa River.	There does not appear to be suitable habitat on or adjacent to the Site.	Negligible
Vascular Plants						
American Chestnut (*Castanea dentata*)	**Endangered**	**Endangered**	n/a	Typical habitat is upland deciduous forests on sandy acidic soils. Occurs with Red Oak, Black Cherry, Sugar Maple, and beech.	There does not appear to be suitable habitat on or adjacent to the Site.	Negligible
American Ginseng (*Panax quinquefolius*)	**Endangered**	**Endangered**	n/a	Grows in rich, moist, but well-drained, and relatively mature, deciduous woods dominated by Sugar Maple, White Ash, and American Basswood.	There does not appear to be suitable habitat on or adjacent to the Site.	Negligible
Black Ash (*Fraxinus nigra*)	**Endangered**	**No Status**	MNRF (2022a)	Predominantly a wetland species found in swamps, floodplains, and fens.	The swamp on the Site may provide suitable habitat.	Moderate
Butternut (*Juglans cinerea*)	**Endangered**	**Endangered**	MNRF (2022a)	Commonly found in riparian habitats but is also found on rich, moist, well-drained loams and well-drained gravels,	The moist edge habitat along the swamp, marsh, and ditch may provide suitable habitat.	Moderate

Species Name (*Taxonomic Name*)	Status under *Endangered Species Act* (ESA)	Status under Schedule 1 of the *Species at Risk Act* (SARA)	Observation Record Sources (within 10 km of the Site)	Habitat Description	Suitable Habitat on or Adjacent (within 120 m) to the Site	Potential to Interact with Development of the Site (None, Negligible, Low, Moderate, or High)[1]
				especially those of limestone origin.		
Eastern Prairie Fringed-orchid (*Platanthera leucophaea*)	**Endangered**	**Endangered**	n/a	Populations are found in three main habitat types: fens, tallgrass prairie, and moist old fields.	There does not appear to be suitable habitat on or adjacent to the Site.	Negligible
Lichens						
Black-foam Lichen (*Anzia colpodes*)	**No Status**	**Threatened**	n/a	Grows on the trunks of mature deciduous trees growing on level or sloped land where high humidity is supplied by nearby wetlands, lakes, or streams. The most common host is Red Maple but it also occurs on White Ash, Sugar Maple, Red Oak, and very occasionally on other species.	Assumed to no longer occur in Ontario (COSEWIC, 2015).	None
Flooded Jellyskin (*Leptogium rivulare*)	**No Status**	**Special Concern**	n/a	Grows in seasonally flooded habitats, typically on the bark of deciduous trees, on rocks along the margins of seasonal ponds, and on rocks along shorelines and stream/riverbeds.	There does not appear to be suitable habitat on or adjacent to the Site.	Negligible
Pale-bellied Frost Lichen (*Physconia subpallida*)	**Endangered**	**Endangered**	n/a	Typically grows on the bark of hardwood trees such as White Ash, Black Walnut, and American Elm. Can also be found growing on fence posts and boulders.	There are no recent records of the species in the Ottawa area (MECP, 2019f).	None

Appendix D Summary of SWH presence on and within 120 m of the Site and residual impact of development

Significant Wildlife Habitat	Presence on the Site	Potential presence within 120 m of the Site	Residual Impact
Waterfowl Stopover and Staging Areas (Terrestrial)	X	X	-
Waterfowl Stopover and Staging Areas (Aquatic)	X	X	-
Shorebird Migratory Stopover Area	X	X	-
Raptor Wintering Area	X	**P**	None
Bat Hibernacula	X	X	-
Bat Maternity Colonies	X	**P**	None
Turtle Wintering Areas	X	**P**	None, with mitigation
Reptile Hibernacula	**P**	**P**	The rock piles and mammal burrows scattered within the Site may have the ability to provide reptile hibernacula. Many will be removed during the active season (when the hibernacula would not be in use).
Colonially - Nesting Bird Breeding Habitat (Bank and Cliff)	X	X	-
Colonially - Nesting Bird Breeding Habitat (Tree/Shrubs)	X	X	-
Colonially - Nesting Bird Breeding Habitat (Ground)	X	X	-
Migratory Butterfly Stopover Areas	X	X	-
Landbird Migratory Stopover Areas	X	X	-
Deer Yarding Areas	X	**P**	None
Deer Winter Congregation Areas	X	**P**	None
Cliffs and Talus Slopes	X	X	-
Sand Barren	X	X	-
Alvar	X	X	-
Old Growth Forest	X	X	-
Savannah	X	X	-
Tallgrass Prairie	X	X	-
Other Rare Vegetation Communities	X	X	-
Waterfowl Nesting Area	X	X	-
Bald Eagle and Osprey Nesting, Foraging, and Perching Habitat	X	X	-
Woodland Raptor Nesting Habitat	X	X	-
Turtle Nesting Areas	**P**	**P**	Most of the meadow will be developed; however, a section of meadow adjacent to

Significant Wildlife Habitat	Presence on the Site	Potential presence within 120 m of the Site	Residual Impact
			the cattail marsh (which is the most important part of the meadow for turtle nesting) will be retained.
Seeps and Springs	X	X	-
Amphibian Breeding Habitat (Woodland)	X	**P**	None
Amphibian Breeding Habitat (Wetlands)	**P**	**P**	None, with mitigation
Woodland Area-Sensitive Bird Breeding Habitat	X	**P**	None
Marsh Breeding Bird Habitat	X	X	-
Open Country Bird Breeding Habitat	X	X	-
Shrub/Early Successional Bird Breeding Habitat	X	X	-
Terrestrial Crayfish	X	X	-
Special Concern and Rare Wildlife Species	**Y**	**P**	The majority of the meadow containing Common Milkweed (i.e., Monarch breeding habitat) will be developed. It is suggested that the Client plant Common Milkweed during landscaping.
Amphibian Movement Corridors	X	**P**	None
Deer Movement Corridors	X	**P**	None

X = Suitable SAR habitat is not present.
P = Suitable habitat is potentially present.
Y = Suitable SAR habitat is present (confirmed).

Appendix E Tree Conservation Report

HUME 1416
Tree Conservation Report
6165 Thunder Road

DRAFT

September 22, 2022

Submitted to: Peter Hume

KILGOUR & ASSOCIATES LTD.
www.kilgourassociates.com

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1.0 INTRODUCTION

This Tree Conservation Report (TCR) was prepared by Kilgour & Associates Ltd. (KAL) on behalf of Peter Hume in support of the proposed development at 6165 Thunder Road. The client requires the removal of trees from the proposed work area to allow for the development of a commercial building and associates infrastructure (i.e., parking area and landscaping)

A TCR is required for all Plans of Subdivision, Site Plan Control Applications, Common Elements Condominium Applications, and Vacant Land Condominium Applications where there is a tree of 10 cm in diameter at breast height (DBH) or greater on a site and/or if there is a tree on an adjacent site that has a critical root zone (CRZ) extending into the proposed work area. A "tree" is defined as any species of woody perennial plant, including its root system, which has reached or can reach a minimum height of at least 450 cm at physiological maturity. The CRZ is calculated as DBH x 10 cm.

The removal of trees on the Site cannot occur until written approval of the TCR has been granted through a tree permit as per the City of Ottawa's Tree Protection By-law. The approval of the TCR will come in the form of a letter (the tree permit) from the General Manager[1] with conditions specific to the Site, tree retention, and associated tree protection and tree removal. The approved TCR is a requirement for the approval of the development applications listed above. A copy of the report must be available on the Site during tree removal, grading, construction, or any other site alteration activities, and for the duration of construction on the Site.

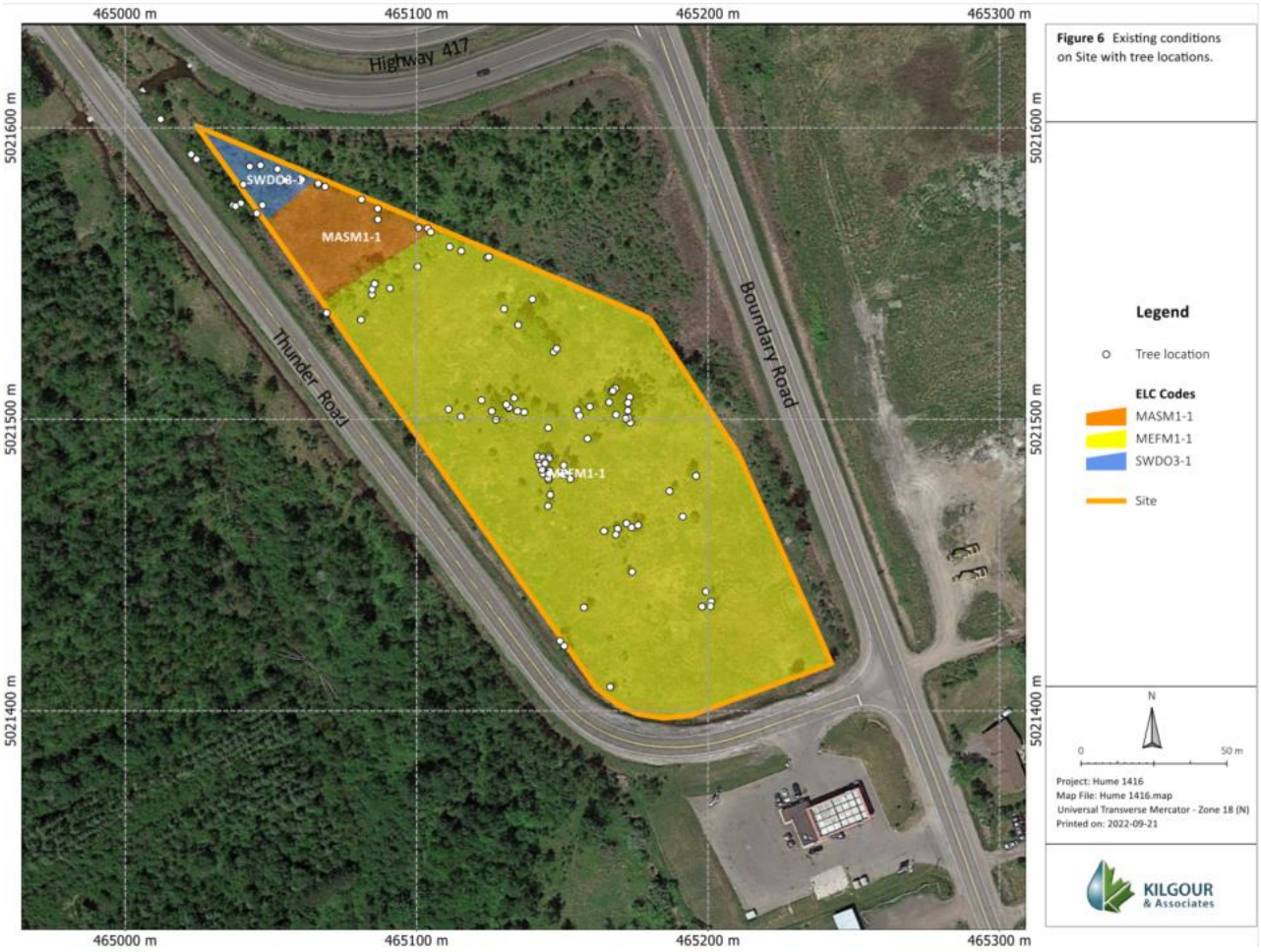
2.0 PROPERTY INFORMATION

The Site is approximately 1.65 hectares (ha) in size and is located at 6165 Thunder Road, Ottawa, Ontario (Lat: 45.346029°N and Long: -75.444758°W; Figure 1). The zoning of the property is Rural Commercial (RC). The Site is dominated by open meadow with trees and shrubs interspersed. Unevaluated wetlands (marsh and swamp; 0.17 ha combined) are located along the northwestern portion of the Site.

The Site is bordered by:

- Unevaluated wetlands, a watercourse, Highway 417, and forest to the north;
- Boundary Road and a large warehouse facility to the east;
- Thunder Road, a gas station, forest, unevaluated wetlands, and agricultural fields to the south; and
- Residential property, forest (including a conifer plantation), watercourse, and unevaluated wetlands to the west.

[1] General Manager of the Public Works & Environmental Services Department or the General Manager of the Planning, Infrastructure and Economic Development Department of the City of Ottawa, or their designate.


465000 m
465100 m
465200 m
465300 m
5021600 m
5021500 m
5021400 m
Highway 417
Thunder Road
Boundary Road
SWDO3-1
MASM1-1
MEFM1-1
Figure 6 Existing conditions on Site with tree locations.
Legend
Tree location
ELC Codes
MASM1-1
MEFM1-1
SWDO3-1
Site
N
0
50 m
Project: Hume 1416
Map File: Hume 1416.map
Universal Transverse Mercator - Zone 18 (N)
Printed on: 2022-09-21
KILGOUR
& Associates

2.1 Property Owner/Applicant and Arborist Contact Information

Table 1 Contact information for the property owner/applicant and arborist

Organization	Role	Contact Person	Phone Number	Email Address
Peter Hume 2405p St. Laurent Blvd. Ottawa, ON K1G 5B4	Proponent	Peter Hume	613-899-3464	Peter.hume@hpurban.ca
Kilgour & Associates Ltd. 2285-C St. Laurent Blvd., Unit 16, Ottawa, ON, K1G 4Z6	Arborist	Robert Hallett, Dipl.T	(613) 260 5555	rhallett@kilgourassociates.com
Kilgour & Associates Ltd. 2285-C St. Laurent Blvd., Unit 16, Ottawa, ON, K1G 4Z6	Arborist	Anthony Francis, PhD	(613) 277-4027 (613) 260-5555	afrancis@kilgourassociates.com

2.1.1 Qualifications of Arborist

Robert Hallett (Dipl.T) is a biologist with a broad background in monitoring terrestrial environments. Rob has worked on a wide range of projects relating to species at risk (SAR), Invasive species, terrestrial and aquatic habitat assessments, environmental effects monitoring. He has extensive experience completing collection and assessments in support of tree conservation reports. As a biologist at KAL, Rob regularly participates in the production of TCRs, Environmental Impact Statements, and Integrated Environmental Reviews for land development projects throughout the region. Rob is a certified Butternut Health Assessor (BHA #546).

Anthony Francis (Ph.D.) is a Senior Ecologist with 20 years of consulting experience to both government agencies and private industry. He has worked on a diversity of projects relating to species at risk (SAR), invasive species, terrestrial and aquatic habitat, environmental effects monitoring and mitigation, and fate/effects of contaminants. Within each of these subject areas, Dr. Francis has completed projects addressing specific site concerns and broader policy initiatives. Dr. Francis' academic background is in spatial ecology with a focus on tree species diversity. As a Senior Ecologist at KAL, he regularly completes TCRs, Environmental Impact Statements, and Integrated Environmental Reviews for land development projects throughout Ottawa and eastern Ontario. He is also a certified Butternut Health Assessor (BHA #104).

2.2 Additional Applications

Not applicable.

3.0 EXISTING CONDITIONS

3.1 Tree Inventory

An inventory of trees on the Site was performed on August 31, 2022, following guidelines set forth by the City of Ottawa (2020). All trees with a DBH ≥ 10 cm having a potential to be removed under the proposed

development were identified, enumerated, mapped, their DBH measured, and their general health and condition documented (Appendix A, Figure 1)

3.2 Ecological Significance of Trees on Site

No federally or provincially significant tree species (i.e., those listed under the *Species at Risk Act* (SARA), the *Endangered Species Act* (ESA), or those tracked on the Natural Heritage Information Centre (MNRF, 2021) are present on or adjacent to the Site. None of the trees occurring near the Site are considered regionally rare or uncommon species by Brunton (2005).

3.3 Other Natural Environment Elements

The Site does not contain significant wetlands, significant coastal wetlands, significant woodlands, significant valleylands, Areas of Natural and Scientific Interest, fish habitat, greenspace linkages, or potentially significant wildlife corridors.

3.3.1 Surface Water Features

There are no surface water features located within the project area.

3.3.2 Steep Slopes

No steep slopes occur on or near the Site.

3.3.3 Valued Woodlots

The Site does not contain any woodlots designated as Urban Natural Features or Natural Environment Areas, areas evaluated in the *City of Ottawa Urban Natural Areas Environmental Evaluation Study* (UNAEES; Muncaster Environmental Planning Inc. and Brunton Consulting Services, 2005), or other areas that meet the criteria used in the UNAEES

3.3.4 Significant Woodlands

The Site does not contain any significant woodlands per *Significant Woodlands: Guidelines for Identification, Evaluation, and Impact Assessment* (City of Ottawa, 2018).

3.3.5 Greenspace Linkages

The Site does not contain any greenspace linkages are identified in the Greenspace Master Plan (City of Ottawa, 2016) or as may occur in the larger landscape.

3.3.6 Distinctive Trees

The trees detailed in Table 2 are all larger than 30 cm DBH and are thus considered as “Distinctive Trees”. Tree numbers 38, 49, 54 are slated for removal.

Table 2 List of distinctive trees occuring on the Site

Tree ID	Species Name	DBH	Latitude	Longitude	Fate
54	White Willow (Salix alba)	41	45.34656	75.4457	Removed
49	Trembling Aspen (Populus tremuloides)	33	45.34643	75.4451	Removed
38	White Poplar (Populus alba)	36	45.3462	75.4446	Removed

3.3.7 Hazardous Trees

A formal risk assessment for hazardous trees (e.g., Tree Risk Assessment) was not completed for the Site, though all trees observed appeared to be in generally good health or are beginning to show signs of decline.

3.3.8 Unique Ecological Features

The Site does not contain any riparian woodlots, rare communities, or other unique ecological features not already addressed in this document.

4.0 PROPOSED DEVELOPMENT

The proposed development would comprise an 11 m tall, 3,623 m^2 commercial building and associated infrastructure (e.g., parking area and landscaping) (Figure 6). Construction of this building will entail alterations to the southeast portion of the Site, which will necessitate the removal of 69 trees in this area (Appendix A). All other trees on the Site will be retained.

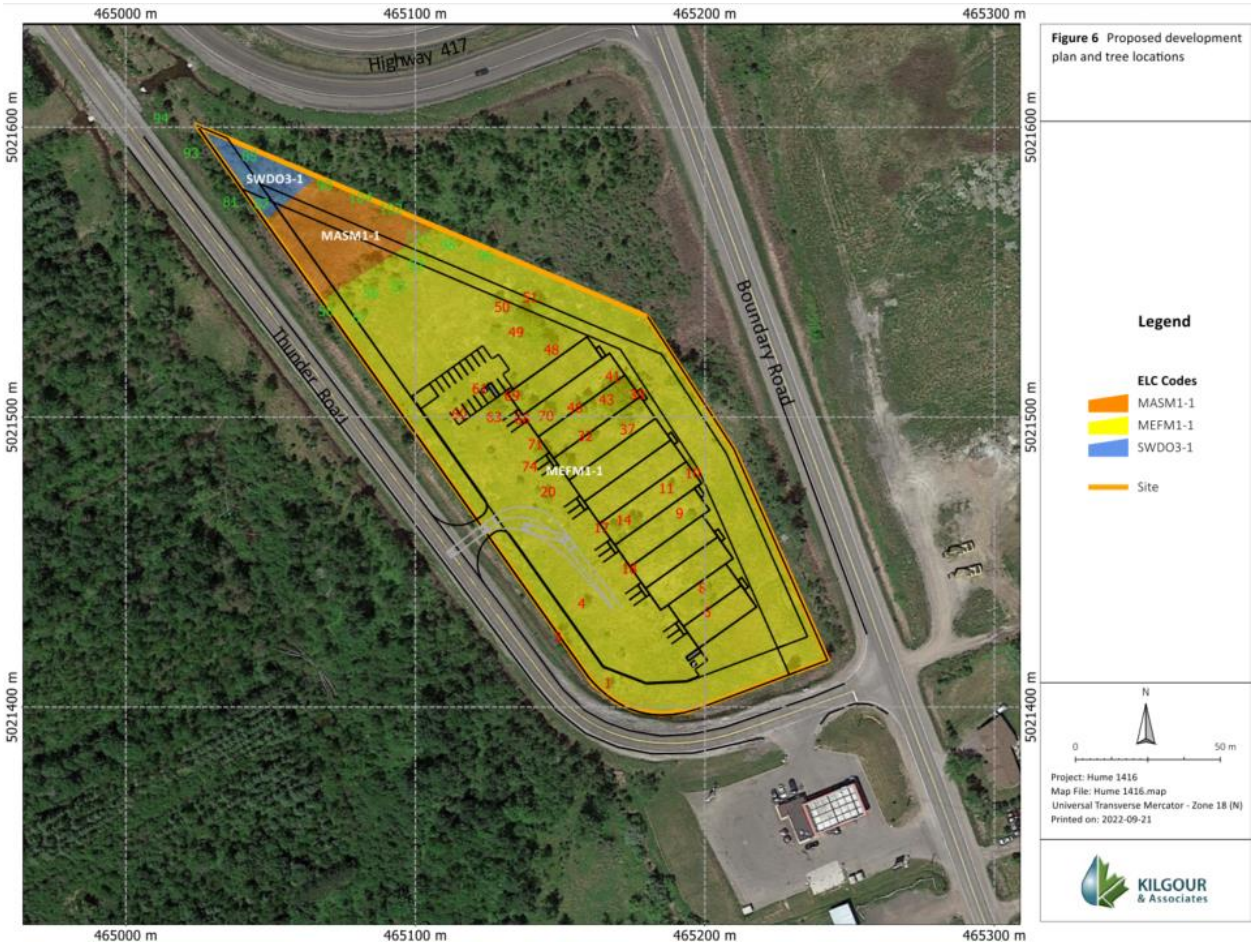


Figure 2 Proposed development and tree locations

5.0 MITIGATION MEASURES

5.1 Site Preparation and Construction

The following mitigation measures should be applied during Site preparation and construction:

- Trees adjacent to the Site will not be removed or damaged.
- To minimize impacts to trees to be retained on the Site:
    - Erect a fence beyond the retained trees along the proposed edge of paving. While this fence will fall within the nominal CRZ of the retained trees, the fence in this location will protect roots occurring within the extent that they have grown to date. The fence should be highly visible (orange construction fence) and paired with erosion and sediment control fencing.
    - Pruning of branches is recommended in areas of potential conflict with construction equipment but must be completed by a certified arborist.
    - Do not place any material or equipment within the areas protected by the construction fencing.
    - Do not attach any signs, notices, or posters to any trees.
    - Do not raise or lower the existing grade within areas protected by the construction fencing without approval.
    - Tunnel or bore when digging within the CRZ of a tree.
    - Do not damage the root system, trunk, or branches of any remaining trees.
    - Ensure that exhaust fumes from all equipment are not directed towards any tree's canopy.

5.2 Tree Planting Recommendations

Compensatory tree planting is recommended to be at a minimum 1:1 replacement ratio. Replacement tree planting should be on the same property in the vicinity of the work area.

Trees to be removed include six Red Maples (*Acer rubrum*), two Blue Spruce (*Picea pungens*) and a Sugar Maple (*Acer saccharum*). The landscape plan for the area should include replacement trees of the same species and numbers except that White Spruce (*Picea glauca*), a species indigenous to the region, should be used instead of Blue Spruce. Further trees may be included in the landscape plan but must consist of species indigenous to the Ottawa area.

6.0 CLOSURE

This report was prepared for exclusive use by Peter Hume. The report may only be distributed by those entities. Questions relating to the data and interpretation can be addressed to the undersigned.

Respectfully submitted,

KILGOUR & ASSOCIATES LTD.

Nick Moore, BSc
Biologist
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613-260-5555

CC: Peter Hume

Attachments: Appendix A – Tree Data

7.0 LITERATURE CITED

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Appendix A - Tree Data

Tree ID	Species Name	Location	Number of stems	DBH	Trunk Health	Canopy Health	Fate
Tree data 1	Trembling Aspen (Populus tremuloides)	45.345318°, -75.444644°	1	17	Good: tree displays less than 15% deficiency/defect	Fair: tree displays 15-40% deficiency/defect	Removed
Tree data 2	White Birch (Betula papyrifera)	45.345444°, -75.444846°	1	20	Good: tree displays less than 15% deficiency/defect	Fair: tree displays 15-40% deficiency/defect	Removed
Tree data 3	White Willow (Salix alba)	45.345460°, -75.444865°	1	26	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 4	Trembling Aspen (Populus tremuloides)	45.345564°, -75.444761°	2	19	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 5	Trembling Aspen (Populus tremuloides)	45.345568°, -75.444244°	2	10	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 6	Trembling Aspen (Populus tremuloides)	45.345569°, -75.444207°	1	12	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 7	European Mountain Ash (Sorbus aucuparia)	45.345583°, -75.444204°	1	12	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 8	Eastern Cottonwood (Populus deltoides)	45.345615°, -75.444227°	1	13	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 9	White Willow (Salix alba)	45.345846°, -75.444330°	3	12	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 10	Trembling Aspen (Populus tremuloides)	45.345971°, -75.444273°	1	26	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 11	Trembling Aspen (Populus tremuloides)	45.345924°, -75.444389°	1	20	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	
Tree data 12	Trembling Aspen (Populus tremuloides)	45.345819°, -75.444526°	1	20	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 13	European Mountain Ash (Sorbus aucuparia)	45.345811°, -75.444554°	1	26	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 14	Eastern Cottonwood (Populus deltoides)	45.345824°, -75.444576°	1	16	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 15	Eastern Cottonwood (Populus deltoides)	45.345789°, -75.444624°	2	13	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 16	White Willow (Salix alba)	45.345807°, -75.444615°	3	11	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 17	Eastern Cottonwood (Populus deltoides)	45.345800°, -75.444675°	1	13	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 18	Trembling Aspen (Populus tremuloides)	45.345674°, -75.444551°	2	10	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 19	Sandbar Willow (Salix exigua)	45.345876°, -75.444921°	1	14	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 20	Trembling Aspen (Populus tremuloides)	45.345911°, -75.444911°	1	13	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 21	Sandbar Willow (Salix exigua)	45.345976°, -75.444917°	3	11	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 22	Trembling Aspen (Populus tremuloides)	45.345985°, -75.444914°	3	22	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 23	Trembling Aspen (Populus tremuloides)	45.345974°, -75.444860°	1	11	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 24	Trembling Aspen (Populus tremuloides)	45.345960°, -75.444823°	1	23	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 25	Trembling Aspen (Populus tremuloides)	45.345979°, -75.444844°	1	23	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 26	Trembling Aspen (Populus tremuloides)	45.346002°, -75.444853°	1	19	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 27	Trembling Aspen (Populus tremuloides)	45.346007°, -75.444935°	1	12	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 28	Trembling Aspen (Populus tremuloides)	45.346013°, -75.444935°	1	14	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 29	Trembling Aspen (Populus tremuloides)	45.346023°, -75.444918°	1	14	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 30	Trembling Aspen (Populus tremuloides)	45.346029°, -75.444919°	1	23	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 31	Trembling Aspen (Populus tremuloides)	45.346026°, -75.444945°	1	19	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 32	Trembling Aspen (Populus tremuloides)	45.346085°, -75.444749°	1	20	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 33	White Poplar (Populus alba)	45.346159°, -75.444625°	1	13	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 34	White Poplar (Populus alba)	45.346148°, -75.444582°	1	12	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 35	White Poplar (Populus alba)	45.346172°, -75.444573°	1	14	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 36	White Poplar (Populus alba)	45.346150°, -75.444571°	2	10	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 37	White Poplar (Populus alba)	45.346135°, -75.444562°	1	14	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 38	White Poplar (Populus alba)	45.346196°, -75.444573°	1	36	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 39	Eastern Cottonwood (Populus deltoides)	45.346214°, -75.444565°	1	13	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 40	White Birch (Betula papyrifera)	45.346233°, -75.444639°	1	15	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 41	White Poplar (Populus alba)	45.346241°, -75.444628°	1	10	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 42	White Poplar (Populus alba)	45.346230°, -75.444646°	1	10	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 43	White Poplar (Populus alba)	45.346197°, -75.444655°	2	15	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 44	Siberian Elm (Ulmus pumila)	45.346184°, -75.444740°	2	18	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 45	White Willow (Salix alba)	45.346156°, -75.444784°	5	21	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 46	Trembling Aspen (Populus tremuloides)	45.346172°, -75.444794°	1	13	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 47	Trembling Aspen (Populus tremuloides)	45.346362°, -75.444886°	1	11	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 48	Black Locust (Robinia pseudoacacia)	45.346352°, -75.444899°	5	25	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 49	Trembling Aspen (Populus tremuloides)	45.346435°, -75.445056°	3	33	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 50	Eastern Cottonwood (Populus deltoides)	45.346484°, -75.445118°	1	22	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 51	White Willow (Salix alba)	45.346514°, -75.444994°	1	22	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 52	Manitoba Maple (Acer negundo)	45.346613°, -75.445497°	3	11	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Retained
Tree data 53	Manitoba Maple (Acer negundo)	45.346546°, -75.445618°	3	12	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Retained
Tree data 54	White Willow (Salix alba)	45.346559°, -75.445685°	2	41	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Retained
Tree data 55	White Ash (Fraxinus americana)	45.346542°, -75.445697°	1	15	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Retained
Tree data 56	Trembling Aspen (Populus tremuloides)	45.346526°, -75.445697°	1	17	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Retained
Tree data 57	Trembling Aspen (Populus tremuloides)	45.346448°, -75.445744°	1	15	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Retained
Tree data 58	White Willow (Salix alba)	45.346469°, -75.445895°	2	28	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Retained
Tree data 59	Eastern Cottonwood (Populus deltoides)	45.346173°, -75.445359°	1	14	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 60	Eastern Cottonwood (Populus deltoides)	45.346150°, -75.445304°	1	17	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 61	Trembling Aspen (Populus tremuloides)	45.346202°, -75.445214°	1	20	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 62	Trembling Aspen (Populus tremuloides)	45.346168°, -75.445169°	1	18	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 63	Trembling Aspen (Populus tremuloides)	45.346142°, -75.445151°	2	22	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 64	Eastern Cottonwood (Populus deltoides)	45.346189°, -75.445106°	1	10	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 65	Eastern Cottonwood (Populus deltoides)	45.346179°, -75.445093°	1	11	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 66	Eastern Cottonwood (Populus deltoides)	45.346178°, -75.445093°	1	12	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 67	Sandbar Willow (Salix exigua)	45.346168°, -75.445057°	6	17	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 68	Eastern Cottonwood (Populus deltoides)	45.346165°, -75.445027°	1	24	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 69	Eastern Cottonwood (Populus deltoides)	45.346209°, -75.445072°	1	14	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 70	White Willow (Salix alba)	45.346117°, -75.444922°	3	25	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 71	Eastern Cottonwood (Populus deltoides)	45.346029°, -75.444968°	1	19	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 72	Eastern Cottonwood (Populus deltoides)	45.346020°, -75.444959°	1	23	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 73	Eastern Cottonwood (Populus deltoides)	45.346005°, -75.444958°	1	15	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 74	Eastern Cottonwood (Populus deltoides)	45.345989°, -75.444948°	1	14	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 75	Trembling Aspen (Populus tremuloides)	45.345976°, -75.444944°	1	12	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 76	Trembling Aspen (Populus tremuloides)	45.345962°, -75.444921°	3	22	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 77	White Willow (Salix alba)	45.345957°, -75.444919°	3	20	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Removed
Tree data 78	White Birch (Betula papyrifera)	45.346775°, -75.446203°	3	15	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Retained
Tree data 79	Trembling Aspen (Populus tremuloides)	45.346796°, -75.446296°	1	12	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Retained
Tree data 80	Trembling Aspen (Populus tremuloides)	45.346799°, -75.446308°	1	14	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Retained
Tree data 81	Trembling Aspen (Populus tremuloides)	45.346806°, -75.446273°	2	13	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Retained
Tree data 82	Trembling Aspen (Populus tremuloides)	45.346800°, -75.446179°	1	23	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Retained
Tree data 83	White Birch (Betula papyrifera)	45.346864°, -75.446263°	2	22	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Retained
Tree data 84	White Birch (Betula papyrifera)	45.346923°, -75.446188°	1	18	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Retained
Tree data 85	White Pine (Pinus strobus)	45.346919°, -75.446235°	1	13	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Retained
Tree data 86	White Birch (Betula papyrifera)	45.346912°, -75.446114°	1	13	Good: tree displays less than 15% deficiency/defect	Fair: tree displays 15-40% deficiency/defect	Retained
Tree data 87	White Birch (Betula papyrifera)	45.346880°, -75.446005°	1	12	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Retained
Tree data 88	White Birch (Betula papyrifera)	45.346868°, -75.445935°	2	14	Good: tree displays less than 15% deficiency/defect	Fair: tree displays 15-40% deficiency/defect	Retained
Tree data 89	White Birch (Betula papyrifera)	45.346864°, -75.445936°	3	16	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Retained
Tree data 90	White Birch (Betula papyrifera)	45.346858°, -75.445905°	1	17	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Retained
Tree data 91	Sandbar Willow (Salix exigua)	45.346877°, -75.446079°	1	10	Fair: tree displays 15-40% deficiency/defect	Poor: tree displays greater than 40% deficiency/defect	Retained
Tree data 92	White Birch (Betula papyrifera)	45.346941°, -75.446469°	2	16	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Retained
Tree data 93	White Birch (Betula papyrifera)	45.346956°, -75.446493°	1	13	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Retained
Tree data 94	White Birch (Betula papyrifera)	45.347064°, -75.446627°	1	22	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Retained
Tree data 95	Trembling Aspen (Populus tremuloides)	45.346644°, -75.445186°	1	16	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Retained
Tree data 96	White Birch (Betula papyrifera)	45.346642°, -75.445193°	2	16	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Retained
Tree data 97	White Birch (Betula papyrifera)	45.346662°, -75.445307°	4	15	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Retained
Tree data 98	Sandbar Willow (Salix exigua)	45.346675°, -75.445358°	3	19	Good: tree displays less than 15% deficiency/defect	Fair: tree displays 15-40% deficiency/defect	Retained
Tree data 99	White Birch (Betula papyrifera)	45.346720°, -75.445441°	1	11	Good: tree displays less than 15% deficiency/defect	Poor: tree displays greater than 40% deficiency/defect	Retained
Tree data 100	White Birch (Betula papyrifera)	45.346731°, -75.445455°	1	15	Good: tree displays less than 15% deficiency/defect	Fair: tree displays 15-40% deficiency/defect	Retained
Tree data 101	White Birch (Betula papyrifera)	45.346732°, -75.445495°	1	15	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Retained
Tree data 102	White Willow (Salix alba)	45.346758°, -75.445672°	1	17	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Retained
Tree data 103	White Birch (Betula papyrifera)	45.346791°, -75.445674°	3	17	Fair: tree displays 15-40% deficiency/defect	Poor: tree displays greater than 40% deficiency/defect	Retained
Tree data 104	White Birch (Betula papyrifera)	45.346819°, -75.445745°	2	15	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	Retained

Kilgour & Associates Ltd.
Environmental Consultants

August 6, 2024 **Our File: HUME1416.2**

Mr. Phil Klugman
Brofort Developments Inc.
2161 Thurston Drive,
Ottawa, Ontario
K1G 6C9

Via E-mail: pklugman@brofort.com

Dear Mr. Klugman

Subject: Review of the EIS for residential development at 37 Wildpine Court considering an updated site plan

1.0 INTRODUCTION

The purpose of this memo is to provide a minor review and update to the Environmental Impact Study (the "EIS") for the proposed development at 6165 Thunder Road, Ottawa, Ontario, (the "Site) produced by Kilgour & Associates Ltd ("KAL") and dated October 14, 2022. That EIS (appended to this memo) was written to support the construction of a commercial building and associated infrastructure (e.g., parking area and landscaping) on the Site. This memo updates the presence/absence assessment for the Site for two species at risk (SAR) trees known to occur in the broader vicinity (Black Ash and Butternut) and considers recent legislative changes affecting Black Ash specifically.

2.0 BLACK ASH REGULATIONS

Black Ash is a predominantly wetland tree species that occurs in swamps, floodplains, and fens. The species was initially listed as Endangered under the ESA on January 26, 2022. At that time, however, the Minister of MECP ordered by regulation O.Reg. 23/22 that ESA protections for Black Ash be temporarily suspended for a two-year period following its listing. As such, Black Ash and its potential for presence were contemplated within the EIS but no specific protections were listed or otherwise indicated as required at the time. No Black Ash were found on the Site regardless, despite identifying all trees present on or adjacent to it.

The delay in implementing Black Ash regulations was intended to allow activities that impact Black Ash and its habitat to proceed while the MECP established a specific recovery strategy and associated policies. In January of 2024, Black Ash was officially included for protection under the ESA. ESA clause 9 (1) (a), prohibits the killing, harm, harassment, possession, transportation, trade and/or removal of a living, healthy Black Ash tree. The MECP formally released policy guidelines specifying how those protections were to be applied in June 2024. Where Black Ash may be impacted by a proposed development, a Black Ash Assessment (BAA) must first be completed following the provincial Black Ash Assessment Guidelines: Assessment of Black Ash (*Fraxinus nigra*)

for compliance with the *Endangered Species Act, 2007.* A BAA inventories and assesses the health of every Black Ash stem over 8 cm at 1.37 m and records the number of Black Ash with a stem less than 1.37 m in height or a DBH less than 8 cm. Black Ash in poor health and/or under 8 cm DBH are exempted from protection under the ESA.

3.0 SITE SAR TREE SURVEY

In accordance with the requirements of a BAA, the Site was searched by KAL Senior Biologist Anthony Francis on August 2, 2024. The species of all trees present on and adjacent to the site were identified. That survey also supported the requirement per Section 7.3.6 of the EIS that "If for any reason construction is delayed two or more years (summer 2024 or later), another survey for Butternut must be completed." As consistent with the findings of the EIS, no Black Ash and no Butternuts were found to be present on or adhering to the Site.

4.0 CONCLUSION

This memo confirms the absence of Black Ash and Butternut from the Site. With the confirmed absence of both trees, there are no developmental constraints applied to the Site from legislative protections for the species Questions on the EIS and/or this memo can be addressed to the undersigned.

Respectfully submitted,

KILGOUR & ASSOCIATES LTD.

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