APPENDIX B

Natural Environment Report

REPORT

Upper Wellington Street (Stone Church Road to Limeridge Road), Natural Environment Assessment

Submitted to:

City of Hamilton

71 Main St W, Hamilton, ON L89 4Y5

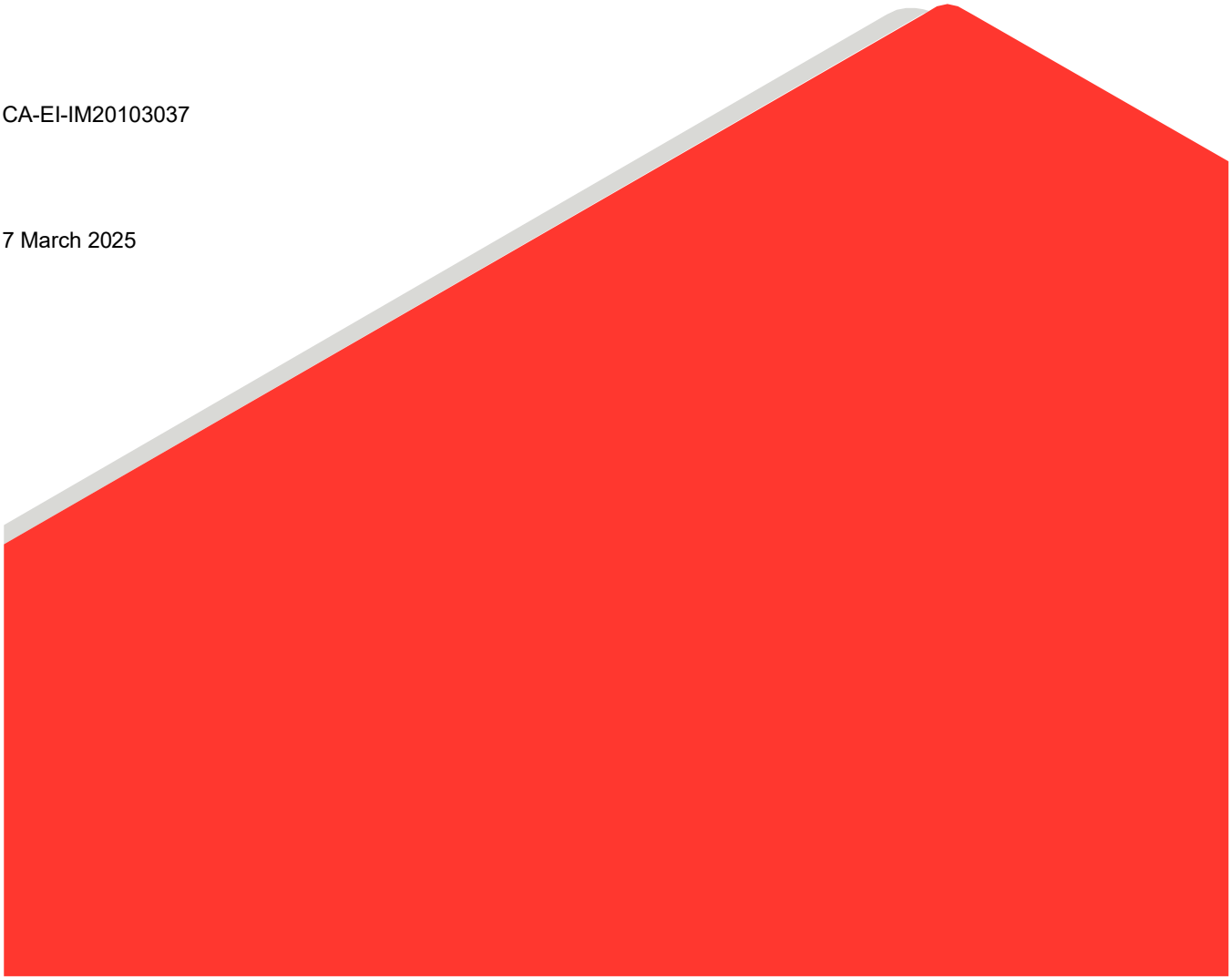
Submitted by:

WSP Canada Inc.

610 Chartwell Rd suite 300 Oakville, ON L6J 4A5

CA-EI-IM20103037

7 March 2025



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1.0 INTRODUCTION

WSP Canada Inc. (WSP) has been retained by the City of Hamilton (the City) to complete a Schedule 'C' Municipal Class Environmental Assessment (Class EA / the Study) for Upper Wellington Street, between 50 m south of Stone Church Road East and Limeridge Road East (the Project Location). The Study addressed requirements for transportation and stormwater/drainage improvements along the Subject Corridor. The Study was built on the recommendations of the South Mountain Area Transportation Master Plan (2000; reviewed in 2006) and the City's Transportation Master Plan (2007; reviewed and updated in 2018), which identified the need to widen this corridor.

This report is broadly aligned with the City of Hamilton's Environmental Impact Statement Guidelines (City of Hamilton, 2015) and is a component of the Study.

This report covers:

- An inventory and description of the existing natural heritage features (NHFs) adjacent to the Project Location and their ecological functions within the context of the surrounding landscape.
- Identification of environmental regulations applicable to the Project.
- An assessment of the potential impacts of the proposed Project on the existing NHFs and their functions, and
- Recommendations on mitigation measures and design strategies to preserve or enhance existing NHFs and their functions related to the Project.

1.1 Study Area

The Project Location is defined as approximately 50 m on either side of the Upper Wellington Street paved surface. The section of Upper Wellington Street encompassed for this Project is between 50 m south of Stone Church Road East and 50 m north of Limeridge Road East. The Study Area for this Report is a 120 m buffer around the Project Location. The Project Location and Study Area are shown in Figure 1-1.

1.2 Background

The current configuration of Upper Wellington Street Segments 1 and 2 within the Project Location is:

- **Segment 1:** Upper Wellington Street between Stone Church Road and Towercrest Drive / Sirente Drive has a rural cross-section with one lane of traffic in each direction, a sidewalk on the west side, which transitions to an asphalt path north of Desoto Drive, and a left-hand turning lane at the intersection of Stone Church Road East. There are no bike lanes in this section. There are frequent driveways with access to and from Upper Wellington Street. This segment is also characterized by many mature street trees and private properties adjacent to the road right of way.
- **Segment 2:** Upper Wellington Street between Towercrest Drive / Sirente Drive and Limeridge Road has an urban cross-section with two lanes of traffic in each direction, sidewalks on both sides of the road, and left-hand turning lanes at intersections. There are no bike lanes in this section.
- Land use along Upper Wellington Street within the Study Area is primarily residential, with some institutional land use (e.g., retirement home, places of worship) and commercial land use.

- The South Mountain Area Transportation Master Plan (2000; reviewed in 2006) identified the need for widening of this corridor.
- City's Transportation Master Plan Review and Update (2018) recommended road widening and two-way left-turn lane for this corridor (City of Hamilton, 2018a).
- The City's Cycling Master Plan Review and Update (2018) recommended installing bike lanes within the Study Area during road reconstruction (City of Hamilton, 2018b). Hamilton Pedestrian Mobility Plan (2012) identifies the Study Area as a "Suburban Context Area", with recommended sidewalk clear-zone widths of at least 1.5 metres (City of Hamilton, 2012).
- City's Council Approved Proposed Accelerated Active Transportation Implementation Plan (2024–2028) (November 2023) recommended separated cycle facilities for this corridor (City of Hamilton, 2023).

As part of the Municipal Class Environmental Assessment, the transportation assessment identified that there are capacity deficiencies along Upper Wellington Street for the existing conditions (2020) and future conditions (2031). Building on the recommendations from the City's transportation planning policies, the City proposes capacity and active transportation improvements on Upper Wellington Street in the Project Location. The improvements will require changes to drainage and stormwater management. The bridge overpass structure over the Lincoln Alexander Parkway is not anticipated to be modified for Project works.

1.2.1 Preferred Design - Option 2 (Off-Street Bike Lanes)

As required by the Municipal Class EA process, alternative solutions were identified and evaluated to address existing and future capacity deficiencies along Upper Wellington Street. A total of two (2) road design options were identified and evaluated for their impacts and benefits on transportation, as well as social, natural, cultural, technical and economic environments. These options included On-Street Bike Lanes and Off-Street Bike Lanes. Option 2 (Off-Street Bike Lanes) was identified as a preferred option as it offers additional benefits over Option 1. Design features are discussed below and illustrated in Appendix A.

Segment 1: Upper Wellington Street between Stone Church Road and Towercrest Drive / Sirente Drive

- Widening from two traffic lanes to three traffic lanes (3.3 m wide through lanes and 3.0 m wide centre-turn lane)
- 3 m wide boulevards with 0.5 m wide curbs on both sides
- 1.5 m wide off-street bike lanes on both sides with 0.6 m buffer strips
- 1.8 m wide sidewalks on both sides

Segment 2: Upper Wellington Street between Towercrest Drive / Sirente Drive and Limeridge Road

- Reducing from four through lanes to two 3.3 m wide through lanes, separated by a 3.0 m wide median
- Turn lanes at the intersections
- 1.8 m wide off-street bike lanes on both sides
- 1.8 m wide sidewalks with 0.6 m buffers on both sides

590600 590800 591000 591200 591400 591600 591800

4786000 4785800 4785600 4785400 4785200 4785000 4784800 4784600 4784400 4784200

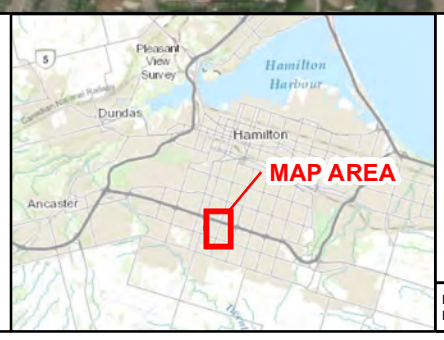
RIDGE STREET
MANNING AVENUE
JUNE STREET
GOLDFINCH ROAD
HUMMINGBIRD LANE
SKYLARK DRIVE
LINCOLN M ALEXANDER PARKWAY
LIMERIDGE ROAD EAST
LORENZO DRIVE
JEREMY STREET
BENJAMIN DRIVE
UPPER WELLINGTON STREET
MERRILEE CRESCENT
CYPRUS DRIVE
CRERAR DRIVE
STONE CHURCH ROAD EAST
FUSILIER DRIVE
TORINO DRIVE

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

S:\Clients\City_of_Hamilton\Upper Wellington Street\99_PROJ\CA-EI-IM20103037_ExistingConditionsReport\40_PROD\GIS\MXD\Study_Area_Map_4.mxd

LEGEND

- Project Location
- Project Study Area (120m buffer)



NOTES:
- Aerial imagery extracted from ESRI Basemaps, 2019
- Location of features is approximate

Datum: NAD83
Projection: UTM Zone 17N

N W E S

0 100 200 400 Metres

Hamilton

wsp

UPPER WELLINGTON STREET

Study Area Map

PROJECT N°: IM20103037 | **FIGURE: 1-1**

SCALE: 1:5,000 | DATE: July 2024

2.0 POLICY CONTEXT

The following sections summarize the various federal, provincial, and municipal planning policies and regulations related to natural heritage features (NHFs) that may apply to the Project.

2.1 Federal Legislative Requirements

2.1.1 Species at Risk Act, 2002

The *Species at Risk Act (S.C. 2002, c. 29);* SARA) was passed into law in 2002 and was last amended on 27 November 2024. The purpose of the SARA is to prevent wildlife species in Canada from disappearing, to provide for the recovery of wildlife species, and to manage species to prevent further risk to their status. Only species listed as Threatened, Endangered, or Extirpated under Schedule 1 are afforded both individual and habitat protection under SARA; several prohibitions are identified under Sections 32 and 33 of SARA. The SARA aims to manage species of Special Concern to prevent them from becoming Endangered or Threatened. Outside of federal lands, SARA legislation only applies to the following:

- Migratory birds (i.e., those species listed under Article I of the Migratory Birds Convention Act (MBCA), 1994) that also fall under Schedule 1 of the SARA. This does not include the species' critical habitat; and
- Aquatic species that fall under Schedule 1 of the SARA.

Notably, SARA prohibitions can be applied if provincial legislation or voluntary measures do not adequately protect federally listed species and their residence. Generally, compliance with provincial legislation will satisfy the requirements under the SARA.

Applicability to the Project

The Project Location is not within federal lands (e.g., Canada's oceans and waterways, national parks, military training areas, national wildlife areas, some migratory bird sanctuaries, and First Nations reserve lands). The Ontario Hydro Network (OHN) maps intermittent municipal drains that occur onsite. However, these do not hold water and, therefore, are not fish habitats. The SARA applies to this Project concerning federally listed migratory birds that may occur.

2.1.2 Fisheries Act

The *Fisheries Act (R.S.C., 1985, c. F-14)* was established in 1985 with amendments that came into effect on 27 November 2024. This Act provides protection to fish and fish habitat such that:

> "*No person shall carry on any work, undertaking or activity, other than fishing, that results in the death of fish." (Section 34.4 (1)). and*
>
> *"No person shall carry on any work, undertaking or activity that results in the harmful alteration, disruption or destruction of fish habitat" (Section 35 (1)).*

The Act defines fish habitat as:

> *"water frequented by fish and any other areas on which fish depend directly or indirectly to carry out their life processes, including spawning grounds and nursery, rearing, food supply and migration areas" (Section 2 (1)).*

The Fisheries Act requires that any development project avoid death of fish, as well as Harmful Alteration, Disruption or Destruction (HADD) of fish habitat unless authorized by Fisheries and Oceans Canada (DFO). If mitigation measures cannot be applied, and residual effects will cause a HADD, then provisions under the Act may apply (i.e., authorization).

Applicability to the Project

Any waterbody or watercourse that contains fish or is an area on which fish depend directly or indirectly to carry out their life processes as described in the Fisheries Act is provided protection under the Act. No waterbodies or watercourses likely to support fish can be found in the Study Area. According to the Hamilton Conservation Authority (Hamilton Conservation Authority, 2021) and the City's Schedule B-8 of the Official Plan (City of Hamilton, 2013), there are no watercourses intersecting the Study Area. Therefore, no Fisheries Act permits are required for this Project.

2.1.3 Migratory Birds Convention Act, 1994

The *Migratory Birds Convention Act, 1994 (S.C. 1994, c. 22*; MBCA) was passed in 1917 and updated in 1994, and the last amendment was 27 November 2024. The MBCA prohibits harming and/or killing most species of birds and/or destroying or collecting their eggs or nests. Protected species are listed under Article I of the MBCA. These species are native or naturally occurring in Canada and are species that are known to occur regularly in Canada. Most birds found in the Project Location receive protection under the MBCA, and nearly all of the remaining species receive similar protection under the provincial Fish and Wildlife Conservation Act (FWCA).

The MBCA together with the Migratory Birds Regulations (C.R.C., c. 1035), last amended on 30 July 2022, are federal legislative requirements that are binding on members of the public and all levels of government, including federal and provincial (Migratory Birds Convention Act, 1994). The "incidental take" of migratory birds and the disturbance, destruction or taking of the nest of a migratory bird is prohibited. No permit can be issued for the incidental take of migratory birds, with some exceptions.

The legislation protects certain species, controls the harvest of others, and prohibits the commercial sale of all species. As described in Section 6 of the associated Migratory Bird Regulations:

> *"Subject to subsection 5(9), no person shall:*
>
> - *Disturb, destroy, or take a nest, egg, nest shelter, Eider Duck shelter or duck box of a migratory bird, or*
> - *Have in his possession a live migratory bird, or a carcass, skin, nest or egg of a migratory bird except under authority of* a permit therefor."

Bird species not regulated under the Act include Rock Dove, American Crow, Brown-headed Cowbird, Common Grackle, House Sparrow, Red-winged Blackbird, and European Starling. Conversely, if the species identified is protected under Ontario's Endangered Species Act, (2007) (ESA) additional restrictions may apply.

Environment and Climate Change Canada and the Canadian Wildlife Service have compiled nesting calendars that show the variation in nesting intensity by habitat type and nesting zone within broad geographical areas distributed across Canada (Environment and Climate Change Canada, 2021). While this does not mean nesting birds will not nest outside of these periods, the calendars can greatly reduce the risk of encountering a nest.

Applicability to the Project

The MBCA applies to all of Canada. As such, the MBCA is applicable to the Project. Therefore, if a protected species or its nest is encountered during future works, the Project must comply with the prohibitions of the MBCA and Migratory Birds Regulations. Tree removals should follow appropriate timing windows or Best Management Practices. The Project is located in nesting zone C1, which has a regional nesting period from late March to late August. Vegetation removal should not take place between these months.

2.1.4 Canadian Food Inspection Agency Directive to Prevent the Spread of Emerald Ash Borer

The Canadian Food Inspection Agency Directive (D-03-08): Phytosanitary Requirements to Prevent the Introduction and Spread within Canada of the Emerald Ash Borer (EAB), *Agrilus planipennis* (Fairmaire) (2014), last updated on January 12, 2024, applies to ash species (*Fraxinus* spp.) that are located within the EAB Regulated Areas of Canada as prepared by the Canadian Food Inspection Agency. All ash species found in North America, including cultivars and additional introduced species, are vulnerable to EAB infestation (Canadian Food Inspection Agency, 2014). The intent of the Directive is to slow the spread of the EAB to new areas.

Applicability to the Project

While no ash trees were found in the Project Location, they could still be present in the Study Area, as ash trees are common throughout Southern Ontario. The Project Location is within a regulated area, and therefore, the movement of regulated materials (including but not limited to ash wood or bark and ash wood chips or bark chips) is prohibited. If ash trees are found in future studies, regulated materials moving out of a regulated area must be accompanied by a Movement Certificate issued by the Canadian Food Inspection Agency. Refer to the EAB Regulated Areas of Canada found on the Canadian Food Inspection Agency website: http://www.inspection.gc.ca/plants/plant-pests-invasive-species/insects/emerald-ash-borer/areas-regulated/eng/1347625322705/1367860339942

Currently, the Canadian Food Inspection Agency Directive to prevent the spread of Emerald Ash Borer does not apply to the Project, as no ash trees were found that require removal. However, this could change if the Project design is altered.

2.2 Provincial Legislative Requirements

2.2.1 Endangered Species Act, 2007

Endangered Species Act, 2007, S.O. 2007, c. 6 (ESA) was passed into law in 2007 and came into effect on 30 June 2008, and was last amended July 21, 2020. In Ontario, SAR is determined by the Committee on the Status of Species at Risk in Ontario (COSSARO). If a species is listed under the ESA as Extirpated, Endangered, or Threatened, Section 9 of the ESA prohibits killing, harming, harassing, capturing, taking, possessing, collecting, buying, selling, leasing, trading or offering to buy, sell, lease or trade a member of the species. Similarly, Section 10 of the ESA prohibits the damage or destruction of the habitat of all Endangered and Threatened species. Habitat is broadly characterized within the ESA as the area prescribed by regulation as the habitat of the species or an area on which the species depends directly or indirectly, to carry on its life processes, including reproduction, rearing of young, hibernation, migration or feeding. Habitat is specifically defined for some species. Species listed as Special Concern are not afforded protection under Section 9 and 10 of the ESA; however, they are protected under Significant Wildlife Habitat (SWH).

Destruction of SAR and their habitats constitutes a contravention of the ESA unless authorized by the Ministry of the Environment, Conservation and Parks (MECP). The MECP may authorize damage to habitat or individuals through registration or permit.

Applicability to the Project

Any SAR ranked as Threatened or Endangered that may be impacted by any Project work requires consideration. If impacts to SAR or their habitat cannot be fully avoided, a permit or approval may be required under the ESA. During field investigations, moderate to high habitat suitability was identified for the Eastern Red Bat, Eastern Small-footed Myotis, Hoary Bat, Little Brown Myotis, Northern Myotis Silver-haired Bat and Tri-colored Bat (all listed as Endangered) (see Section 5.1 for more details). Based on the Project Location SAR may be directly impacted, and the Project may be subject to a permit under the ESA and/or its regulatory exemptions under the Act.

2.2.2 Fish and Wildlife Conservation Act, 1997

Fish and Wildlife Conservation Act, 1997, S.O. 1997, c. 41 (FWCA) and was last amended on 8 June 2023. The FWCA applies to 'fish and wildlife' whereby fish are defined as having the same meaning as in the Fisheries Act, and wildlife is defined as "an animal that belongs to a species that is wild by nature, and includes game wildlife and specially protected wildlife". Those species considered "specially protected wildlife" include those specially protected amphibians, birds, invertebrates, mammals, and reptiles, as identified within Schedules 6 to 11 under the FWCA (Fish and Wildlife Conservation Act, 1997). The FWCA is managed by the Ministry of Natural Resources (MNR) and applies to all wildlife as defined under the it. In instances where wildlife will require collection or relocation at any point in the project (i.e., through trapping/collection and relocation), permits and approvals under the FWCA may be required.

Applicability to the Project

Permits under the FWCA are contractor-specific, and the individual undertaking the work to rescue and relocate or collect wildlife and/or fish will be the responsible party required to obtain the necessary permits and approvals. The probability that wildlife is found in the Project Location and does not leave on its own accord is low. As such, permits/approvals under the FWCA are not expected to be necessary.

2.2.3 Conservation Authorities Act, 1990

The *Conservation Authorities Act, R.S.O. 1990, c. C.27* (CAA) was established in 1990 and was last amended on 6 June 2024. The CAA authorizes the formation of conservation authorities in Ontario and addresses their roles, responsibilities, and governance in resource management and environmental protection. The purpose of the CAA is:

"to provide for the organization and delivery of programs and services that further the conservation, restoration, development and management of natural resources in watersheds in Ontario."

Section 28 of the CAA sets out prohibited activities that include development in areas that could be unsafe for development because of natural processes associated with flooding or erosion, and interference with, or alterations to, watercourses, wetlands, or shorelines.

The core mandate of conservation authorities is to undertake watershed-based programs to protect people and property from flooding and other natural hazards and conserve natural resources for economic, social, and

environmental benefits (Conservation Ontario, 2021). In the Study Area, the CAA is applied via the Hamilton Region Conservation Authority.

Applicability to the Project

Based on a review of the Hamilton Conservation Mapping Tools (Hamilton Conservation Authority, 2021), there are no regulated properties in the Study Area. As such, the Project will not require a permit.

2.2.4 Planning Act, 1990

The *Planning Act, R.S.O. 1990, c. P.13* is provincial legislation that sets out the ground rules for land use planning in Ontario. Established in 1990, the Planning Act was last amended on 6 June 2024. The Act describes how land use may be controlled and who may control them. The Planning Act also provides the basis for developing regional and municipal official plan documents to guide development. Municipally, the Project falls under the jurisdiction of the City of Hamilton Official Plan (Section 2.3.1). The Provincial Planning Statement (PPS) is issued under Section 3 of the Planning Act by the Ministry of Municipal Affairs and Housing (MMAH). Under the Planning Act, the PPS is applicable province-wide and provides overall policy directions on matters of provincial interest related to land use planning and development. Regional plans, municipal official plans, and the PPS work together to establish and protect natural features.

2.2.4.1 Provincial Planning Statement, 2024

On 20 October 2024, the province of Ontario released an updated Provincial Planning Statement, 2024. The Statement consolidates the former Provincial Policy Statement, 2020, and the Growth Plan for the Greater Golden Horseshoe (Growth Plan), 2019. All municipal decisions on planning matters must be consistent with the new Statement pursuant to the Planning Act.

The PPS provides policy direction on matters of provincial interest related to land use planning and development and promotes the provincial “policy-led” planning system that recognizes and addresses the complex interrelationship among environmental, economic, health and social factors in land use planning (Ministry of Municipal Affairs and Housing, 2024). The PPS requires planning authorities to incorporate climate change considerations in planning for and developing infrastructure (Policy 2.9). It also provides policies specific to natural heritage and states that natural features must be protected for the long-term. Policy 4 of the PPS provides direction for the wise use and management of resources, including natural heritage (Policy 4.1). Policy 4.1 states that the diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of natural heritage systems, should be maintained, restored or, where possible, improved, recognizing linkages between and among natural heritage features and areas, surface water features and ground water features (Policy 4.1.2). A natural heritage system must be identified in Ecoregions 6E and 7E (Policy 4.1.3). Policy 4.2 of the PPS relates more specifically to water resources and supports planning authorities to protect, improve, and restore the quality and quantity of water. The PPS sets the minimum standards for natural heritage protection, and municipalities can go beyond these standards.

Policy 4.1.4 lists significant NHFs where development and site alteration is not permitted in (concerning Ecoregion 5E, 6E, and 7E):

- Significant Wetlands; and
- Significant Coastal Wetlands.

Policy 4.1.5 lists significant NHFs where development and site alteration is not permitted unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions, including (concerning Ecoregion 5E, 6E, and 7E):

- Significant Woodlands;
- Significant Valleylands;
- SWH (the Significant Wildlife Habitat Technical Guide (Ontario Ministry of Natural Resources, 2000) and Ecoregion schedules were prepared by the Ministry of Natural Resources and Forestry (MNRF) to assist planning authorities and other participants in the land use planning system);
- Significant Areas of Natural and Scientific Interest (ANSI); and
- Coastal wetlands that are not subject to Policy 4.1.4(b).

Policy 4.1.6 states development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.

Policy 4.1.7 states that development and site alteration are not permitted in the habitats of Endangered and Threatened species unless approved by provincial and federal regulations.

Policy 4.1.8 states development and site alteration shall not be permitted on adjacent lands to the NHFs and areas identified in Policies 4.1.4, 4.1.5, and 4.1.6 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions. The extent of the adjacent lands may be recommended by the Province or based on municipal approaches which achieve the same objectives.

Negative impacts in regard to NHFs and areas mean “degradation that threatens the health and integrity of the natural features or ecological functions for which an area is identified due to single, multiple or successive developments or site alteration activities.”

Development, in the context of the PPS, means the creation of a new lot, a change in land use, or the construction of buildings and structures requiring approval under the Planning Act, but does not include activities that create or maintain infrastructure (infrastructure includes sewage and water systems and transit and transportation corridors and facilities) authorized under an environmental assessment process or works subject to the Drainage Act (1990).

The PPS provides overall policy direction and should be read in conjunction with other provincial, regional, and municipal plans. The more stringent policies apply unless otherwise explicitly stated. Features are defined in the PPS, but other provincial, regional, and municipal plans and guidelines designate and delineate them. For example, Significant Woodlands, Valleylands, and Wetlands can be designated by municipalities in Official Plans or with guidelines such as the Natural Heritage Reference Manual (Ontario Ministry of Natural Resources, 2010) and the Ontario Wetland Evaluation System. Likewise, areas identified as SWH, and ANSIs are designated by MNR, while the MECP manages SAR.

Applicability to the Project

The Project is an activity that creates or maintains infrastructure under a Schedule 'C' Class EA. Significant Woodlands are found within and just outside the Study Area, and SWH was confirmed using the Significant Wildlife Habitat Technical Guideline (Ontario Ministry of Natural Resources, 2000) and Ecoregion 7E Criteria Schedules (Ontario Ministry of Natural Resources and Forestry, 2015) (Section 5.0 for more details). The City of Hamilton has developed a Natural Heritage System that complies with the PPS Policy 4.1.3. The PPS and City of Hamilton Natural Heritage System include protection for the habitats for Endangered and Threatened species but do not map them. Habitat for Endangered and Threatened species may occur on the Project.

2.2.5 Ontario Forestry Act, 1990

Consent from the adjacent owner is required for trees on adjacent property or trees on the shared property boundary, which requires removal or pruning efforts that would represent injury (Foresty Act, 1990). Principle considerations in relation to boundary trees are defined in Section 10 of the Act as follows:

Boundary trees

10 (1) An owner of land may, with the consent of the owner of adjoining land, plant trees on the boundary between the two lands. 1998, c. 18, Sched. I, s. 21.

Trees common property

10 (2) Every tree whose trunk is growing on the boundary between adjoining lands is the common property of the owners of the adjoining lands. 1998, c. 18, Sched. I, s. 21.

10 (3) Every person who injures or destroys a tree growing on the boundary between adjoining lands without the consent of the landowners is guilty of an offence under this Act. 1998, c. 18, Sched. I, s. 21.

Applicability to the Project

All trees on neighbouring properties or on shared boundary lines to be injured or removed must be discussed with landowners, and permission to injure or remove trees must be obtained.

2.3 Municipal Legislative Requirements

2.3.1 City of Hamilton Official Plan(s)

Hamilton has two official plans: one for urban settings and one for rural settings (City of Hamilton, 2013). The policies of each Official Plan were developed to provide guidance and direction for the growth and development of the City. The planning regime within the City is directed by provincial legislation, plans and policies, including the PPS, the Niagara Escarpment Plan (Niagara Escarpment Plan, 2017), the Greenbelt Plan (Ministry of Municipal Affairs and Housing, 2017), the Parkway Belt West Plan (Goverment of Ontario, 1978), and the Growth Plan for the Greater Golden Horseshoe (Ministry of Municipal Affairs and Housing, 2020). In some areas of provincial policy, the municipality can be more restrictive than the provincial directions. Where land use designations exist, the Official Plan(s) details the interrelationship between the various documents. Applicable to this Project is the 2013 Urban Hamilton Official Plan (UHOP), adopted by City Council in 2009 and approved by the Ministry of Municipal Affairs in 2011 (City of Hamilton, 2013).

Land use policies, as they pertain to NHFs, are provided in Chapter C of the UHOP, under Section C.2.0 Natural Heritage System. The Natural Heritage System within the urban area consists of the Niagara Escarpment Plan

area, Core Areas, and Linkages. This is found on Schedule B of the UHOP. As per policy C.2.3 of the UHOP, Core Areas are to be preserved and enhanced, and any development or site alteration within or adjacent to them shall not negatively impact their natural features or their ecological functions. An EIS is required to determine if a proposal will negatively impact Core Areas' features and functions (UHOP policy C.2.5.8, F.3.2.1).

Applicability to the Project

The Project Location contains neighbourhoods in the Urban Structure. The Study Area's Natural Heritage System (NHS) consists of Core Areas and Linkages (Schedule B of the UHOP). Core Areas are Key NHFs, Key hydrological features, and local natural areas. The contributing features of Core Areas are mapped in detail in Schedules B-1 to B-8 of the UHOP. Some contributing features of Core Areas have not been mapped. Two examples of features that have not been mapped are habitat for Threatened and Endangered species and SWH. Linkages are natural areas that connect Core Areas together. Section C.2.5.1 states that permitted uses of Core Areas include “existing uses” and “infrastructure projects”.

New development and site alteration is not permitted in Provincially Significant Wetlands, significant habitat of Threatened and Endangered species, or within fish habitat (except where when following provincial and federal requirements). Additionally, such activities are not permitted in Significant Woodlands, Significant Valleys, SWH, and ANSI unless it has been shown that there will be no negative impacts on the features from the development.

Immediately to the east of the Study Area is a designated Core Area Significant Woodland (C.2.5.2 and C.2.5.3). The development criteria shall be used in consideration of development permit applications. Any development or site alteration within or adjacent to Core Areas shall not negatively impact the Core Areas' natural features or ecological functions. Linkages are identified in the Project Location and are to be protected, enhanced, and restored. They help Core Areas maintain their ecological functionality and connectivity.

2.3.2 City of Hamilton Public Tree Protection By-Law

Bylaw number 15-125 protects public trees (City of Hamilton, 2015). The City recognized that public trees provide natural habitat, improve air quality, shade, storm water control and make the City pretty. This Bylaw prohibits public trees from being injured or destroyed. The Bylaw defines injury (Section 3, (2) (h)) which include many acts related to construction such as performing work in a dripline or Tree Protection Zone (TPZ), allowing a toxic substance to enter a tree, pruning, changing soil levels in the dripline, and excavating ditches or creating walkways and driveway within a dripline. Injury and destruction to trees can only occur if the work meets the requirements of Section 3; there is a permit, and the rules of the permit are followed.

Applicability to the Project

This Project involves the City of Hamilton and removing and injuring public trees; therefore, the Public Tree Protection By-law applies. No exemption for the City of Hamilton work was found for this Bylaw. The City Tree Protection Guidelines (City of Hamilton, 2010) should also be followed to assist in applying for permits to injure and remove trees in the Project Location. An Arborist Report, or further evaluation beyond a simple inventory of trees in the Right-of-Way (ROW), has not been completed at this time.

2.3.3 City of Hamilton Urban Woodland Conservation By-law

Hamilton’s Urban Woodland Conservation By-law was created to protect and promote sustainable uses of woodlands on private property within the urban boundary of Hamilton. A woodland is defined as:

Woodland equal to or greater than 0.2 hectares (ha) measured to the dripline and include any discontinuity equal to or less than 30 m in width with at least:

- 1000 trees of any size, per ha, calculated in proportion to the actual area of the woodland;
- 750 trees, with a Diameter Breast Height (DBH) of over 5 cm per ha, calculated in proportion to the actual area of the woodland;
- 500 trees, with a DBH over 12 cm per ha, calculated in proportion to the actual area of the woodland; or,
- 250 trees, with a DBH of over 20 cm per ha, calculated in proportion to the actual area of the woodland.

The Bylaw then goes on to exclude man-made woodlands from protection.

Trees within private woodlands within urban Hamilton are not allowed to be injured or destroyed unless a permit has been granted.

Applicability to the Project

The forest on the southwest corner of Towercrest Drive and Upper Wellington Street likely meets the definition of a woodland and is in urban Hamilton. Project works undertaken by the City are exempt from this Bylaw as per Section 5.a (City of Hamilton, 2014). The City of Hamilton Urban Woodland Conservation By-law does not apply to the Project.

3.0 METHODOLOGY

3.1 Secondary Source Information

Secondary sources of information were gathered to contribute to the biological dataset for the Project Location and determine preliminary NHFs. Potential occurrences of Species at Risk (SAR), provincially rare species, and whether any NHFs (e.g., ANSIs, Environmentally Sensitive Areas, Provincially Significant Wetlands, etc.) are documented. Secondary sources were reviewed on 14 February 2025 and included:

- MNR Natural Heritage Information Centre (NHIC) database square (1 km x 1 km) encompassing the Project includes square 17NH9185 (Ontario Ministry of Northern Development, Mines, Natural Resources and Foresty, 2025);
- The Second Atlas (2001 to 2005) of Breeding Birds of Ontario 10 km x 10 km survey square 17NH98 (Cadman, Sutherland, Beck, Lepage, & Couturier, 2007);
- The Atlas of the Mammals of Ontario (AMO) (Dobbyn, 1994);
- The Ontario Reptile and Amphibian Atlas (ORAA) 10 km x 10 km survey square 17NH98 (Ontario Nature, 2021);
- The Ontario Butterfly Atlas (OBA) 10 km x 10 km survey square 17NH98 (MacNaughton, 2021);
- eBird hotspots within 2 km of the Project (Records reviewed for Hamilton - Bruleville Nature Park, Captain Cornelius Park, Crerar Forest, Turner Park and William Connell Park) (eBird, 2025);
- Research grade observations on iNaturalist located within 2 km of the Project. (Buffered from UTM: 17 591177 4785075) (iNaturalist, 2025);
- Data extracted from Land Information Ontario (Ontario Ministry of Northern Development, Mines, Natural Resources and Foresty, 2025);
- Fisheries and Oceans Canada Aquatic SAR map (Fisheries and Oceans Canada, 2025); and
- City of Hamilton Official Plan (City of Hamilton, 2013). Note that not all Core Areas are identified in the City of Hamilton Official Plan and might not be found by a background search.

The NHIC database utilizes a one km x one km system, while the OBBA, ORAA, and OBA utilize a 10 km x 10 km system. Both systems generate a list of species that are documented within the specific square. The list of mammals that may be found in the Project Study Area was similarly generated; however, the AMO is not available in a database, and as such, the potential presence of these species within the 10 km x 10 km squares was extrapolated based on the AMO document (Dobbyn, 1994).

For the purposes of this Report, only common names for species have been provided; the full nomenclature of each reported species is provided within Appendix D.

3.2 Field Methods

Field investigations were completed to identify new and confirm existing NHFs from secondary data sources. The scope of field investigations was developed in consultation with City staff and in accordance with the City's Class EA Ecological Requirements. The scope of the field investigations included the following:

- **ELC:** 3-season vegetation inventory (spring survey in May to early June; summer survey in July to August; fall survey in September to October);
- **Breeding Bird Surveys:** 2 surveys (first survey between May 24 and June 15th and the second survey between June 15 and July 10);
- **Incidental wildlife**: document all encountered;
- **A Tree Inventory**: The City recommended inventory when the preliminary preferred alternative was identified so that impacts on trees are considered in the evaluation of alternatives.
  - It was acknowledged that subsequent changes in the alignment may require redoing this survey. However, the preferred design did not result in changes in the road alignment as part of the EA; as such, the need for additional tree inventory was not identified.
  - The City recommended preparing a simple map of the tree locations on an aerial map to support a visual understanding of the proposed impacts.

The field investigations were carried out by qualified professionals specializing in terrestrial biology and a certified arborist by the International Society of Arboriculture. A summary of field investigations completed is provided in Table 3-1.

Table 3-1: Summary of Field Investigations Completed

Field Investigation(s) completed	Date	Weather	Surveyor
Breeding Bird Survey Round 1, Tree Inventory, and Spring ELC	27 May 2021	No cloud cover, 7 C, light wind, and no precipitation	Todd Hagedorn
Breeding Bird Survey Round 2	2 July 2021	No cloud cover, 16 C, light wind, and no precipitation	Joanne Hamilton
Summer ELC	4 August 2021	20 C, and sunny	Reuven Martin
Fall ELC	15 September 2021	Partial cloud, 15 C, no wind, and no precipitation	Todd Hagedorn

Vegetation was surveyed to inform Ecological Land Classification (ELC) delineation and document SAR locations. Breeding bird surveys were also conducted, and survey locations are presented in Figure 3-1. In addition to targeted surveys, opportunistic/incidental wildlife observations were collected during all surveys to record presence and habitat use. The methods used in conducting the field program components and dates for each survey type are outlined in their respective sections below.

3.2.1 Vegetation Communities and Plant Inventory

Vegetation communities (ecosites) delineations were undertaken through the review of satellite imagery. Field investigations were undertaken to confirm the vegetation community boundaries, converting the community delineations into ELC (Lee H. , 2008; Lee, et al., 1998).

ELC was utilized to characterize the ecosites within the Study Area and to identify the presence of rare and/or sensitive vegetation communities. The First Approximation of ELC (Lee, et al., 1998) was applied first, in keeping with a standardized protocol, to determine ecosite type. However, the 2008 catalogue of ecosite types (Second

Approximation) was also used where ecosites could not be determined through the application of the First Approximation. Both Approximations use the same methods, but using both provides a more detailed summary of the Study Area.

Generally, communities at least 0.5 ha in size are mapped following ELC protocols; however, given the nominal size of the area, vegetation communities less than 0.5 ha have been included. Substrate type topography, floral composition, stand structure and disturbance were inventoried to describe and classify vegetation communities. The terminology used is based on ELC sampling protocols that collect information on four vegetation layers (note: some layers may not be present within a vegetation community sampled). The four layers are:

- **Canopy** consists of tall vegetation that reaches the light first, typically composed of tall trees (in a forest community);
- **Sub-canopy** includes vegetation growing just under the canopy, vegetation that receives filtered sunlight through the canopy, typically composed of trees and tall shrubs (in a forest community);
- **Understory** includes vegetation growing below the sub-canopy, typically composed of both tall and low-growing shrubs (in a forest community); and
- **Ground layer** consists of the vegetation, which is closest to and covers the ground, typically composed of herbaceous vegetation.

The organizational framework contained within the ELC protocol (Lee, et al., 1998) describes communities according to six nested levels: site region, system, community class, community series, ecosite, and vegetation type. These nested levels vary in spatial scale, with the Ecoregion classifying communities at the largest spatial scale and vegetation type describing communities at the finest spatial scale (Lee, et al., 1998). There are two Ecoregions in Southern Ontario: 6E and 7E (Lee, et al., 1998). This Project is within Ecoregion 7E (Ontario Ministry of Northern Development, Mines, Natural Resources and Foresty, 2025).

The occurrence of ELC communities was cross-referenced with provincially significant vegetation communities as identified in the Significant Wildlife Habitat Technical Guide (Ontario Ministry of Natural Resources, 2000) and the Criteria Schedule for Ecoregion 7E (Ontario Ministry of Natural Resources and Forestry, 2015) to determine whether these habitats exist within the Study Area.

The inventory and documentation of vegetation and vascular plants were undertaken through visual observations during the field investigations. Observations were continuously recorded and updated throughout the implementation of all components of the field investigation program. The identification of species included common species, rare and sensitive species, SAR, and invasive/non-native species. Plant species occurrences were cross-referenced with the NHIC database to determine the existence of rare species within the Study Area. Common and scientific names of plant species are based on the current nomenclature as listed in the NHIC database. Vegetation community and plant inventories occurred during three seasons (Spring – 27 May 2021, Summer – 2 July 2021, and Fall – 4 August 2021) to maximize the plant species list as it is easiest to identify species when they are flowering, which may occur during these three seasons. Plant observations were noted on modified provincial ELC data sheets (Appendix B).

3.2.2 Tree Inventory

The Tree Inventory was completed on 27 May 2021. Only select Permits to Enter (PTE) were provided at the time; trees in locations without Permits to Enter were assessed from the closest vantage point. Field data was

collected by a qualified professional and certified International Society of Arboriculture arborist (Arborist Identification Number: ON-2432A). Trees were inventoried following the Tree Protection Guidelines - City Wide (City of Hamilton, 2010). Trees on City property (i.e., within the Upper Wellington Street ROW) and near (approximately 2 m) the ROW with a DBH of 10 cm or greater, where PTE was provided, were affixed with a pre-numbered aluminum tag. Those trees located on private property where PTE was not provided were assigned a corresponding tree number (Appendix C).

All trees were surveyed by the City and WSP matched the tree locations to WSP's Tree ID by matching locations to the best of their abilities. WSP georeferenced trees using a hand-held Global Positioning System device with ±5 m accuracy and recorded with the ArcGIS Collector mobile data collection app. All trees included in this inventory were inspected visually from the ground. This included a non-invasive inspection of each tree, documenting site conditions, buttress roots, trunk, and branches. This is considered a standard assessment that arborists perform to identify tree conditions from the ground level. The results from this assessment should not be relied on for internal, below-ground and/or upper crown conditions or defects, as these areas may not be possible to visually inspect from the ground level.

The following data was collected for each tree and are included in the Tree Inventory Table (Table 4-1):

- **WSP Tree Identification**: The aluminum tag identification number or assigned number;
- **Ownership**: Categories of ownership based on the tree trunk and crown location:
  - **Private**: Tree trunk and crown on private property;
  - **Public**: Tree trunk and crown on public property, usually the road ROW;
  - **Neighbour**: Tree trunk on neighbour private property to the City of Hamilton and Project activities could impact the tree; and
  - **Shared**: Tree trunk on the property line, usually between public and private property.
- **Aluminum Tag Affixed**: Was an aluminum tag attached to the trunk of the tree? Yes, or No. Most trees where no tags were attached were on private property with no PTE;
- **Species**: Identified the individual tree by scientific name and common name;
- **DBH**: This refers to the Diameter (in centimetres) at Breast Height and is measured at 1.37 m above the ground for each tree;
- **Approximate Dripline Radius**: The approximate radius (in metres) of the dripline was estimated in the field;
- **TPZ Radius:** Tree Protection Zone (in meters) defined in Hamilton Public Tree Protection By-law as "a restricted area around the base of the base of a tree one metre from the dripline, which serves to protect a tree and its root zone…". More information is also shown in the Tree Protection Guideline (City of Hamilton, 2010);
- **Tree Condition – Tree Structure and Tree Health**: Four condition ratings are provided for tree structure, tree health as per City guidelines (City of Hamilton, 2010). Tree structure refers to architecture, such as co-dominant trunks, branch arrangement, and asymmetry. The health condition of the tree is based on several biological and mechanical factors, including size, species, condition, location, root system, trunk, branching,

twigs and foliage, disease evidence, and the overall health and vigour of the tree. Each tree was provided with a condition as outlined in the following categories:

- **G – Good**: Dead branches less than 10%, signs of good compartmentalization on any wounds, no structural defects;
- **F – Fair**: 10-30% dead branches, size or occurrence of wounds present some concerns, minor structural defects;
- **P – Poor**: more than 30% dead branches, weak compartmentalization, early leaf drop, presence of insects or disease, major structural defects; and
- **D – Dead**: The tree displayed no apparent signs of live growth.

- **Comments**: Additional comments noted in the field; and
- **Easting and Northing:** UTM zone 17 easting and northing coordinates.

3.2.3 Breeding Bird Surveys

Breeding bird surveys were undertaken on 27 May and 2 July 2021 at four-point count stations within the Project Location and followed the protocols described in the Ontario Breeding Bird Atlas Guide for Participants (Ontario Breeding Bird Atlas, 2020) and the length of the point count following the protocols from the Forest Bird Monitoring Protocol (Ralph, Sauer, & Droege, 1995). The location of the point count stations can be found in Figure 3-1. Surveys included morning point counts within representative habitats of the Study Area. Surveys were conducted between 6:30 a.m. and 9:00 a.m. to capture the period of maximum bird song activity. Each station consisted of a circle with a 100 m radius from the observer's location. All birds heard or observed were recorded at intervals of 0 – 50 m, 50 – 100 m, >100 m or as flyovers (birds passing overhead). Each point count was ten minutes in duration. Birds were recorded at intervals of zero to three minutes, three to five minutes, and five to ten minutes. Species were identified through their unique vocalizations and by visual observations. Each bird was recorded once and mapped on the field data sheets to ensure no duplication of individual birds (Appendix B). All bird surveys were undertaken in mild weather with warm temperatures, no precipitation, and little or no wind (Table 3-1).

Activity seen and heard directly relates to breeding evidence described in the Ontario Breeding Bird Atlas Guide for Participants (Ontario Breeding Bird Atlas, 2020). Breeding evidence is reported in four levels:

- Species observed in the breeding season;
- Possibly breeding;
- Probably breeding; and
- Confirmed breeding.

As some species are area-sensitive, a higher level of breeding evidence can inform habitat quality. Additionally, occurrence and abundance can inform SWH.

3.2.4 Species at Risk Screening

The potential for SAR and SAR habitat to occur within the Project Location and Study Area was determined based on a review of secondary source information and findings during the field investigations. Information collected was then used to evaluate the potential for SAR occurrence based on habitat preferences for each species.

590600 590800 591000 591200 591400 591600 591800

4786000 4785800 4785600 4785400 4785200 4785000 4784800 4784600 4784400 4784200

RIDGE STREET
JUNE STREET
GOLDFINCH ROAD
LINCOLN M ALEXANDER PARKWAY
LIMERIDGE ROAD EAST
LORENZO DRIVE
JEREMY STREET
BENJAMIN DRIVE
MERRILEE CRESCENT
CYPRUS DRIVE
CRERAR DRIVE
STONE CHURCH ROAD EAST
FUSILIER DRIVE
TORINO DRIVE

1
2
3
4

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

S:\Clients\City_of_Hamilton\Upper Wellington Street\99_PROJ\CA-EI-IM20103037_ExistingConditionsReport\40_PROD\GIS\MXD\NH_Map_4.mxd

LEGEND

- Project Location
- Project Study Area (120m buffer)
- Core Areas Including Significant Woodland - City of Hamilton Official Plan
- Linkages - City of Hamilton Official Plan
- Parks & General Open Space
- Breeding Bird Station (labelled with Station Number)

NOTES:
- Aerial imagery extracted from ESRI Basemaps, 2019
- Location of features is approximate
- Key Natural Heritage Feature Significant Woodlands extracted from City of Hamilton Official Plan Schedule B-2
- Parks, General Open Space, Linkages, and Core Areas extracted from City of Hamilton Official Plan Schedule B

Datum: NAD83
Projection: UTM Zone 17N

0 100 200 400 Metres

N W E S

Hamilton

wsp

UPPER WELLINGTON STREET

Natural Heritage Features - City of Hamilton Official Plan

PROJECT N°: IM20103037 | **FIGURE: 3-1**

SCALE: 1:5,000 | DATE: August 2024

4.0 EXISTING CONDITIONS

4.1 Vegetation Communities and Flora

The Project Location is comprised of manicured areas and a city park (Jerome Neighbourhood Park), a maintained ROW, an inaccessible forest/wooded area (FOD), and a remnant woodlot. The ELC survey found five vegetation communities (Figure 4-1);

- Deciduous Forest (FOD);
- Dry-fresh Oak-hickory Deciduous Forest (FOD2-2);
- Dry-fresh Forb Meadow Ecosite (MEFM1);
- Manicured; and
- Cultural Mineral Meadow (CUM).

During the plant inventory, 122 plants were identified to the species level, and six species could only be identified to genus (Appendix D). The City's Natural Areas Inventory ranks 63 of the plants to be common and native, 51 to be introduced, and one (Common Hackberry) to be uncommon (Shwertz & Martle, 2014). The Hamilton County Status from Oldham Carolinian List ranks the same species list to have 25 introduced and common, seven introduced and rare, 20 introduced and status unknown or not specified, 55 native and common, one (Common Hackberry) native and uncommon, and one (Red Pine) native and rare (Oldman, 2017). Red Pine is a common forest tree in central Ontario on dry rocky or sandy soils. Naturally occurring Red Pine is rare in the Carolinian Zone, and most populations are probably introduced (NHIC species list notes). Red Pines was found in a manicured yard during the Tree Inventory near the intersection of Limeridge Road East and Upper Wellington Street. As the Red Pine trees appear to be planted, they are not considered to be "native and rare" and should not be carried forward in the impact assessment (outside of tree removal concerns). The conclusions from both the City of Hamilton Natural Areas Inventory ranks and the Oldham Carolinian list ranking is that there are slightly more native species than introduced species (Oldman, 2017; Shwertz & Martle, 2014). This ratio of roughly 50:50 indicates the Study Area to be largely influenced by human activities.

4.1.1 Dry-fresh Oak-hickory Deciduous Forest (FOD2-2)

The forest on the southwest corner of Towercrest Drive and Upper Wellington was classified as Dry-Fresh Oak-hickory Deciduous Forest (Figure 4-1). This forest is 0.5 ha in the Project Location and 1.5 ha in the Study Area and extends outside of the Study Area and turns into a hedgerow community. In the First Approximation, this community's code is FOD2-2 and changed slightly in the Second approximation to FODM2-2 (Lee, et al., 1998; Lee H. , 2008). Dry-Fresh Oak-hickory Deciduous Forest is the best description of the community, but the First Approximation of ELC states that there is more Red Oak than White Oak, which was not the case for this forest (Lee, et al., 1998). Forested communities have greater than 60% tree cover. White Oak was found to be more abundant than Shagbark Hickory and Red Oak. The canopy of this forest was between 10 and 25 m tall. This forest was found to have an extensive spread of alien species, many tracks or tails, and a light amount of dumping. This community was near two roads that produced a fair amount of noise. The sub-canopy was found to be 2 to 10 m tall and covered a small (between 0 to 10%) amount of the community. The species found in the subcanopy were more Shagbark Hickory and Black Walnut. The understory was 1 to 2 m tall and cover between 25 to 60% of the forest community. The most abundant plants were European Buckthorn, White Ash, and Black Walnut. The ground layer consisted of more European Buckthorn, Thicket Creeper, Spotted Geranium, and

Upright Yellow Wood Sorrel. This community was below 1 m and covered between 25 to 60% of the community. This community is rare in Ontario (S-rank S3S4).

4.1.2 Dry-fresh Forb Meadow Ecosite (MEFM1)

A Dry-fresh Forb Meadow was found along the Lincoln Alexander Parkway and on the southwest corner of Towercrest Drive and Upper Wellington Street (Figure 4-1). The meadow on the corner of Towercrest Drive and Upper Wellington Street is 0.2 ha, and the meadow along the Lincoln Alexander Parkway is 1.2 ha. There is no ELC code for this community under the First Approximation of ELC (Lee, et al., 1998). The Second Approximation community code is MEFM1 (Lee H. , 2008). Meadow communities are open, with less than 25% of the community covered by trees and less than 25% of the community covered by shrubs. The limited trees found in this community were Black Walnut and Black Locust. These trees were found in a low abundance (covering 0 to 10%) of the canopy and subcanopy. The heights of the canopy and subcanopy were 2 to 10 m and 1 to 2 m respectively. In the understory, there was more Black Walnut at a height of 0.5 to 1 m. Most of the plants were found in the ground layer of this community. The ground layer covered more than 60% of the community. The most abundant species in this community were Tall Goldenrod, grass species, Bull Thistle, and Purple Crown-vetch. This community had extensive numbers of alien species, well-marked tracks, a light amount of dumping, and loud noise from the nearby roads.

4.1.3 Cultural Mineral Meadow (CUM)

The Cultural Mineral Meadow (CUM) was found near the southwest corner of Stone Church Road East and Upper Wellington Street (Figure 4-1). This community is about 1.4 ha large. CUM was used to describe this community from the First Approximation (Lee, et al., 1998). This community appeared to be a fallow field that had been left for a year or two, where weeds had started growing in low densities. This community had no canopy or subcanopy. The understory was found to be minimal (10 to 25% of the community). The few plants in the understory were dominated by Bitter Wintercress and Curled Dock. The ground layer was dense (covered greater than 60%). Plants at this level were dominated by Ground Ivy, Black Medick, and Lanced leaved Plantain. This community had been disturbed by noise, a light amount of dumping, well-marked trails, and many alien species.

4.1.4 Manicured

The Manicured area was found throughout the Study Area, mostly along the sides of the roads (Figure 4-1). The Manicured code is not within the First Approximation or the Second Approximation (Lee, et al., 1998; Lee H. , 2008). The canopy covered 0 to 10% of this community. The canopy was made of a variety of species. This community was best captured by the Tree Inventory (See Section 3.2.2). The groundcover was dominated by mowed grass, with assorted ‘weeds’.

590800 591000 591200 591400 591600

4785600 4785400 4785200 4785000 4784800 4784600 4784400

LIMERIDGE ROAD EAST
LINCOLN M ALEXANDER PARKWAY
LORENZO DRIVE
FLAMINGO DRIVE
CYPRUS DRIVE
CRERAR DRIVE
STONE CHURCH ROAD EAST

Manicured
Residential
Manicured
Residential
Manicured
Residential
MEFM1
Manicured
Residential
Manicured
MEFM1
Residential
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Manicured
MEFM1
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FOD2-2
Residential
Residential
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MEFM1
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Residential
Commercial/Other
Commercial/Other
Manicured
FOD
Manicured
Manicured
Residential
Residential
Manicured
CUM
FOD
Residential
Manicured
Residential
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

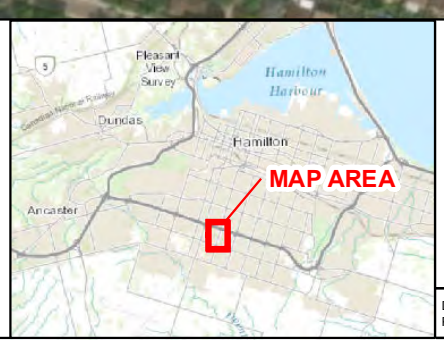
S:\Clients\City_of_Hamilton\Upper Wellington Street\99_PROJ\CA-EI-IM20103037_ExistingConditionsReport\40_PROD\GIS\MXD\ELC_Map_5.mxd

LEGEND

- Project Location
- Project Study Area (120m buffer)

Ecological Land Classification

- FOD: Deciduous Forest
- FOD2-2: Dry-Fresh Oak-Hickory Deciduous Forest
- MEFM1: Dry-Fresh Forb Meadow Ecosite
- Commercial/Other
- Manicured
- CUM: Cultural Mineral Meadow
- Residential



NOTES:
- Aerial imagery extracted from ESRI Basemaps, 2019
- Location of features is approximate

Datum: NAD83
Projection: UTM Zone 17N

0 100 200 400 Metres

Hamilton

WSP

UPPER WELLINGTON STREET

Ecological Land Classification

PROJECT N°: IM20103037 | **FIGURE: 4-1**

SCALE: 1:3,800 | DATE: August 2024

4.1.5 Tree Inventory

The Tree Inventory documented a total of 147 trees (Appendix C). Most (67) of these trees were in good health and structure. The other large group of trees (44) had fair structure and good health. Many of the fair structure trees had co-dominant stems or had been pruned for transmission lines. No memorial trees were found. Many of the tree species were non-native and invasive (City of Hamilton, 2010); such as Norway Maple, Norway Spruce, Manitoba Maple, Tree-of-Heaven, and Siberian Elm. These species are normal for urban streets in Hamilton. Table 4-1 shows the number of trees inventoried by species.

Table 4-1 Tree Inventory Summary by Species

Scientific Name	Common Name	Total Number Surveyed
Tilia americana	American Basswood	3
Ulmus americana	American Elm	3
Acer ginnala	Amur Maple	1
Malus species	Apple	1
Robinia pseudoacaciai	Black Locust	1
Pinus nigra	Black Pine	2
Juglans nigra	Black Walnut	14
*Picea pungens**	Blue Spruce	2
Quercus macrocarpa	Bur Oak	2
Catalpa speciosa	Catalpa Tree	1
*Acer platanoidesi** 'Crimson King'	Crimson King Norway Maple	7
*Pseudotsuga menziesii**	Douglas Fir	1
Thuja occidentalis	Eastern White Cedar	1
*Fagus sylvatica**	European Beech	1
Gleditsia triacanthos	Honey Locust	17
Gymnocladus dioicus	Kentucky Coffeetree	5
Populus grandidentata	Large-toothed Aspen	1
*Tilia cordata**	Little Leaf Linden	10
*Acer negundoi***	Manitoba Maple	2
*Acer platanoidesi**	Norway Maple	25
*Picea abiesi**	Norway Spruce	2
Malus species*	Ornamental Apple	7
Acer rubrum	Red Maple	1
Quercus rubra	Red Oak	3

Scientific Name	Common Name	Total Number Surveyed
Pinus resinosa	Red Pine	8
*Ulmus pumilai**	Siberian Elm	6
Acer saccharinum	Silver Maple	3
Acer saccharium	Sugar Maple	8
Prunus avium	Sweet Cherry	1
*Ailanthus altissimai**	Tree of Heaven	2
Picea glauca	White Spruce	6
Total		**147**

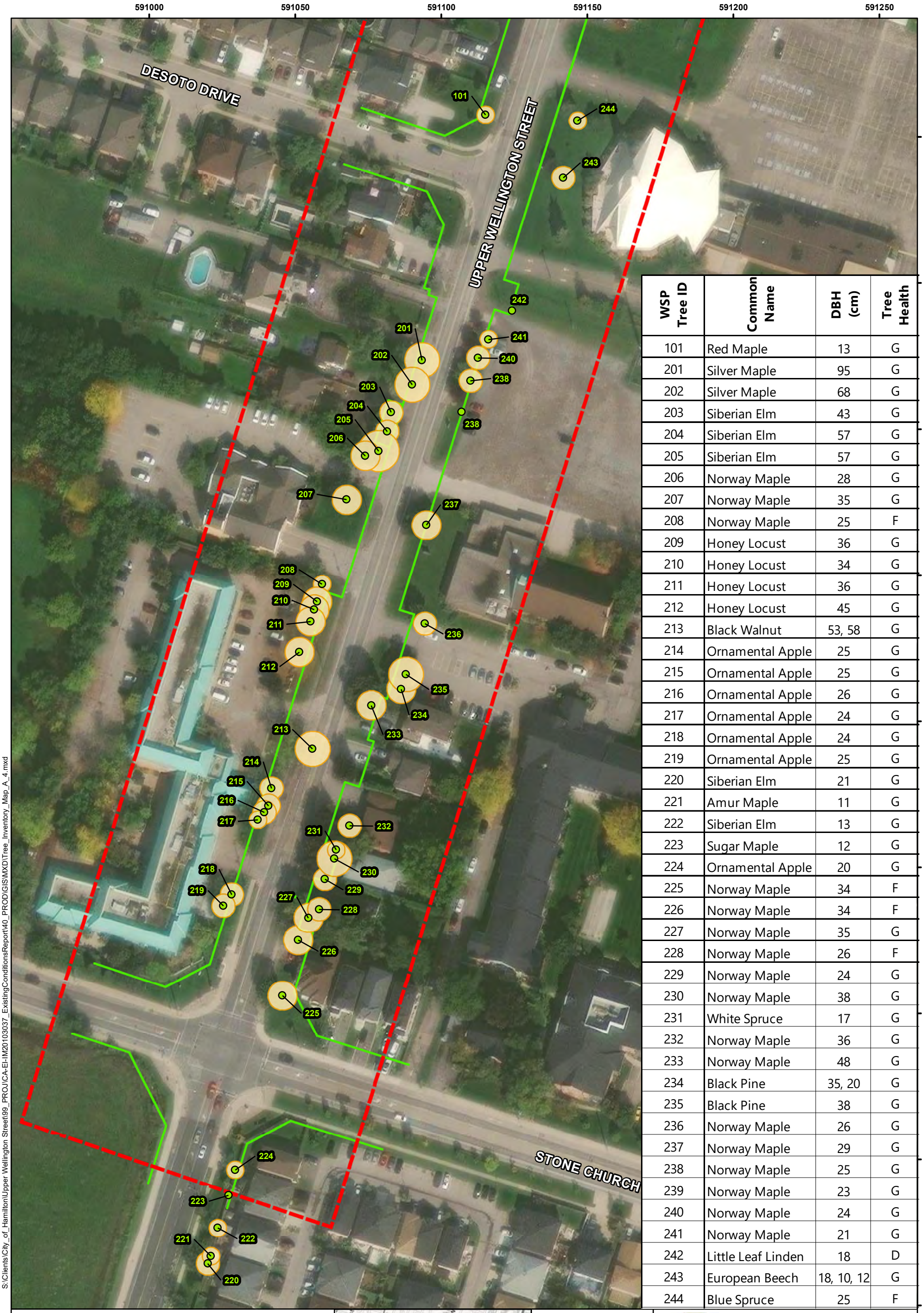
Notes:
i= Invasive species
*= Non-native species
**= Native to Canada but not the area

Ownership of most of the trees is public. The total number of public trees was 48, (Table 4-2). The other ownership categories all had lower numbers of trees, with 34 private trees, 29 neighbour (private and likely to be impacted by Project work) trees, and 36 shared trees (Table 4-2). Tree locations are shown in Figure 4-2.

Table 4-2: Summary of Tree Ownership

Ownership Category (Stem Location)	Total Number of Trees Surveyed
Neighbour (Private)	29
Private	34
Public	48
Shared	36
Total	**147**

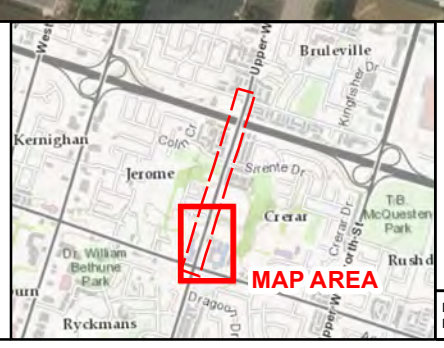
During the tree inventory, three Kentucky Coffeetrees were found along the east side of Upper Wellington Street north of the intersection of Upper Wellington Street with Sirente Drive (Figure 4-2). Kentucky Coffeetree is a Threatened species under the ESA in their native range. In Ontario, the native range of the Kentucky Coffeetree is restricted to extreme southwestern regions (counties of Essex, Lambton, Middlesex, and the Municipality of Chatham-Kent) (Ministry of the Environment, 2023). As such, their native range does not include Hamilton, and the ESA does not apply to these trees in the Project Location. Based on trees DBH, location and tree guards (Appendix C) these trees had been recently planted. These trees will be discussed further in Section 5.1.



WSP Tree ID	Common Name	DBH (cm)	Tree Health
101	Red Maple	13	G
201	Silver Maple	95	G
202	Silver Maple	68	G
203	Siberian Elm	43	G
204	Siberian Elm	57	G
205	Siberian Elm	57	G
206	Norway Maple	28	G
207	Norway Maple	35	G
208	Norway Maple	25	F
209	Honey Locust	36	G
210	Honey Locust	34	G
211	Honey Locust	36	G
212	Honey Locust	45	G
213	Black Walnut	53, 58	G
214	Ornamental Apple	25	G
215	Ornamental Apple	25	G
216	Ornamental Apple	26	G
217	Ornamental Apple	24	G
218	Ornamental Apple	24	G
219	Ornamental Apple	25	G
220	Siberian Elm	21	G
221	Amur Maple	11	G
222	Siberian Elm	13	G
223	Sugar Maple	12	G
224	Ornamental Apple	20	G
225	Norway Maple	34	F
226	Norway Maple	34	F
227	Norway Maple	35	G
228	Norway Maple	26	F
229	Norway Maple	24	G
230	Norway Maple	38	G
231	White Spruce	17	G
232	Norway Maple	36	G
233	Norway Maple	48	G
234	Black Pine	35, 20	G
235	Black Pine	38	G
236	Norway Maple	26	G
237	Norway Maple	29	G
238	Norway Maple	25	G
239	Norway Maple	23	G
240	Norway Maple	24	G
241	Norway Maple	21	G
242	Little Leaf Linden	18	D
243	European Beech	18, 10, 12	G
244	Blue Spruce	25	F

LEGEND

- Project Location
- Tree Drip Line Area
- Hamilton Right-Of-Way
- Tree Location (labelled with Tree Tag Number)



NOTES:
- Aerial imagery extracted from ESRI Basemaps, 2019
- Location of features is approximate
- Tree locations and associated drip line areas identified during Wood 2021 tree inventory survey

Datum: NAD83
Projection: UTM Zone 17N

0 25 50 100 Metres

Hamilton

wsp

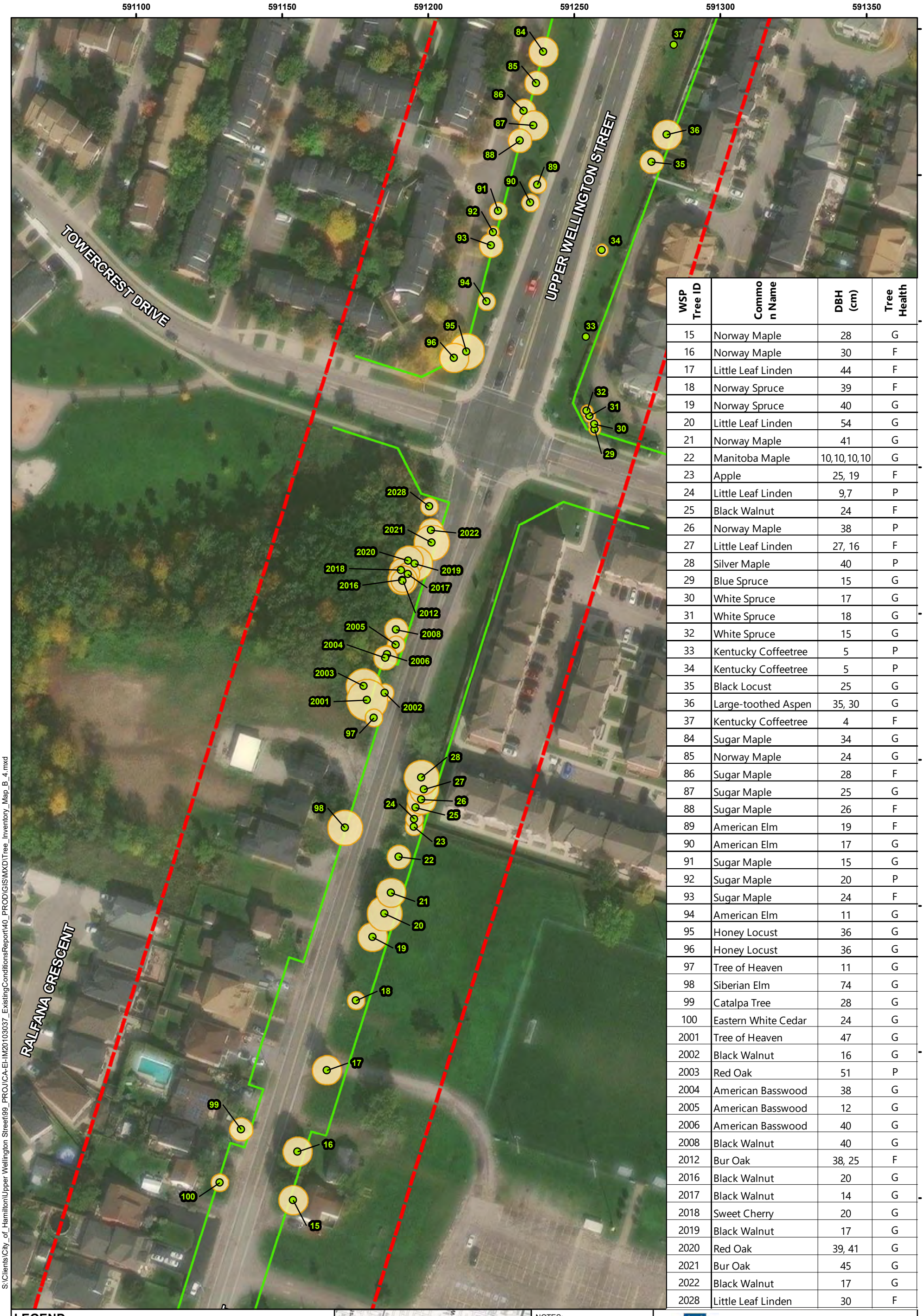
UPPER WELLINGTON STREET

Tree Inventory

PROJECT N°: IM20103037 | **FIGURE: 4-2A**

SCALE: 1:1,200 | DATE: July 2024

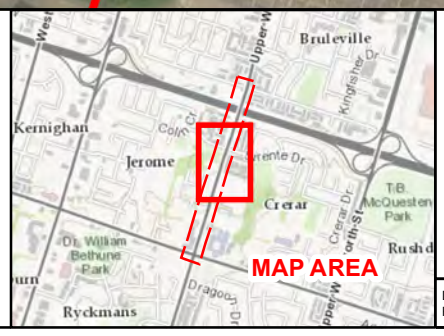
S:\Clients\City_of_Hamilton\Upper Wellington Street\99_PROJ\CA-EI-IM20103037_ExistingConditionsReport\40_PROD\GIS\MXD\Tree_Inventory_Map_A_4.mxd



WSP Tree ID	Common Name	DBH (cm)	Tree Health
15	Norway Maple	28	G
16	Norway Maple	30	F
17	Little Leaf Linden	44	F
18	Norway Spruce	39	F
19	Norway Spruce	40	G
20	Little Leaf Linden	54	G
21	Norway Maple	41	G
22	Manitoba Maple	10,10,10,10	G
23	Apple	25, 19	F
24	Little Leaf Linden	9,7	P
25	Black Walnut	24	F
26	Norway Maple	38	P
27	Little Leaf Linden	27, 16	F
28	Silver Maple	40	P
29	Blue Spruce	15	G
30	White Spruce	17	G
31	White Spruce	18	G
32	White Spruce	15	G
33	Kentucky Coffeetree	5	P
34	Kentucky Coffeetree	5	P
35	Black Locust	25	G
36	Large-toothed Aspen	35, 30	G
37	Kentucky Coffeetree	4	F
84	Sugar Maple	34	G
85	Norway Maple	24	G
86	Sugar Maple	28	F
87	Sugar Maple	25	G
88	Sugar Maple	26	F
89	American Elm	19	F
90	American Elm	17	G
91	Sugar Maple	15	G
92	Sugar Maple	20	P
93	Sugar Maple	24	F
94	American Elm	11	G
95	Honey Locust	36	G
96	Honey Locust	36	G
97	Tree of Heaven	11	G
98	Siberian Elm	74	G
99	Catalpa Tree	28	G
100	Eastern White Cedar	24	G
2001	Tree of Heaven	47	G
2002	Black Walnut	16	G
2003	Red Oak	51	P
2004	American Basswood	38	G
2005	American Basswood	12	G
2006	American Basswood	40	G
2008	Black Walnut	40	G
2012	Bur Oak	38, 25	F
2016	Black Walnut	20	G
2017	Black Walnut	14	G
2018	Sweet Cherry	20	G
2019	Black Walnut	17	G
2020	Red Oak	39, 41	G
2021	Bur Oak	45	G
2022	Black Walnut	17	G
2028	Little Leaf Linden	30	F

LEGEND

- Project Location
- Tree Drip Line Area
- Hamilton Right-Of-Way
- Tree Location (labelled with Tree Tag Number)



NOTES:
- Aerial imagery extracted from ESRI Basemaps, 2019
- Location of features is approximate
- Tree locations and associated drip line areas identified during Wood 2021 tree inventory survey

Datum: NAD83
Projection: UTM Zone 17N

0 25 50 100 Metres

Hamilton

wsp

UPPER WELLINGTON STREET

Tree Inventory

PROJECT N°: IM20103037 | **FIGURE: 4-2B**

SCALE: 1:1,200 | DATE: July 2024

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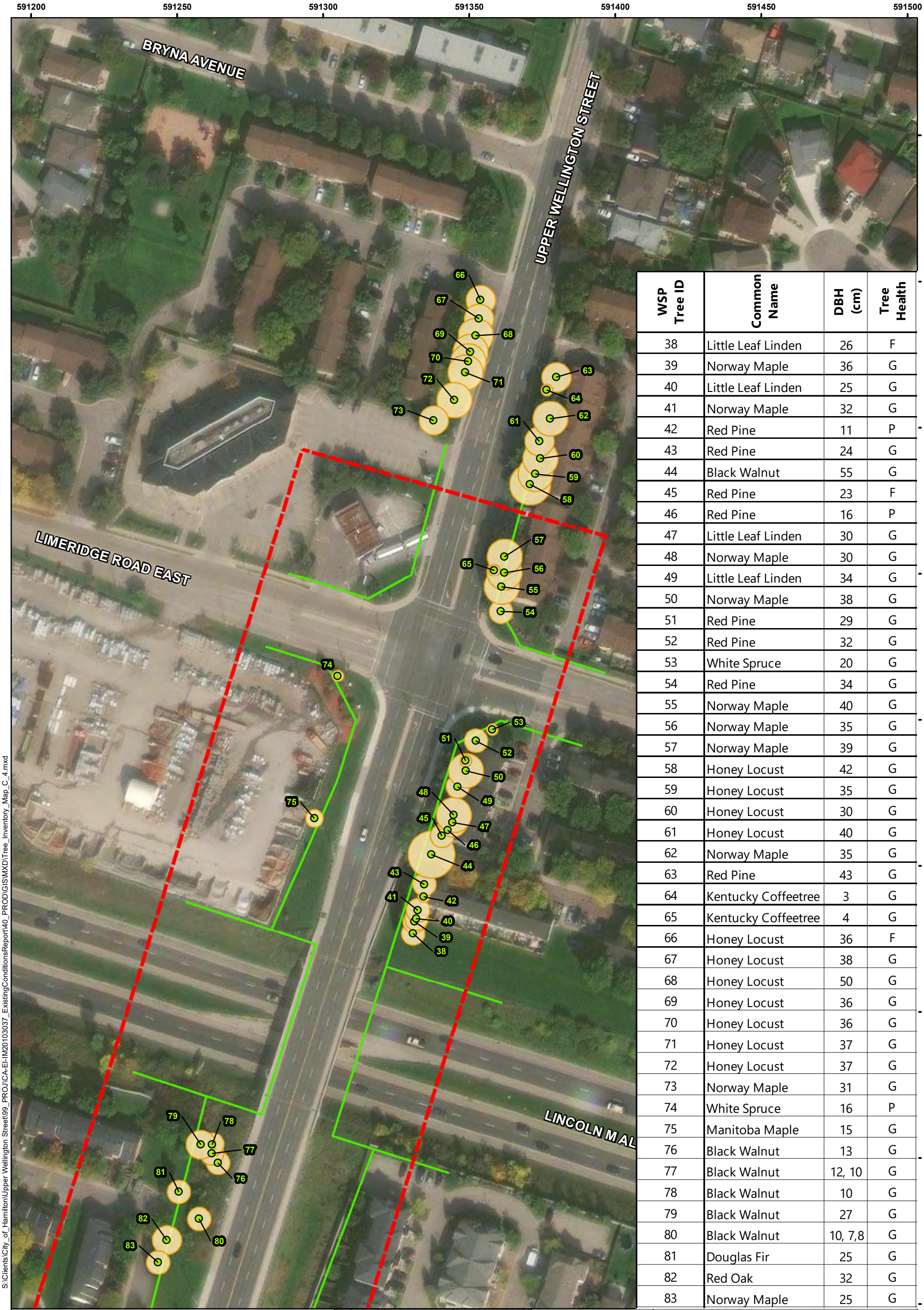
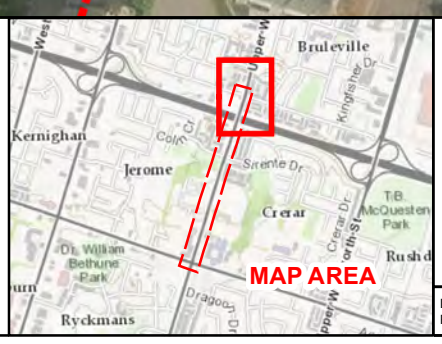


WSP Tree ID	Common Name	DBH (cm)	Tree Health
38	Little Leaf Linden	26	F
39	Norway Maple	36	G
40	Little Leaf Linden	25	G
41	Norway Maple	32	G
42	Red Pine	11	P
43	Red Pine	24	G
44	Black Walnut	55	G
45	Red Pine	23	F
46	Red Pine	16	P
47	Little Leaf Linden	30	G
48	Norway Maple	30	G
49	Little Leaf Linden	34	G
50	Norway Maple	38	G
51	Red Pine	29	G
52	Red Pine	32	G
53	White Spruce	20	G
54	Red Pine	34	G
55	Norway Maple	40	G
56	Norway Maple	35	G
57	Norway Maple	39	G
58	Honey Locust	42	G
59	Honey Locust	35	G
60	Honey Locust	30	G
61	Honey Locust	40	G
62	Norway Maple	35	G
63	Red Pine	43	G
64	Kentucky Coffeetree	3	G
65	Kentucky Coffeetree	4	G
66	Honey Locust	36	F
67	Honey Locust	38	G
68	Honey Locust	50	G
69	Honey Locust	36	G
70	Honey Locust	36	G
71	Honey Locust	37	G
72	Honey Locust	37	G
73	Norway Maple	31	G
74	White Spruce	16	P
75	Manitoba Maple	15	G
76	Black Walnut	13	G
77	Black Walnut	12, 10	G
78	Black Walnut	10	G
79	Black Walnut	27	G
80	Black Walnut	10, 7,8	G
81	Douglas Fir	25	G
82	Red Oak	32	G
83	Norway Maple	25	G

LEGEND

- Project Location
- Tree Drip Line Area
- Hamilton Right-Of-Way
- Tree Location (labelled with Tree Tag Number)



NOTES:
- Aerial imagery extracted from ESRI Basemaps, 2019
- Location of features is approximate
- Tree locations and associated drip line areas identified during Wood 2021 tree inventory survey

Datum: NAD83
Projection: UTM Zone 17N

0 25 50 100 Metres

Hamilton

wsp

UPPER WELLINGTON STREET

Tree Inventory

PROJECT N°: IM20103037 | **FIGURE: 4-2C**

SCALE: 1:1,200 | DATE: July 2024

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4.2 Wildlife Inventories

Based on the review of available literature, resource atlases, and databases, 153 species of birds, 83 species of butterflies, 41 species of mammals, and 27 species of reptiles and amphibians are reported to have element occurrences that overlapped the Project Location and Study Area. A tabulation of the compiled species list is provided in Appendix D.

4.2.1 Birds

The breeding birding surveys found 26 species using the Study Area. Of the 26 species, two species, European Starling and House Sparrow, were confirmed to be breeding in the Study Area. Eight species were probably breeding in the Study Area. These eight species are:

- American Goldfinch;
- American Robin;
- Blue Jay
- Chipping Sparrow;
- Mourning Dove;
- Northern Cardinal;
- Red-winged Blackbird; and
- Song Sparrow.

Possible breeding was noted by 12 species. These birds were:

- Barn Swallow;
- Black-billed Cuckoo;
- Black-capped Chickadee;
- Carolina Wren;
- Cedar Waxwing;
- Common Grackle;
- House Finch;
- House Wren;
- Red-eyed Vireo;
- Red-tailed Hawk;
- Rock Pigeon; and
- Tree Swallow.

Other birds were seen in the Study Area but were not observed to be breeding. Four species of birds (American Crow, Blackpoll Warbler, Canada Goose, and Ring-billed Gull) were just observed (i.e., no breeding evidence) in the Study Area.

Of the 26 bird species found by WSP in the Study Area, one (Carolina Wren) is classified as locally rare (Shwertz & Martle, 2014). Carolina Wren is a common breeding bird in urban and suburban areas of Hamilton (eBird, 2025). Carolina Wren is also an indicator of Carolinian forest (Ontario Ministry of Natural Resources, 2000). Most (16) of the species were abundant, and seven were common. Only one species was uncommon, the Black-Billed Cuckoo (Shwertz & Martle, 2014). None of the other birds observed are indicator species of SWH (see Section 5.8).

The two species of conservation concern found by WSP field investigations were Barn Swallow (Special Concern) and Eastern Wood-pewee (Special Concern). These species will be discussed further in Section 5.8.4. The Barn Swallows were seen feeding over the sports field of Bethel Gospel Tabernacle and foraging over the southeast corner of Upper Wellington Street and Limeridge Road East. It is speculated that there is possible Barn Swallow nesting habitat in the structures, which include a barn found on the property on the southwest corner of Upper

Wellington Street and Limeridge Road East. The Eastern Wood-pewee was heard in the Dry-fresh Oak-hickory Deciduous Forest during the breeding bird season (on 4 August 2021); this habitat is suitable for nesting.

Combining the WSP breeding bird surveys, eBird, Breeding Bird Atlas of Ontario, NHIC, and iNaturalist (eBird, 2025; iNaturalist, 2025; Ontario Ministry of Northern Development, Mines, Natural Resources and Foresty, 2025; Cadman, Sutherland, Beck, Lepage, & Couturier, 2007) created a list of 153 species of birds, including two endangered, six threatened, and seven special concern SAR. A summary of those SAR is as follows (Appendix D):

- Loggerhead Shrike – Endangered
- Northern Bobwhite – Endangered;
- Bobolink – Threatened;
- Chimney Swift – Threatened;
- Eastern Meadowlark – Threatened;
- Least Bittern – Threatened;
- Lesser Yellowlegs – Threatened;
- Short-eared Owl – Threatened;
- Barn Swallow – Special Concern;
- Common Nighthawk – Special Concern;
- Eastern Wood-pewee – Special Concern;
- Grasshopper Sparrow – Special Concern;
- Peregrine Falcon – Special Concern; and
- Rusty Blackbird– Special Concern;
- Wood Thrush – Special Concern.

4.2.2 Mammals

Within the vicinity of the Study Area, 41 species of mammals have habitat ranges (Dobbyn, 1994). It is important to note that the exact locations of species occurrences are not available from the Atlas (Dobbyn, 1994). iNaturalist had records of ten species (iNaturalist, 2025):

- Coyote;
- Deer Mouse;
- Eastern Cottontail;
- Eastern Gray Squirrel;
- Northern Raccoon;
- Norway Rat;
- Striped Skunk;
- Virginia Opossum;
- White-tailed Deer; and
- Woodchuck.

During field investigations, Eastern Cottontail and Eastern Gray Squirrel were observed incidentally in the Study Area. Both Eastern Cottontail and Eastern Gray Squirrel are common in Hamilton (Shwertz & Martle, 2014).

Given the vegetative characteristics and habitat suitability, SAR bats, as well as non-SAR bats, are likely to occur within the Study Area. Many large (>25 cm DBH) oak and maple trees suitable for roosting were found within the Dry-fresh Oak-hickory Deciduous Forest. Along the road, there are some large (>25 cm DBH) Norway Maples that could provide habitat in the leaf clusters for SAR bats.

4.2.3 Reptiles and Amphibians

No reptiles or amphibians were found incidentally by WSP during fieldwork. Twelve reptiles and amphibians have been reported within 2 km of the Project area in iNaturalist (iNaturalist, 2025). These species were:

- American Toad
- Blanding's Turtle – Threatened;
- Eastern Red-backed Salamander
- Jefferson Salamander;
- Midland Painted Turtle;
- Northern Leopard Frog
- Northern Map Turtle;
- Pond Slider;
- Ring-necked Snake;
- Snapping Turtle;
- Spotted Salamander; and
- Unisexual Ambystoma.

The Ontario Reptile and Amphibian Atlas found 24 species of reptiles and amphibians in the vicinity of the Study Area, with many of these observations being over ten years old. It is important to note that the exact locations of species occurrences are not available from the Atlas (Ontario Nature, 2021). SAR reptiles and amphibians found the secondary source are:

- Jefferson Salamander – Endangered;
- Northern Map Turtle- Special Concern; and
- Snapping Turtle – Special Concern.

Given the characteristics of the Study Area, there is a low probability for most of the species documented. There are no wetlands for Jefferson Salamander or Blanding's Turtle and no large watercourses for Northern Map Turtle. Snapping Turtle is known to be urban; however, given the lack of waterbodies in and adjacent to the Study Area, Snapping Turtle is not considered to be present.

4.2.4 Butterflies

WSP found two species of butterflies incidentally. One butterfly was Cabbage White, and the other was Monarch. Monarchs are Special Concern in Ontario. Monarchs were observed flying through the Dry-fresh Forb Meadow along the south edge of Upper Wellington Street and within the meadow found on the southwest corner of Towercrest Drive and Upper Wellington Street (Figure 4-1). Monarchs are an indicator species of Migratory butterfly stopover areas, a SWH. Migratory butterfly stop would not occur in the study area because it is too far away from Lake Erie and Lake Ontario (Ontario Ministry of Natural Resources and Forestry, 2015). The other SWH that Monarch confirms is habitat for Special Concern and Rare Wildlife Species. The Monarch observations are discussed further in Section 5.8.4. The Ontario Butterfly Atlas identified 83 species in the vicinity (MacNaughton, 2021). Of the 89 that have been observed only 39 species have been observed within the last ten years. All other records are old (greater than 10 years old), or the year was not recorded (MacNaughton, 2021). Important but dated observations are of the West Virginia White (Special Concern) from 1881 and the Mottled Duskywing from 1979. These species are no longer thought to occur in the area, given the landscape changes that have occurred since their last observations (see Section 5.1). It is important to note that the exact locations of species occurrences are not available from the Atlas (MacNaughton, 2021). Consequently, it is possible that some of these species reported in the Ontario Butterfly Atlas do not occur in the Study Area but have been reported in the much larger Atlas square.

5.0 SIGNIFICANCE SCREENING

5.1 Species at Risk

As per the MECP Client's Guide to Preliminary Screening for Species at Risk, WSP conducted a comprehensive assessment to compile information regarding Species at Risk (SAR) and their habitats that exist, or are likely to exist, within the Study Area (Ministry of the Environment, Conservation and Parks, 2019). This assessment involved both field investigations and the review of secondary source information, including data from the NHIC database.

Thirty-three SAR were identified as having records or ranges that broadly overlap the Study Area. These species were evaluated for their potential presence and habitat suitability. A summary of SAR, as documented from field investigations or secondary source information, including those reported from the NHIC database, is provided in Table 5-1. SAR are either confirmed, documented during field work or with location data from secondary sources, or have a probability of occurrence in the Study Area. Additionally, SAR may enter the area, or species already present may be up-listed at any time.

The protocols used for assessing SAR are based on widely recognized industry standards. The probabilities of occurrence provided in Table 5-1 are based on WSP's established methodologies and include an assessment of each species' habitat preferences and needs in conjunction with background information. These assessments consider the availability and quality of habitat within the Project Location and Study Area. The probabilities of occurrence are defined as 'High,' 'Moderate,' 'Low,' and 'None,' and are based on the following WSP definitions:

- **High**: Those species recorded (typically within 10 km and recorded in the past 20 years) and whose preferred habitat is abundant within the Project Location/Study Area. Species with a high probability of occurrence would be expected to breed within or frequently use the habitats available and would be known to have a high relative abundance within the region (i.e., compared to other regions in Ontario);
- **Moderate**: Those species with limited suitable habitat within the Project Location/Study Area. Species with moderate probabilities of occurrence may not occur frequently but may intermittently use it for foraging, migration, or movement to other parts of their home range;
- **Low**: Those species whose preferred habitat does not occur or is extremely limited within the Project Location/Study Area. These species may intermittently move through the Project Location but are unlikely to become permanent residents; and
- **None**: Those species whose preferred habitat is completely absent from the Project Location/Study Area and may only migrate intermittently through the Project Location.

Kentucky Coffeetree was found along Upper Wellington Street, near the intersection of Towercrest Drive/Sirente Drive and Upper Wellington Street (Figure 4-2). These trees are listed as Threatened under the ESA in their native range. Kentucky Coffeetree is frequently planted as an ornamental tree outside of their native range, and as a result, it can be difficult to ascertain whether trees are native, planted from native stock, planted cultivars from the United States, or offspring of horticultural specimens that have spread into natural habitat. Hamilton is outside of the native range of this species. The ESA does not apply to the Kentucky Coffeetree.

Three Special Concern species; Barn Swallow, Eastern Wood-pewee, and Monarch, have been confirmed in the Project Location. No Endangered or Threatened species have been confirmed.

Table 5-1: Species at Risk Potential Occurrence

Species Name, Status (SARA, ESA, S-Rank)[1,2,3]	Preferred Habitat	Potential for SAR Habitat / Occurrence within the Project Location
Birds		
Barn Swallow (*Hirundo rustica*) SARA: Threatened ESA: Special Concern S-Rank: S4B	Barn Swallows have shifted largely to nesting in and on artificial structures, including buildings, bridges, and road culverts, and prefer various open habitats for foraging including grassy fields, pastures, agricultural crops, and over open water (Heagy, et al., 2014).	**Confirmed Present** – Seen and heard foraging over the Study Area. Possible Barn Swallow nesting habitat was observed in the far edge of the Study Area on the southwest corner of the intersection of Upper Wellington Street and Limeridge Road East. The structure is an open-walled materials storage structure. Barn Swallows were seen foraging on the southeast corner of the intersection of the Upper Wellington Street and Limeridge Road East and the sports field near the Bethel Gospel Tabernacle.
Bobolink (*Dolichonyx oryzivorus*) SARA: Threatened ESA: Threatened S-Rank: S4B	Bobolink nest primarily in forage crops, hayfields, and associated pastures. Bobolink also occur in wet prairie, graminoid peatlands and abandoned fields dominated by tall grasses, no-till cropland, small-grain fields, reed beds and irrigated fields in arid regions. The species does not generally occupy fields of row crops such as corn, soybean and wheat, pastures in valleys with high shrub density or intensively grazed pastures (McCracken, et al., 2013).	**Low** - No suitable breeding habitat observed near the Project Location and immediate area. The CUM in the south end of the Study Area was not vegetative enough to support this species. Breeding bird surveys did not find this species to be in the Study Area.
Chimney Swift (*Chaetura pelagica*) SARA: Threatened ESA: Threatened S-Rank: S4B, S4N	Chimney swifts forage aerially over virtually any habitat. Nesting and roosting take place in a dark sheltered spot with vertical surfaces to cling to. This may include large hollow trees, chimneys, and other structures (COSEWIC, 2007).	**Low** - No suitable breeding habitat observed near the Project Location and immediate area. No suitable chimneys to support this species. Breeding bird surveys did not find this species to be in the Study Area.
Common Nighthawk (*Chordeiles minor*) SARA: Special Concern ESA: Special Concern S-Rank: S4B	Breeding habitat of Common Nighthawk includes a huge variety of open habitats such as clearings, grasslands, open forests, cropfields and urban areas. In urban areas, gravel rooftops are used. Foraging is aerial over virtually any habitat (COSEWIC, 2007)	**Low** - No suitable breeding habitat observed near the Project Location and immediate area.

Species Name, Status (SARA, ESA, S-Rank)[1,2,3]	Preferred Habitat	Potential for SAR Habitat / Occurrence within the Project Location
Eastern Meadowlark (*Sturnella magna*) SARA: Threatened ESA: Threatened S-Rank: S4B	Eastern Meadowlarks nest in a variety of open grassy habitats, preferring native grasslands, pastures, and savannahs. Larger tracts of grassland are preferred (McCracken, et al., 2013).	**Low** - No suitable breeding habitat observed near the Project Location and immediate area. The CUM in the south end of the Study Area was not vegetative enough to support this species. Breeding bird surveys did not find this species to be in the Study Area.
Eastern Wood-pewee (*Contopus virens*) SARA: Special Concern ESA: Special Concern S-Rank: S4B	Eastern Wood-pewee breeding in mature to intermediate-aged forests with an open understory, often being associated with clearings and edges. Migrants may occur in a wide variety of habitats (COSEWIC, 2012).	**Confirmed Present** – Heard in the Dry-fresh Oak-hickory Deciduous Forest. This observation was made in suitable nesting habitats during the breeding bird season (Figure 3-1).
Grasshopper Sparrow (*Ammodramus savannarum*) SARA: Special Concern ESA: Special Concern S-Rank: S4B	In Ontario, grasshopper sparrow is found in medium to large grasslands with low herbaceous cover and few shrubs. It also uses a wide variety of agricultural fields, including cereal crops and pastures. Close-grazed pastures and limestone plains (e.g. Carden and Napanee Plains) support highest density of this bird in the province (COSEWIC, 2013)	**Low -** No suitable breeding habitat observed near the Project Location and immediate area. The CUM in the south end of the Study Area was not large enough to support this species. Breeding bird surveys did not find this species to be in the Study Area.
Least Bittern (*Ixobrychus exilis*) SARA: Threatened ESA: Threatened S-Rank: S4B	In Ontario, least bittern breeds in marshes, usually greater than 5 ha, with emergent vegetation, relatively stable water levels and areas of open water. Preferred habitat has water less than 1 m deep (usually 10 – 50 cm). Nests are built in tall stands of dense emergent or woody vegetation (Woodliffe, 2007). Clarity of water is important as siltation, turbidity, or excessive eutrophication hinders foraging efficiency (COSEWIC , 2009)	**Low** – No suitable breeding habitat observed near the Project Location and immediate area. No wetlands or waterbodies within the Study Area. A single observation of the species from Spring 2007 in the Hamilton--Crerar Forest (0.55 km east of the Project location) indicates the species may migrate intermittently through the Project Location (eBird, 2025). Breeding bird surveys did not find this species to be in the Study Area.

Species Name, Status (SARA, ESA, S-Rank)[1,2,3]	Preferred Habitat	Potential for SAR Habitat / Occurrence within the Project Location
Lesser Yellowlegs (*Tringa flavipes*) SARA: Not listed ESA: Threatened S-Rank: S3S4B,S5M	In Ontario, lesser yellowlegs breeds in northern Ontario. It typically nests on dry ground near wetland areas that are used for foraging (COSSARO, 2021)	**Low** – No suitable breeding habitat observed near the Project Location and immediate area. No wetlands or waterbodies within the Study Area. The nearest record of this species is from 4 May 2021 in Hamilton's William Connell Park (1.29 km west of the Project location), which houses a constructed wetland (large stormwater management facility) (eBird, 2025). This species may migrate intermittently through the Project Location. Breeding bird surveys did not find this species to be in the Study Area.
Loggerhead Shrike (*Lanius ludovicianus*) SARA: Endangered ESA: Endangered S-Rank: S1B	In Ontario, loggerhead shrike breeds in open country habitat characterized by short grasses with scattered shrubs or low trees. Unimproved pasture containing scattered hawthorns (Crataegus spp.) on shallow soils over limestone bedrock is the preferred habitat. Preferred nest sites include isolated hawthorns or red cedar. Males defend large territories of approximately 50 ha (Chabot, 2007)	**Low** - No suitable breeding habitat observed near the Project Location and immediate area. This species may migrate intermittently through the Project Location. The CUM in the south end of the Study Area was not large enough to support this species. The nearest observation of loggerhead shrike is from May 2017, approximately 1.5 km west of the Project Location (iNaturalist, 2025). Breeding bird surveys did not find this species to be in the Study Area.
Northern Bobwhite (*Colinus virginianus*) SARA: Endangered ESA: Endangered S-Rank: S1	The Northern Bobwhite requires an early successional habitat. Minimally it requires an interspersion of grassland, cropland, and brushy cover. The species is now extremely rare in Ontario (COSEWIC, 2003).	**None** – Species extirpated from the area.
Peregrine Falcon *(Falco peregrinus anatum / tundrius*) SARA: Not at risk. ESA: Special Concern S-Rank: S3B	Most Peregrine Falcons nest on cliff ledges or crevices, but some will also use tall buildings and bridges near good foraging areas (COSEWIC, 2007). Habitat for Peregrine Falcons has three scales: a nest site with associated perching sites, a nesting territory, and a home range (Ontario Peregrine Falcon Recovery Team, 2010). Characteristics of urban nests are often like those of natural cliff nests in that chosen nest sites are usually on one of the taller buildings in an area and within one block of other tall buildings and a reliable food source. They mostly feed on medium-sized birds such as Rock Pigeon and Ring-billed Gull. Other common prey are the European Starling, Blue Jay, Baltimore Oriole, House Sparrow and Kinglet species (Ontario Peregrine Falcon Recovery Team, 2010).	**Low** – The Study Area could be used for foraging or migration. Breeding bird surveys did not find this species to be in the Study Area.

Species Name, Status (SARA, ESA, S-Rank)[1,2,3]	Preferred Habitat	Potential for SAR Habitat / Occurrence within the Project Location
Rusty Blackbird (*Euphagus carolinus*) SARA: Special Concern ESA: Special Concern S-Rank: S4B,S3N	In Ontario, rusty blackbird breeds in swamps, fens, bogs and beaver ponds of boreal or mixed forests. It may also breed in dense vegetation along creeks, and on the edges of riparian forests or pasture edges (COSEWIC, 2017). Edge habitat associated with disturbances such as clear cut or burn regeneration zones may be favoured. Rusty blackbirds nest in small trees or shrubs, close to, or over water. Nests may be in living or dead trees and stumps but have also been found on the ground (Avery, 2013)	**Low** – No suitable breeding habitat observed near the Project Location and immediate area. No wetlands or waterbodies within the Study Area. A single record of this species from 3 October 2022 in Hamilton's William Connell Park (1.29 km west of the Project Location), which houses a constructed wetland (large stormwater management facility) (eBird, 2025). This species may migrate intermittently through the Project Location. Breeding bird surveys did not find this species to be in the Study Area.
Short-eared Owl (*Asio flammeus*) SARA: Special Concern ESA: Threatened S-Rank: S4?B,S2S3N	In Ontario, short-eared owl breeds in a variety of open habitats including grasslands, tundra, bogs, marshes, clear-cuts, burns, pastures and occasionally agricultural fields (COSEWIC , 2008b). The primary factor in determining breeding habitat is proximity to small mammal prey resources Nests are built on the ground at a dry site and usually adjacent to a clump of tall vegetation used for cover and concealment (Gahbauer, 2007).	**Low** - No suitable breeding habitat observed near the Project Location and immediate area. This species may migrate intermittently through the Project Location. The CUM in the south end of the Study Area was not large enough to support this species. The nearest observation of the species was in Hamilton's Bruleville Nature Park (0.38 km northeast of the Project Location) approximately 20 years ago (December 2016) (eBird, 2025). This species was not observed during field investigations.
Wood Thrush (*Hylocichla mustelina*) SARA: Threatened ESA: Special Concern S-Rank: S4B	Wood Thrush breed in mature or second-growth deciduous and mixed forests. They prefer forests with dense understory and large areas of forest but are not reliant on this. Habitat fragmentation due to human development and over-grazing by White-tailed Deer are the main threats to this species (COSEWIC, 2012).	**Moderate** - No suitable habitat observed near the Project Location and immediate area. This species may migrate intermittently through the Project Location. Breeding bird surveys did not find this species to be in the Study Area.
Reptiles and Amphibians		
Blanding's Turtle (*Emydoidea blandingii*) SARA: Endangered ESA: Threatened S-Rank: S3	In Ontario, Blanding's turtle will use a range of aquatic habitats, but favor those with shallow, standing or slow-moving water, rich nutrient levels, organic substrates and abundant aquatic vegetation. They will use rivers but prefer slow-moving currents and are likely only transients in this type of habitat. This species is known to travel great distances over land in the spring to reach nesting sites, which can include dry conifer or mixed forests, partially vegetated fields, and roadsides. Suitable nesting substrates include organic soils, sands, gravel and cobble. They hibernate underwater and infrequently under debris close to water bodies (COSEWIC, 2016b)	**None** – No waterbodies within the Study Area.

Species Name, Status (SARA, ESA, S-Rank)[1,2,3]	Preferred Habitat	Potential for SAR Habitat / Occurrence within the Project Location
Jefferson Salamander (*Ambystoma jeffersonianum*) SARA: Endangered ESA: Endangered S-Rank: S2	Habitat is defined under the ESA. O. Reg. 832/21: HABITAT #21 Adult Jefferson Salamanders, throughout their range, are found within deciduous or mixed upland forests containing, or adjacent to, suitable breeding ponds. Breeding ponds are normally ephemeral, or vernal, woodland pools that dry in late summer. Terrestrial habitat is in mature woodlands that have small mammal burrows or rock fissures that enable adults to over-winter underground below the frost line (COSEWIC, 2010). Jefferson Salamanders spend most of their time underground in mixed or deciduous upland forests. In spring, breeding ponds are required for reproduction, which are typically vernal woodland pools that dry by late summer (COSEWIC, 2010).	**Low** – Woodlands in the area are likely not large enough and do not contain vernal pools.
Northern Map Turtle (*Graptemys geographica*) SARA: Special Concern ESA: Special Concern S-Rank: S3	Inhabits both lakes and rivers, showing a preference for slow moving currents, muddy bottoms, and abundant aquatic vegetation. These turtles need suitable basking sites (such as emergent rocks and logs) and exposure to the sun for at least part of the day (COSEWIC, 2012). Shallow, soft-bottomed habitats are preferred, with wintering occurring in deeper sections (COSEWIC, 2012).	**None** – No large waterbodies within the Study Area.
Snapping Turtle (*Chelydra serpentina*) SARA: Special Concern ESA: Special Concern S-Rank: S4	Snapping Turtles prefer slow-moving waters with a soft mud bottom and dense aquatic vegetation. Established populations are most often located in ponds, sloughs, shallow bays or river edges and slow streams and wetlands. Individuals can also exist in developed areas (e.g., golf course ponds, irrigation canals); however, it is unlikely that populations persist in such habitats. Snapping Turtles can occur in highly polluted waterways, but environmental contamination is known to limit reproductive success (COSEWIC, 2008).	**None** – No waterbodies within the Study Area.
Timber Rattlesnake (*Crotalus horridus*) SARA: Extirpated ESA: Extirpated S-Rank: SX	Forested areas with rocky outcrops, dry ridges and second growth coniferous or deciduous forest (COSEWIC, 2001).	**None** – Species extirpated from the area.

Species Name, Status (SARA, ESA, S-Rank)[1,2,3]	Preferred Habitat	Potential for SAR Habitat / Occurrence within the Project Location
Mammals		
Eastern Red Bat (*Lasiurus borealis*) SARA: Not on Schedule 1 ESA: Endangered S-Rank: S4	The Eastern Red Bat is typically found in coniferous and mixed forests, preferring to roost at the tops of trees, suspended from branches. They forage in both forested and non-forested habitats, including open and semi-cluttered areas, both above and below forest canopies (COSEWIC. , 2023); (Ontario Ministry of Natural Resources, 2024)	**High** – Deciduous forest communities occur along Upper Wellington Street within the Study Area and beyond and would likely provide suitable habitat. Possible bat habitat trees are thought to require removal for Project works.
Eastern Small-footed Myotis (*Myotis leibii*) SARA: No status ESA: Endangered S-Rank: S2S3	The Eastern Small-footed Bat is one of the less common species found to hibernate in Ontario. Caves and mines serve as significant hibernacula while streams and ponds serve as foraging areas (Ontario Ministry of Natural Resources, 2011).	**Moderate** – Deciduous forest communities occur along the Upper Wellington Street within the Study Area and beyond and would likely provide suitable habitat. Possible bat habitat trees are thought to require removal for Project works.
Hoary Bat (*Lasiurus cinereus*) SARA: Not on Schedule 1 ESA: Endangered S-Rank: S4	Hoary Bats are found in coniferous or deciduous forests, often along edge habitats. They roost near the tops of trees and forage in clearings near sources of water (COSEWIC, 2023).	**High** – Deciduous forest communities occur along the Upper Wellington Street within the Study Area and beyond and would likely provide suitable habitat. Possible bat habitat trees are thought to require removal for Project works.
Little Brown Myotis (*Myotis lucifugus)* SARA: Endangered ESA: Endangered S-Rank: S3	The Little Brown Myotis is widespread throughout the southern half of Canada and is especially associated with humans, often forming nursery colonies in buildings, attics, and other man-made structures. Little Brown Myotis forage over water where their diet consists of aquatic insects, mainly midges, mosquitoes, mayflies, and caddisflies. They also feed over forest trails, cliff faces, meadows, and farmland where they consume a wide variety of insects, from moths and beetles to crane flies (Ontario Ministry of Natural Resources, 2011).	**High** – Deciduous forest communities occur along Upper Wellington Street within the Study Area and beyond and would likely provide suitable habitat. Possible bat habitat trees are thought to require removal for Project works.
Northern Myotis (*Myotis septentrionalis*) SARA: Endangered ESA: Endangered S-Rank: S3	The Northern Myotis is one of the less common species found to hibernate in Ontario. This species is closely associated with woodlands and uses trees as maternity sites (Ontario Ministry of Natural Resources, 2011).	**Moderate** – Deciduous forest communities occur along Upper Wellington Street within the Study Area and beyond and would likely provide suitable habitat. Possible bat habitat trees are thought to require removal for Project works.

Species Name, Status (SARA, ESA, S-Rank)[1,2,3]	Preferred Habitat	Potential for SAR Habitat / Occurrence within the Project Location
Silver-haired Bat (*Lasionycteris noctivagans)* SARA: Not on Schedule 1 ESA: Endangered S-Rank: S4	Silver-haired Bats primarily roost under bark and in the cavities of trees, making them reliant on habitats with large, decaying trees. They are found in a variety of large diameter coniferous and deciduous trees (COSSARO, 2023)	**High** – Deciduous forest communities occur along the Upper Wellington Street within the Study Area and beyond and would likely provide suitable habitat. Possible bat habitat trees are thought to require removal for Project works.
Tri-colored Bat (*Perimyotis subflavus*) SARA: Endangered ESA: Endangered S-Rank: S3	Within treed habitats, Tri-colored Bat primarily roosts in tree foliage (mainly within oak leaves). Leaf roosts are shaped like umbrellas with a "roof" and a hollow core where bats rest. Studies have shown that oak leaves are a preferred roost site. Maple leaves are also selected, although less commonly. It is thought that Tri-colored Bat may prefer roost trees in more open woodlands, as opposed to deep woods. Roosts in tree cavities are used less frequently than Myotis species (Ontario Ministry of Natural Resources, 2011).	**Moderate** – Deciduous forest communities occur along Upper Wellington Street within the Study Area and beyond and would likely provide suitable habitat. Possible bat habitat trees are thought to require removal for Project works.
Invertebrates		
Mottled Duskywing (*Erynnis martialis*) SARA: No Status COSEWIC: Endangered ESA: Endangered S-Rank: S2	The Mottled Duskywing requires its host plants, New Jersey Tea and Prairie Redroot, during its life cycle. In Canada, these plants grow in dry, well-drained soils or alvar habitat within oak woodland, pine woodland, roadsides, riverbanks, shady hillsides, and tall grass prairies. The butterfly is frequently absent from apparently suitable host plant patches, suggesting additional limiting factors play a role in the species' site occupancy. The host plants also appear to be declining throughout most of the butterfly's range and the habitats may also be imperiled (COSEWIC, 2012).	**Low** – No New Jersey Tea or Prairie Redroot in the Study Area. Little suitable habitat in the area.
Monarch (*Danaus plexippus*) SARA: Endangered ESA: Special Concern S-Rank: S2N, S4B	Monarch is very widely distributed across North America and found in a wide variety of habitats. Populations fluctuate dramatically but have been generally declining likely due to habitat destruction on the hibernation grounds in Mexico, as well as pesticide use and other factors on the vast breeding grounds. Monarchs require Milkweeds (Asclepias) to lay their eggs and will use a variety of other flowers for adult food (COSEWIC, 2016).	**Confirmed Present** – Monarchs were found in the Dry-fresh Forb Meadow ecosite on the southwest side of the Towercrest Drive and Upper Wellington Street and the CUM near the southwest corner of the intersection of Stone Church Road East and Upper Wellington Street.
West Virginia White (*Pieris virginiensis*) SARA: No Status	The West Virginia White lives in moist, deciduous woodlots. This butterfly 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 (Burke, 2013).Generally, prefer moist, deciduous woodlands. The larvae feed only on the leaves of the two-leaved toothwort, which is a small, spring-blooming plant of the forest floor (Burke, 2013).	**Low** – Little suitable habitat in the area.

Species Name, Status (SARA, ESA, S-Rank)[1,2,3]	Preferred Habitat	Potential for SAR Habitat / Occurrence within the Project Location
COSEWIC: No Status ESA: Special Concern S-Rank: S3		
Plants		
Butternut (*Juglans cinerea*) SARA: Endangered ESA: Endangered S-Rank: S3?	Generally, grows in rich, moist, and well-drained soils often found along streams. It may also be found on well-drained gravel sites, especially those made up of limestone. It is also found, though seldomly, on dry, rocky, and sterile soils. In Ontario, the Butternut generally grows alone or in small groups in deciduous forests as well as in hedgerows (Ontario Ministry of Natural Resources and Forestry, 2014).	**Low** – The Study Area was searched for SAR plants, none were found. Butternuts could be in the Study Area.
Kentucky Coffeetree (*Gymnocladus dioicus*) SARA: Threatened ESA: Threatened S-Rank: S2	Rich Floodplain woodlands and woodland edges of marshes where open canopy conditions exist (COSEWIC, 2000).	**Confirmed (planted)** – These trees were found along the side of Upper Wellington Street (Figure 4-2). Based on trees DBH, location, and tree guards (Appendix C), these trees were recently planted. These trees are listed as Threatened under the ESA in their native range. Hamilton is outside of the native range of this species. The ESA does not apply to the Kentucky Coffeetree.
Spotted Wintergreen (*Chimaphila maculata*) SARA: Threatened ESA: Threatened S-Rank: S2	Woodland understory species typically associated with dry-fresh oak and oak-pine forests and woodlands (COSEWIC, 2017).	**Low** – The Study Area was searched for SAR plants, none were found. Historic records of the species from NHIC 1 km squares (17NH9184, 17NH9185). Spotted Wintergreen could be in the Study Area.

1 *Species at Risk Act, 2002* Schedule 1 unless otherwise noted. The protection and/or conservation measures afforded by SARA apply only to species once they are on Schedule 1. COSEWIC status provided in the case that the species has no status under SARA but is listed by COSEWIC.

2 *Endangered Species Act, 2007*.

3 S-Rank: S1 - Extremely rare throughout its range in the province; S2 - Rare throughout its range in the province; S3 - Uncommon or vulnerable species; S4 - Apparently Secure Species; S5 - Secure Species; SX - Extirpated; B - Breeding; N - Non-breeding; ? - Uncertainty

5.2 Significant Wetland

Wetlands are defined as areas that are seasonally or permanently covered by shallow water, as well as lands where the water table is close to or at the surface (Lee, et al., 1998). A significant wetland is an area identified as a Provincially Significant Wetland by the MNR using evaluation procedures established by the Province, as amended from time to time (Lee, et al., 1998). Wetlands regardless of significance are considered Core Areas within the City's Natural Heritage System (see section 5.9).

Based on a review of secondary source material, available online databases, and ELC surveys, no Provincially Significant Wetlands are located within the Project Location and Study Area (Ontario Ministry of Northern Development, Mines, Natural Resources and Foresty, 2025).

5.3 Significant Valleylands

The PPS (Ministry of Municipal Affairs and Housing, 2024) identifies Significant Valleylands as a "natural area that occurs in a valley or landform depression that has "water" for some period of the year. Based on the field investigations and the criteria of Significant Valleylands of the City (City of Hamilton, 2013), Significant Valleylands are not located within the Project Location and Study Area.

5.4 Fish Habitat

Fish habitats are identified as spawning grounds and nurseries, rearing, food supply, and migration areas on which fish depend directly and or indirectly to carry out their life processes (Lee, et al., 1998). Fish habitats commonly occur in many natural heritage areas such as wetlands, valleylands, woodlands and ANSIs. Fish habitat is considered Core Areas within the City's Natural Heritage System (see section 5.9).

The review of background information and incidental observations during field investigations (City of Hamilton, 2013; Hamilton Conservation Authority, 2021) did not find fish habitat in the Study Area.

5.5 Significant Woodlands

Woodlands are treed areas that provide environmental or economic benefits such as erosion prevention, water retention, recreation, and the sustainable harvest of woodland products. Woodlands include treed areas, woodlots, or forested areas, and vary in their level of significance (Ministry of Municipal Affairs and Housing, 2024). Woodland significance is typically determined by evaluating key criteria related to woodland size, ecological function, uncommon woodland species, and economic and social value.

Based on the field investigations and review of secondary source material, the Dry-fresh Oak-hickory Deciduous Forest near the southwest corner of the intersection of Towercrest Drive and Upper Wellington (Figure 4-1) is a Significant Woodland. The City defines Significant Woodland in the Official Plan (City of Hamilton, 2013). The criteria of the Dry-fresh Oak-hickory Deciduous Forest that meets the City definition of Significant Wood are size, and rare species. The woodland needs to meet two of the six criteria laid out by the UHOP (City of Hamilton, 2013). The criterion for size is determined by the forest cover of the planning unit. The minimum patch size for significance in the planning unit is assumed to be 2 ha. The size of the woodland, including the forest that extends east outside of the Study Area, is 2.4 ha. The woodland meets the criterion for size for significance. Rare species are defined as Endangered, Threatened, or Special Concern provincially or locally rare species. Eastern Wood-pewee is ranked as Special Concern provincially and was found within the Dry-fresh Oak-hickory Deciduous Forest during the breeding bird season. The Dry-fresh Oak-hickory Deciduous Forest occurs within the Project

Location and the Study Area. Crerar Forest is adjacent to the Study Area on the east side, labelled as Significant Woodland (City of Hamilton, 2013) (Figure 3-1).

5.6 Areas of Natural and Scientific Interest

The PPS (Ministry of Municipal Affairs and Housing, 2024) defines ANSIs as areas of land and water containing natural landscapes or features that have been identified as having life science or earth science values related to protection, scientific study, or education. Those listed as provincially significant life science ANSIs are the best examples of that NHF in the Province (Ontario Ministry of Natural Resources, 2010). In contrast, earth science ANSIs are representative examples of geological processes in Ontario (i.e., exposed bedrock on road cuts, fossils, and landforms) (Ontario Ministry of Natural Resources, 2010).

Based on a review of secondary source material and available online databases, no ANSIs are within the Project Location or Study Area (City of Hamilton, 2013; Ontario Ministry of Northern Development, Mines, Natural Resources and Foresty, 2025).

5.7 Adjacent Lands

Adjacent lands are the lands relevant to which impacts must be considered, and the compatibility of a development proposal must be addressed. The extent of adjacent lands may vary, depending on such factors as hydrology, topography, soil conditions, potential disruption of wildlife movement patterns, land use and other features (Ontario Ministry of Natural Resources, 2010). Planning authorities may also define adjacent lands. The UHOP (City of Hamilton, 2013) states adjacent lands are “lands contiguous to hazard lands, a specific NHF, or area where it is likely that development or site alteration would have a negative impact on the hazard, feature, or area. The extent of the adjacent lands may be recommended by the Province or based on municipal approaches which achieve the same objectives.”

Two significant woodlands occur, and therefore, development or site alteration on adjacent lands has the potential to impact them. An industry standard for adjacent lands is 120 m from a feature or area. Within this 120 m between Crerar Forest and the Dry-fresh Oak-hickory Deciduous Forest is Upper Wellington Street, residential buildings, manicured lawns, and places of worship.

5.8 Significant Wildlife Habitat

Wildlife habitat is defined as areas where plants, animals and other organisms live and can find adequate amounts of food, water, shelter, and space needed to sustain their populations. Specific wildlife habitat of concern may include areas where species concentrate at a point in their annual life cycle, and those areas which are important to migratory and non-migratory species. A wildlife habitat is considered “significant” if it is deemed ecologically important in terms of feature, function, representation, or amount, and contributes to the quality and diversity of an identifiable geographic area or NHS (Ministry of Municipal Affairs and Housing, 2024). According to the Significant Wildlife Habitat Criteria Schedule (SWHCS) for Ecoregion 7E (Ontario Ministry of Natural Resources and Forestry, 2015) SWH may consist of:

- Seasonal Concentration Area for Animals;
- Rare Vegetation Communities;
- Specialized Habitat for Wildlife;
- Habitat for Species of Conservation Concern; and

- Animal Movement Corridors.

SWH has been evaluated for the Study Area, and one (bat maternity colonies) has been evaluated as a candidate, and two (other rare vegetation communities and habitat for species of conservation concern) as confirmed. Habitats not discussed below were evaluated as not present as either the habitat requirements or species are not present but can be found in the SWH screening in Appendix F. The candidate and confirmed types of SWH are explained below.

5.8.1 Seasonal Concentration Areas

Seasonal concentration areas are those habitats where large numbers of a single species or many species congregate at one (or several) times a year. The SWHCS for Ecoregion 7E outlines a series of seasonal concentration areas. Based on the vegetation community presence and indicator species found during field investigations and secondary sources. There is one candidate and no confirmed seasonal concentration areas.

5.8.1.1 Bat Maternity Colonies

The ranges of Big Brown Bat and Silver-haired Bat overlap the Study Area. Other SAR Bat species also overlap the Study Area but are not indicator species for this SWH. The Dry-fresh Oak-hickory Deciduous Forest (FOD2-2) within the Study Area is considered candidate bat maternity roost habitat. Maternity colonies can be found in tree cavities and vegetation, typically in mature deciduous or mixed forest stands with more than 10 large diameter (>25 cm dbh) wildlife trees per hectare. Targeted bat and snag surveys were not completed as per the evaluation methods for maternity colonies outlined in the “Bats and Bat Habitats: Guidelines for Wind Power Projects”, as such the habitat remains candidate (Ministry of Natural Resources, 2011).

5.8.2 Rare Vegetation Communities

Rare vegetation communities are those that contain provincially rare vegetation communities, or those which are rare to the area. One of the most important criteria for determining a rare vegetation community is the current representation of the community within a planning area based on its area relative to the total landscape, or the number of examples within the planning area. NHIC uses a system that considers the provincial rank of a species or community type as a tool to prioritize protection efforts (the sub-national or S-rank) (Ontario Ministry of Natural Resources and Forestry, 2015). The below information is based on the vegetation communities identified during the ELC field investigations and information from secondary sources.

5.8.2.1 Other Rare Vegetation Communities – Confirmed

This SWH includes plant communities that often contain rare species which depend on the habitat for survival. Only one rare vegetation community was found. It was the Dry-fresh Oak- hickory Deciduous Forest found near the southwest corner of Towercrest Drive and Upper Wellington Street (ranked S3S4 by NHIC, Figure 4-1). Dry-fresh Oak-hickory Deciduous Forest is not within the Significant Wildlife Habitat Technical Guide (Ontario Ministry of Natural Resources, 2000) but Dry Oak-hickory Deciduous Forest is. WSP assumes that Dry Oak-hickory Deciduous Forest is the closest ELC code listed in the Significant Wildlife Habitat Technical Guide (Ontario Ministry of Natural Resources, 2000) and they are substantially equivalent.

5.8.3 Specialized Habitats for Wildlife

Specialized habitats for wildlife consist of that which support wildlife that has highly specific habitat requirements (e.g., nesting habitat – vernal pools), those areas that contain high species and community diversity and those which provide habitat that can greatly enhance species survival (Ontario Ministry of Natural Resources, 2000). Like seasonal concentration areas, the assumptions and presence of specialized habitats for wildlife is based on

vegetation community presence and indicator species found during field investigations and secondary sources. No specialized habitat for wildlife was found in the Study Area.

5.8.4 Habitat for Species of Conservation Concern

Habitats for species of conservation concern are those that contain species that are rare or substantially declining and are rare or uncommon in the planning area. These habitats are associated with provincially rare wildlife species (i.e., species with S-Ranks S1, S2 or S3) and/ or wildlife species listed under the ESA as Special Concern. Five species were found to have S-Ranks of S3 or less; these were: Honey Locust (S2?), Fish Crow (S1S2), Purple Martin (S3S4B), Southern Cloudywing (S3), and Purplish Copper (S3).

Species of Special Concern that are known to occur within areas that overlap the Project Location and Study Area with a moderate or high likelihood of occurring or confirmed are (Table 5-1) Barn Swallow, Eastern Wood-pewee, and Wood Thrush.

An evaluation of the potential occurrence of these species within the Project Location and Study Area was completed in Table 5-1. Barn Swallow and Eastern Wood-pewee were found in the Study Area. Barn Swallows were seen foraging on the southeast corner of the intersection of the Upper Wellington Street and Limeridge Road East and the sports field near the Bethel Gospel Tabernacle. Possible Barn Swallow nesting habitat was observed in the far edge of the Study Area on the southwest corner of the intersection of Upper Wellington Street and Limeridge Road East. The structure is an open-walled materials storage structure. The Eastern Wood-pewee was heard in the Dry-fresh Oak-hickory Deciduous Forest (Figure 3-1). Habitat for species of conservation concern is confirmed to occur in the Project Location.

The species that were not ranked Special Concern under the ESA but have an S-Rank of S1, S2, or S3 that have yet to be discussed included: Honey Locust (S2?), Black-crowned Night-heron (S3B, S2N), Blue-winged Teal (S3B,S4M), Fish Crow (S1S2), Purple Martin (S3S4B), Red-throated Loon (S2B), Tufted Titmouse (S3), Southern Cloudywing (S3), and Purplish Copper (S3).

Most of Honey Locust was found along the north end of Upper Wellington Street, and the trees are not thought to be wild. Photos of these trees are shown in Appendix E. The Hamilton Status for the Natural Areas Inventory states that Honey Locust are introduced (Shwertz & Martle, 2014) and the Hamilton County status from Oldham's Carolinian List also says it is introduced (Oldman, 2017). These trees do not provide significant habitat for species of conservation concern.

In Ontario, Black-crowned Night-heron breeds in colonies in a wide variety of aquatic habitats. However, most colonies are in shrubs or trees on islands, in swamps or otherwise over water (Hothem RL, 2010). Black-crowned Night-heron were recorded in Hamilton's William Connell Park (1.29 km west of the Project Location), a 20-hectare park that incorporates a large stormwater management facility. No Black-crowned Night-heron were found during the breeding bird surveys. There is a low probability that the species uses the Study Area for breeding or foraging; however, it is possible that Black-crowned Night-heron may migrate through the area during their seasonal movements, utilizing nearby wetlands and water bodies as stopover sites.

Blue-winged Teal breed in a variety of wetland habitats across Ontario. They prefer shallow, freshwater wetlands such as marshes, ponds, and small lakes with abundant emergent vegetation. These habitats provide the necessary cover and food resources for nesting and raising their young (Ontario Ministry of Natural Resources, 1995). No suitable wetland environments or aquatic environments are present within the Study Area, and there is a low probability that Blue-winged Teal use the Study Area.

Fish Crow was reported on eBird in Crerar Forest just outside of the Study Area (0.55 km east) two times in May 2020 (eBird, 2025). Fish Crow only started nesting in Ontario and Canada in 2019 and their nests are very rare (Fazio, 2019). No Fish Crows were found during the breeding bird surveys. The observations are from May and likely migrating through the area. There is a low probability that Fish Crow use the Study Area.

Purple Martin mostly live in nesting boxes provided by humans. They feed over towns, cities, and other open areas (The Cornell Lab, 2021). No nesting habitat for Purple Martins, or Purple Martins were found during the breeding bird surveys. There is a low probability that Purple Martin use the Study Area.

The Red-throated Loon breeds in a variety of aquatic habitats, primarily in the northern regions of Ontario. They prefer to nest on tundra ponds and lakes, often in coastal regions and occasionally in inland freshwater bodies. These loons select nesting sites with abundant aquatic vegetation and minimal human disturbance (Ontario Breeding Bird Atlas, 2023). Any observations are from species likely migrating through the area. There is a low probability that Red-throated Loon use the Study Area.

The Tufted Titmouse breeds in deciduous and mixed forests in southern Ontario. They are commonly found in open woodlands, suburban areas, and parks. These birds prefer habitats with a mix of mature trees and shrubs, which provide both nesting sites and food resources. They are year-round residents and often visit bird feeders in Hamilton (Hamilton Naturalists' Club, 2023).There is a moderate probability that Tufted Titmouse use the Study Area.

Southern Cloudywing was last recorded in the area in 1896 (MacNaughton, 2021). The area has changed significantly since 1896. The habitat required for Southern Cloudywing is dry open areas (Hall, Jones, Guidotti, & Hubley, 2014). Southern Cloudywing are not thought to occur in the Study Area. The Natural Areas Inventory of Hamilton status for Southern Cloudywing says there are extirpated, but a former permanent resident (Shwertz & Martle, 2014).

Purplish Copper last occurred in the vicinity of the area in 1937 (MacNaughton, 2021). Again, the general vicinity is very different than it was in 1937. Habitat of Purplish Copper is open, moist meadows, roadside, and prairie remnants. The Natural Areas Inventory of Hamilton status for Purplish Copper is extirpated but a former temporary resident (Shwertz & Martle, 2014). Purplish Copper are not thought to occur in the Study Area.

Linking SWH on-site is completed by defining the area of the habitat to the finest ELC scale that protects the habitat form and function. The Dry-fresh Oak-hickory Deciduous Forest is confirmed SWH.

5.8.5 Animal Movement Corridors and Linkages

Animal movement corridors are habitats that link two or more wildlife habitats that are critical to the maintenance of a population of a particular species or group of species. The key ecological function of wildlife movement corridors is to enable wildlife to move between areas of significant habitat or core natural areas with minimum mortality. Animal movement corridors can provide critical links between shelter, feeding, watering, growing and nesting locations (Lee, et al., 1998). Animal movement corridors are only delineated when significant breeding habitat is confirmed. As no significant breeding habitat was identified, it is inferred that there are no animal movement corridors (SWHs) associated with the Study Area or the Project Location.

The City does identify the Dry-fresh Oak- hickory Deciduous Forest and the area south of Jerome neighbourhood Park (1306 Upper Wellington Street) as being a linkage area (Figure 3-1). Linkages are natural areas that connect Core Areas. This linkage area connects the Dry-fresh Oak-hickory Deciduous Forest with natural vegetation communities south of the Study Area.

Corridors can be mapped from the habitat in all directions. Corridors should have at least 15 m of vegetation on both sides of a waterway or be up to 200 m wide of woodland habitat. Habitat is considered continuous if gaps are <20 m (Ontario Ministry of Natural Resources, 2010; Ontario Ministry of Natural Resources and Forestry, 2015). Upper Wellington Street and the surrounding urban area are wider than 20 m, and therefore, potential movement corridors stop at the street or the closest naturally vegetated area. Corridors should consist of native vegetation with a diversity of community layers. Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant. Shorter corridors are more significant than longer corridors; however, amphibians must get to and from their summer and breeding habitat.

5.9 City of Hamilton Natural Heritage System

There is a minimal amount of significant NHS within the Study Area. The Dry-fresh Oak-hickory Deciduous Forest near the southwest corner of the intersection of Towercrest Drive and Upper Wellington (Figure 4-1) is Significant Woodland. The next nearest Significant Woodland is at 313 Stone Church Road East, outside of the Study Area, east of Upper Wellington Street. Significant Woodland is a Core Area. No other Core Area exists in the Study Area. Another linkage area can be found in Crerar neighbourhood Park (260 Sirente Drive), 200 m west of the Study Area.

6.0 IMPACT ASSESSMENT

An impact assessment was completed for the Project. This impact assessment is based on the Functional Design provided in Appendix A. During the detailed design phase, the City is expected to have the opportunity to refine the project design and develop other details (e.g., grading limits).

As identified in this report, the form and function of NHFs are to be protected. The Dry-fresh Oak-hickory Deciduous Forest near the southwest corner of the intersection of Towercrest Drive and Upper Wellington (Figure 4-1) was classified as a Significant Woodland and SWH (candidate bat maternity colonies SWH, confirmed rare vegetation community and confirmed habitat for species of conservation concern). In addition, three Special Concern SAR have been confirmed (Barn Swallow, Eastern Wood-pewee, and Monarch) in the Project Location. This section assesses the predicted impacts associated with the proposed design on the Dry-fresh Oak-hickory Deciduous Forest and SAR.

The following analysis of the direct and indirect effects of the Project was based on professional judgment and qualitative evaluation of Project-specific activities' impacts on NHF during the construction and operation phases. An underlying assumption was that the Project would be designed and constructed with due care for the safety and the environment, using current and technically feasible engineering and construction mitigation measures (Section 7).

The potential environmental effects and impacts are described separately for each NHF under the following two categories:

- **Construction Impacts**—Construction-related impacts typically associated with the physical and initial removal, alteration, or disturbance of NHFs are expected to be short-term or temporary disruptions to the existing NHFs.
- **Operation Impacts**—Operation-related impacts, changes, or impacts to the NHFs. These impacts are anticipated to be long-term disruptions from potential ongoing operations and maintenance of the Project.

6.1.1 Vegetation

The Project Location and Study Area has been heavily influenced by past anthropogenic disturbances, such as vegetation trimming along the existing roadway and have extensive coverage of non-native and invasive species. The Dry-fresh Oak-hickory Deciduous Forest is located on the southwest side of Upper Wellington Street and Towercrest Drive / Sirente Drive, which is significant to the area and contains SWH. This woodlot has an extensive spread of alien species, many trails, and a light amount of dumping. The Project activities will not directly change the ELC type; therefore, the vegetation community's ecological form and function will not be impacted.

Construction

Construction impacts on vegetation are expected to be short-term or temporary and stem from direct vegetation removal, indirect effects, and altered site conditions.

Direct Impacts

- Vegetation Removal:

The proposed Project will result in minor vegetation/tree removal along the edges of the Dry-fresh Oak-hickory Deciduous Forest, resulting in a loss of less than 200 square metres of this area. Based on the current preliminary design, approximately 45 tree removals are anticipated. These tree impacts would need to be confirmed during the detailed design phase when the design is advanced to a sufficient level of detail and grading limits are defined. There may be opportunities at that time to reduce tree impacts through design refinements. The City will provide tree planting within the road right of way to compensate for the loss of trees.

- Damage to Adjacent Vegetation:

Activities like clearing, grubbing, and staging equipment may harm adjacent vegetation and trees.

Indirect Impacts

- Spread of Invasive Species:

Disturbed areas are vulnerable to colonization by non-native and invasive species. Equipment and personnel moving in and out of the site can exacerbate this spread unless proper decontamination measures are taken. Invasive plants may outcompete native vegetation, delaying natural recovery.

- Dust Deposition:

Construction-related dust can reduce light availability on plant leaves, impacting vegetation health.

- Contamination Risks:

Potential releases of deleterious substances such as fuels (diesel and propane), lubricants (engine oil, transmission oil, etc.), and coolants (ethylene glycol) can lead to localized vegetation loss.

- Soil Disturbance and Erosion:

Exposed soil from vegetation removal can lead to sedimentation and erosion, affecting downstream ecosystems. Loss of riparian vegetation may exacerbate this effect, altering water quality and hydrology. Topsoil loss from wind and water erosion of exposed stockpiles can be detrimental to the land capability by decreasing the amount of available nutrients and growth medium for vegetation.

Operation

Operational impacts currently exist and are anticipated to be long-term, primarily related to ongoing roadway use and maintenance. Impacts on vegetation are anticipated to be low in the operation phase.

- Pollution from Roadway Use:

Hydrocarbon spills, salt runoff, and litter and garbage from vehicles into the adjacent natural systems will continue to present a risk. Accumulated pollutants can harm vegetation health and indirectly impact aquatic and terrestrial ecosystems.

The existing conditions are characterized by high disturbance, suggesting that vegetation communities are already adapted to some degree of anthropogenic stress. Therefore, ecological functions of vegetation communities are expected to return to pre-construction conditions during the operation phase, though ongoing maintenance and pollutant management will be critical to prevent further degradation.

6.1.2 Wildlife and Wildlife Habitat (including Species and Risk)

Construction

During field investigations, the Study Area was identified to have high or moderate habitat suitability for SAR birds and bats (see Section 5.1 for more details). Construction-related impacts to wildlife are expected to be short-term or temporary but can include direct habitat loss, wildlife mortality (insects, small mammals, reptiles, amphibians, and immature birds most likely to be affected because of their reduced mobility), and indirect impacts such as increased sensory disturbance. The ecological form and function of the habitat within the Study Area are expected to return to pre-construction conditions or remain.

Direct Impacts

- Habitat Loss:

Vegetation clearing will result in potential habitat removal degradation.

- Direct Mortality Risks:

Vegetation clearing increases mortality risks for less mobile species (e.g., insects, small mammals, reptiles, amphibians, and immature birds). Mortality risk is highest during spring and summer – nesting, denning, and maternity roosting season. Timing construction to avoid sensitive breeding/nesting and maternity roosting periods reduces the potential for wildlife mortality (Section 7.0). Construction activities and wildlife salvage efforts increase the risk of wildlife mortalities. Wildlife salvage inherently has risks for the individuals being moved (causing harm or death), the risk of transferring disease and the risk of competition for resources at the recipient site.

Indirect Impacts

- Sensory Disturbance:

Construction activities are anticipated to result in increased sensory disturbance, including light, noise, and vibration. Wildlife confirmed in the Study Area is already acclimatized to human activity, and the impacts of increased sensory disturbance on these species are expected to be low.

Operation

Operational impacts represent long-term disruptions due to ongoing roadway use, maintenance, and traffic-related activities. Historical human activity, including road networks, residential areas, and commercial development, has resulted in significant habitat fragmentation and reduced landscape connectivity. The existing levels of disturbance mean that wildlife in the area is generally acclimatized, and the project's long-term operational effects are not expected to create an additional reduction in wildlife habitat effectiveness.

Direct Impacts

- Wildlife-Vehicle Collisions:

The Project aims to accommodate more vehicles, which may result in an increase in vehicle collisions with wildlife. Roadway widening can lead to increased traffic (via increased capacity) and a larger crossing area, both of which contribute to a higher risk of wildlife-vehicle collisions.

- Other Mortality:

Vegetation management (cutting and pruning) along the roadway poses a mortality risk for wildlife. Detrimental effects on wildlife health and behaviour can occur when wildlife have access to site waste and/or hazardous materials (e.g., ingestion of plastic, entanglement, reliance on food sources).

Indirect Impacts

- Light Pollution:

Lighting improvements can change wildlife behaviour as prey species try to avoid predators or animals get disoriented due to light pollution at night. Light pollution already occurs, and therefore, this sensory disturbance on species is expected to be low.

7.0 RECOMMENDED MITIGATION MEASURES

Mitigation measures were developed in accordance with the City of Hamilton Environmental Impact Statement Guidelines (City of Hamilton, 2015) to minimize potential ecosystem impacts from the Project. These measures include erosion and sediment controls, general construction mitigation, vegetation, wildlife and timing windows.

Mitigation measures shall be incorporated into construction specification documents to ensure that the Contractor implements them during construction.

7.1 Pre-Construction and Construction

7.1.1 Erosion and Sediment Control

The following Erosion and Sediment Control (ESC) mitigation is generally recommended. Site-specific ESC mitigation shall be developed as part of the final detailed design.

- Protect all exposed surfaces and control all runoff during construction;
- All ESC shall be installed before starting construction and remain in place until restoration is complete. Once the site is stabilized, all non-biodegradable ESC materials must be removed.
- Additional ESC materials shall be on-site and implemented as required;
- The entire construction site shall be monitored daily to update and/or maintain ESC during construction activities, particularly during spring melt and high rainfall events;
- Sediment buildup behind or within ESC measures shall be removed in compliance with regulatory requirements and manufacturer specifications. All accumulated sediment must be removed prior to the removal of ESC controls and disposed off in an approved on-site location as determined by the contract administrator or construction project manager.
- Minimize area disturbed during construction; no excavation or grading may occur outside the disturbance limits.
- Protect all catch basins and maintenance holes from sediment intrusion using geotextile (Terrafix 270R);
- Keep all sump pumps clean during construction;
- Prevent wind-blown dust and implement dust suppression methods when and where applicable;

- All silt fencing and details are at a minimum to be constructed and in accordance with Erosion and Sediment Control Guide for Urban Construction (Toronto and Region Conservation Authority, 2019).

7.1.2 General Construction Measures

General construction mitigation measures are as follows:

- Equipment idling should be kept to a minimum during construction to prevent impacts to wildlife as a result of noise and vibrations. Minimizing equipment idling will also reduce carbon emissions and overall carbon footprint of construction activities. Construction outside of daylight hours should be avoided.
- Topsoil that is removed during grubbing and stripping activities should be stockpiled for reapplication post-construction. A construction work plan should designate specific locations for the stockpiling of soils and/or materials.
- A dust control plan shall be developed and implemented by the Contractor to suppress dust impacts to adjacent NHFs.
- A spill response plan shall be curated by the Contractor prior to construction commencement. Onsite personnel should be equipped with spill kits and trained in a spill response reporting protocol prior to entering the work site. Spill kit materials, instructions regarding their use, and emergency contact numbers shall always be present on site for implementation in the event of an accidental spill. All spills are to be reported to the MECP Spills Action Centre at 1-800-268-6060.
- All equipment, including worker personal equipment, heavy machinery, and vehicles should arrive clean and free of fluid leaks, invasive species and noxious weeds.
- Development and site alteration shall be confined to the established limits of the development, including grading. All construction materials and equipment shall be stored within the designated work boundaries.
- The area of impact adjacent to natural areas should be searched for wildlife by a qualified biologist daily prior to the commencement of construction activities.
- Implement drip pans under equipment (i.e., generators, pumps, etc.) in operation within the work areas.
- The laydown area to have silt fencing installed on the downslope side of the stockpile(s). Vehicle and equipment refuelling and maintenance shall occur at least 30 m from all wetlands and watercourses and be conducted to prevent any deleterious substance from entering the natural environment.
- Identify local regulatory authorities and have contact information available on-site. Local regulatory authorities are to include the MECP, MNR, City of Hamilton and emergency service providers.

The final design / tender package shall include task-specific mitigation requirements.

7.1.3 Vegetation

With the implementation of recommended mitigation measures and restoration measures, the health of the wooded ecosite could be improved. The following measures are recommended to be implemented:

- Limiting the amount of clearing of or disturbance to vegetation to the minimum area required;

- Revegetate disturbed areas using appropriate species or seed mixes based on the species present and the specific site conditions (species such as milkweed);

The following measures are recommended to be implemented for all tree removals and/or injury:

- A Tree Inventory and Preservation Plan shall be developed to identify Project impacts on trees, especially those protected under the City of Hamilton Public Tree Protection By-law (City of Hamilton, 2015). The tree protection plan shall be developed in accordance with City's Tree Protection Guidelines (City of Hamilton, 2010). This can be developed during detailed design phase.
- Trees on shared, private, and neighbour properties that will be removed should be discussed with private property owners during the detailed design phase.
- Pruning of low-lying branches may be required within the construction zone to accommodate construction equipment. Additionally, any branches broken during the construction process should be properly pruned by an ISA-certified arborist immediately after the damage.
- Where it is feasible, it is recommended that the City re-uses trees (appropriate sizes and species) from the removals in the compensation plan design or in the adjacent complete corridor design for bioengineering or habitat enhancements. Species re-used shall include native species free of pests and disease.
- Patches of invasive species are recommended to be treated prior to construction mobilization.
- To ensure existing tree cover is maintained, the City's Tree Protection Guidelines require 1:1 compensation for any trees to be removed (City of Hamilton, 2010). A Tree Protection Plan would be required during detailed design phase to identify trees to be removed, trees to be preserved, and tree protection and maintenance measures that will be implemented during construction. Additionally, a Landscape Plan will be required to show proposed tree plantings. These plans would need to be developed in accordance with City's Tree Protection Guidelines (2010).
- An invasive species management plan is recommended to be included with the restoration enhancement and planting plan designs to prevent the further spread of invasive species within the remaining natural heritage systems.

7.1.3.1 Tree Protection Barriers

During the detailed design phase, a Tree Inventory and Preservation Plan will be required to identify trees to be removed, trees to be preserved, and tree protection and maintenance measures that will be implemented during construction. Trees designated for protection as per the Tree Inventory and Preservation Plan for this Project require Tree Protection Barriers. The tree protection fencing and sediment control measures shall be installed along the limits of the retained features prior to the start of construction works and will be regularly monitored and inspected to ensure its efficacy. The objective of the tree protection barriers is to protect the integrity of retained trees and act as a barrier from construction works.

7.1.4 Wildlife and Wildlife Habitat

To negate impacts on nesting birds, vegetation removal should be done outside of the typical breeding bird nesting period Zone C1 (Late March - Late August) (Environment and Climate Change Canada, 2025). These recommended timing constraints should not be perceived as absolutes as this period represents the core breeding period, and some species nest earlier in March and into September; occupied nests are protected from

harm regardless of timing windows. The objective from a compliance perspective is to not circumvent the MBCA and its associated regulations.

For activities (including vegetation removal) that must occur during the bird nesting season, surveys should be undertaken by a qualified avian biologist to identify nesting activity and/or nests to the extent possible within 24 hours and no more than 48 hours of the schedules work activities (including ground sweeps and vegetation assessments). The selected qualified person must be able to identify birds by species and be knowledgeable of nesting seasons, nesting habitat, bird behaviour, and understand species general tolerance to disturbance. The sweeps should occur when winds are low, no precipitation, and temperatures are above 10 degrees Celsius. Flushing birds off their nests in adverse weather conditions may leave the young vulnerable to the exposure of elements. Due to the uncertainty of nest sweeps performed during construction, especially during leaf-on conditions, it is strongly advised that all vegetation-clearing activities occur outside of the bird's nesting window. If nest sweeps are necessary, they should only be conducted in simple habitats such as singular trees or a small, well-defined area. Complex habitats, such as vegetation communities with layers of dense foliage, reduce the certainty of observing nests and potential breeding.

If a bird and/or its nest protected under the MBCA, FWCA, and ESA are encountered during works, any work-related disturbance must stop in the vicinity of the observation until further direction is provided by a qualified professional. The birds and their nests are not to be disturbed, tormented, injured, destroyed, and/or separated from eggs, hatchlings, or chicks in any way. A protective buffer, dependent on the species tolerance and level of disturbance, should be established around the nest in consultation with a qualified avian biologist and the MNRF, MECP, and/or Canadian Wildlife Services.

Nest searches should also be performed on equipment that has been stationary for more than 48 hours. Nest/area searches should be completed before construction equipment enters an area to ensure no wildlife is present on the ground. Bird tape and other bird nesting deterrents can be implemented to try to deter birds from nesting within the Study Area. The deterrents should only be used to prevent birds from nesting and shall not be placed around birds that have already begun nesting. All deterrents must be removed post-construction.

To negate impacts on SAR bats, vegetation removal should be done outside of the maternity bat roosting window. If trees are proposed to be removed within the active season for bats, a qualified biologist shall examine the tree and use professional judgement on whether the tree is candidate bat habitat. If the characteristics are not easily visible, or if the biologist is unsure in any way, the MECP must be consulted on next steps and acoustic surveys and/or exit surveys may be required to determine SAR occupancy.

As feasible, the designated project footprint should be bound by exclusion (silt) fencing to prevent wildlife from entering the project work zone. The fencing should be installed within 48 hours of the commencement of construction activities. The exclusion fencing shall be examined daily by a qualified biologist and repaired as required to ensure it functions as intended. If wildlife is detected against the fencing, a biologist with the applicable permit approvals (i.e., FWCA) shall use professional judgment on where to relocate the wildlife. This will be of particular importance during periods of high wildlife movement (species dependent), i.e., migration, breeding, and hibernation periods, to ensure that wildlife can safely locate their respective habitat depending on their life cycle requirements.. The construction party is responsible for obtaining the permit to handle and relocate wildlife. If wildlife enters the construction limits, construction should stop until the wildlife has left of its own volition or until it has been shepherded off the area of impact by qualified personnel.

The following general mitigation is recommended to reduce impacts to wildlife:

- Construction should be completed within daylight hours to reduce light pollution. The City should comply with all applicable local municipal by-laws and Ministry of Transportation (MTO) practices regarding both permanent and temporary construction activities for lighting in roadway areas.
- Food waste and littering from construction personnel must be managed to prevent attracting animals to the construction footprint. Wildlife-proof trash cans are recommended and should be maintained throughout the construction period.

The culvert replacement within the watercourse feature is recommended to be designed as an eco-passage to encourage safe travel routes for wildlife.

7.1.5 Timing windows

Timing windows to minimize the potential for negative impacts on wildlife (birds and bats) and their habitat are identified in the sections above and summarized in Table 7-1 below. When combined, the proposed project activities shall adhere to the following timing windows:

- All vegetation and tree removals (including grubbing) shall be completed between 1 October and 30 March of any given year.

Table 7-1: Timing Windows

Environmental Sensitivity	Key Sensitivity Window When Work Should Be Avoided	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Migratory Bird nesting period[1]	31 March through 25 August												
SAR – maternity bat roosting window	1 April through 30 September												

Red cells identify when work associated with these sensitivities shall be avoided.

1 – Under the MBCA

7.2 Operation Mitigation

The following mitigation should be considered in the long-term to avoid ongoing impacts on the surrounding NHFs:

- Non-native species should be monitored and managed to ensure that native species are not being displaced or heavily impacted and that original vegetation communities remain intact.
- In addition to the above, the Stormwater Management Report may recommend additional measures that should be implemented.

8.0 MONITORING

Environmental Construction Monitoring

Environmental construction monitoring should be completed to ensure compliance with mitigation measures and minimize ecological impacts during construction activities. Environmental construction monitoring will include monitoring of ESC measures, particularly during high-risk periods like spring melt and heavy rainfall, and dust management and spill control plans. Additionally, monitoring will ensure that vegetation clearing is conducted in accordance with best practices to protect wildlife. Regular communication with local regulatory authorities will be maintained to address any environmental concerns promptly.

Post-construction Monitoring

The City shall conduct post-construction monitoring to ensure the success of rehabilitation measures (e.g., landscaping) and to remove waste and surplus materials. The development of a post-construction monitoring plan is to be initiated prior to construction works and should take place at a built-out stage or after the construction activities have been completed. The specific timeline for the transition from construction to post-construction monitoring will be the responsibility of the City, but typical intervals include 1, 3, or 5 years.

9.0 CONCLUSION

This report addresses the NHFs and associated functions currently found on and adjacent to the Project. It provides an impact analysis using the results of the field program, supplementary literature, and historical studies completed for the Study Area to date. The report will supply the necessary information for the City to determine whether the proposed Project complies with applicable plans, policies, and regulations.

WSP completed three season vegetative surveys, ELC surveys, breeding bird surveys, and a Tree Inventory. WSP documented incidental wildlife and screened for SAR and SWH. Generally, the results of this Report are:

- Moderate to high probabilities of SAR bat habitat occur in the Study Area. To negate impacts on SAR bats, vegetation removal should be done outside of the maternity bat roosting window. If trees are proposed to be removed within the active season for bats, a qualified biologist shall examine the tree and use professional judgement on whether the tree is candidate bat habitat. If the characteristics are not easily visible, or if the biologist is unsure in any way, the MECP must be consulted on next steps and acoustic surveys and/or exit surveys may be required to determine SAR occupancy.
- Significant Woodland (Dry-fresh Oak-hickory Deciduous Forest) is in the Study Area;
- SWH: Candidate bat maternity colonies, confirmed habitat for species of conservation concern (Eastern Wood-pewee), and confirmed rare vegetative communities (Dry-fresh Oak- hickory Deciduous Forest) were identified in the Study Area;
- The City's Official Plan identified core areas and linkages in the Study Area. Adjacent lands in Crerar Forest, just outside of the Study Area, have Core Areas and Significant Woodland;
- There are 147 trees in the Project Location comprised of 29 neighbour (stem on private property), 34 private trees, 48 public trees, and 36 shared trees. Approximately 45 tree removals are anticipated. These tree impacts would need to be confirmed during the detailed design phase when the design is advanced to a sufficient level of detail and grading limits are defined. There may be opportunities at that time to reduce tree impacts through design refinements.

- There are records of 153 species of birds in the Study Area, WSP observed 26 during breeding bird surveys;
- Five ELC communities were found in the Study Area; and
- 122 species of plants were noted by WSP in the Study Area, many (about 50%) were introduced.

This analysis has identified the presence of a significant woodland and candidate and confirmed SWH within the Study Area. Direct impacts associated with the proposed development are anticipated. However, with the implementation of mitigation measures, no significant negative impacts on the NHFs or their ecological functions are expected.

Consultation with the MECP should be integrated during the detailed design phase to ensure compliance with relevant policies and regulations. In summary, the Project is expected to have no long-term negative impact on the form and function of NHFs, where mitigation measures are enforced, and the Project complies with all relevant policies and regulations.

10.0 CLOSING

This report has been prepared based on WSP's understanding of the proposed Project at the time this Report was prepared. The contents of this Report reflect the results obtained from a review of secondary source information and field investigations relative to the Project Location. We trust that this report provides a level of detail and technical expertise to help guide the next steps of the Project.

If you should have any questions regarding this submittal or require further Project related information, please contact the undersigned.

Sincerely,

WSP Canada Inc.

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APPENDIX A

Design Drawings

PLAN LEGEND

- PROPOSED SIDEWALK
- PROPOSED PHYSICALLY SEPARATED BIKE LANE
- PROPOSED CURB
- PROPOSED BOULEVARD
- PROPOSED ROAD
- PROPOSED BUFFER STRIP, CONCRETE
- EXISTING TREE
- PROPOSED TREE REMOVAL
- EXISTING UTILITY POLE
- EXISTING UTILITY POLE TO BE RELOCATED
- EXISTING ROW LIMITS
- PROPOSED BUS BAY
- PROPOSED PROPERTY TAKING
- EXISTING SIGNALIZED INTERSECTION
- CONCRETE BARRIER (TCB)

UPPER WELLINGTON

CITY OF HAMILTON

OPTION 2
OFF STREET BIKE LANES
VEHICLE DIAGRAMS

wsp

Scale 1:500

Consultant File No. IM20103037

Drawing No. 2

Plotted: 2025-01-30 Plotted By: zokrzewskij
Last Saved: 2025-01-30 Last Saved By: zokrzewskij
Path: S:\PLANNING DWGS\CAE\IM20103037 Upper Wellington St EA\3.0 Drawings\3.3 Civil3d\UPPER WELLINGTON-OPTION2-Rev5.dwg

APPENDIX B

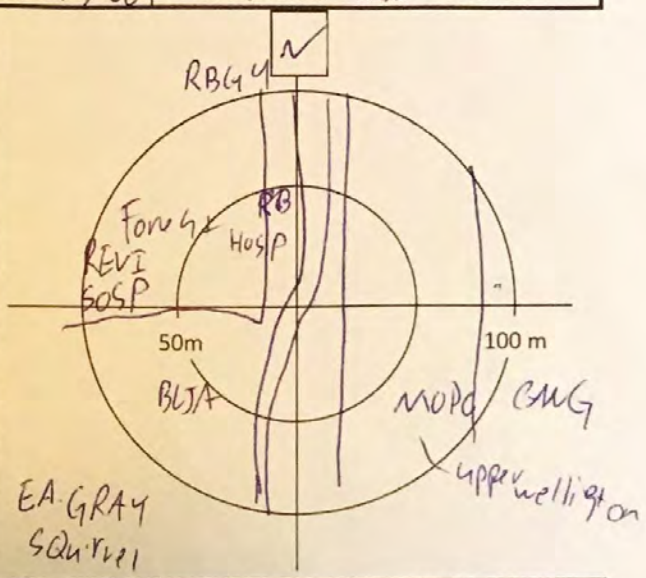
Field Sheets

Breeding Bird Survey Form

Amec Foster Wheeler
160 Traders Blvd East,
Mississauga, ON L4Z 3K7
Tel: (905) 568-2929

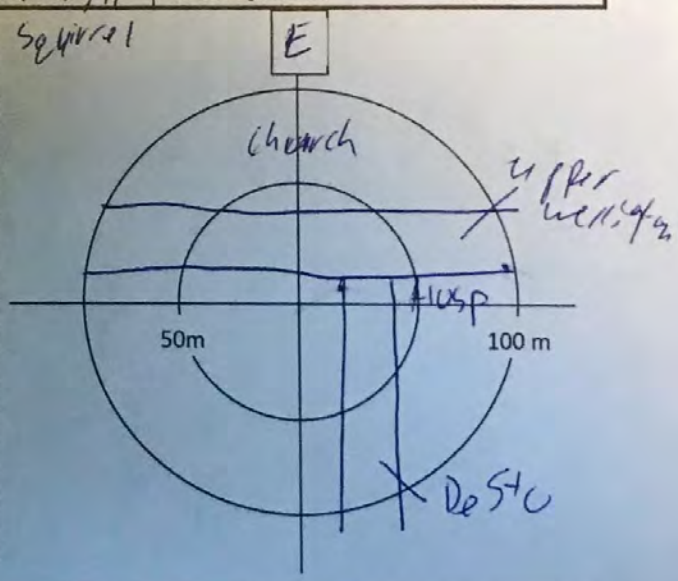
Project Name: Upper wellington		Project Number: TM2063		Observers: TRH	Date: May 27	Round: 1	
Point Count #: 1		UTM: 591191	4795127		Primary Habitat: Forest	Modifier:	
Cloud: 0	Temp (°C): 7	Wind: 3	Precip: None	Start (24hr): 7:00	Secondary Habitat: urban	Modifier:	

Species	<50 m			50-100 m			>100 m			Breeding Evidence
	0-3m	3-5m	5-10m	0-3m	3-5m	5-10m	0-3m	3-5m	5-10m	
RBGY							0			F
EAST	1									H
HOFI	0									S
HOSP	1	1					1			H
CANG							1	1		F
BLJA	1									H
SOSP		1								S
MODO			1							H
REVI			1							S



Project Name:		Project Number:		Observers:	Date:	Round: 1	
Point Count #: 2		UTM: 591	5 4784895		Primary Habitat:	Modifier:	
Cloud:	Temp (°C):	Wind:	Precip:	Start (24hr): 7:11	Secondary Habitat:	Modifier:	

Species	<50 m			50-100 m			>100 m			Breeding Evidence
	0-3m	3-5m	5-10m	0-3m	3-5m	5-10m	0-3m	3-5m	5-10m	
HOSP	1									H
HOWR	0									S
CHSP	1									H
EAST	0									H
MODO				1						H
RBGY										F



Weather:

Wind Scale: 0 – Calm, 1 – Light Air, 2 – Light Breeze, 3 – Gentle Breeze	Precipitation Scale: 0 – None, 1 – Haze/Fog, 2 – Drizzle, 3 - Rain

Habitat:

1. Poplar Forest	6. Spruce Forest	11. Coniferous Treed Swamp	16. Shrub Bog/Poor Fen	21. Hay Crop	**Modifiers:**
2. Poplar–Birch Forest	7. Jack Pine–Spruce Forest	12. Shrub/Thicket Swamp	17. Open Bog/Fen	22. Clearcut	1. Plantation
3. Poplar–Spruce Forest	8. Jack Pine Forest	13. Sedge/Meadow Marsh	18. Open Shrubland	23. Roadside	2. Regenerating/Young
4. Poplar–Jack Pine Forest	9. Deciduous Treed Swamp	14. Cattail/Open Water Marsh	19. Dense Shrubland	24. Open Cut-Line	3. Mid-aged
5. Birch–Spruce Forest	10. Mixed Treed Swamp	15. Treed Bog/Fen	20. Pasture	25. Cultural	4. Mature

Breeding Evidence

Observed (OB)		Probable (PR)		Confirmed (CO)			
X	Species Observed	P	Pair Observed	A	Aggressive Behaviour	DD	Distraction Display	FS	Carrying Fecal Sac
Possible (PO)		T	Territory	N	Nest	NU	Used Nest	CF	Carrying Food
H	Suitable Habitat	D	Courtship or Display	V	Visiting Probable Nest Site	FY	Feeding Young	NE	Nest With Eggs
S	Male Singing					AE	Adults Entering or Leaving Nest	NY	Nest With Young

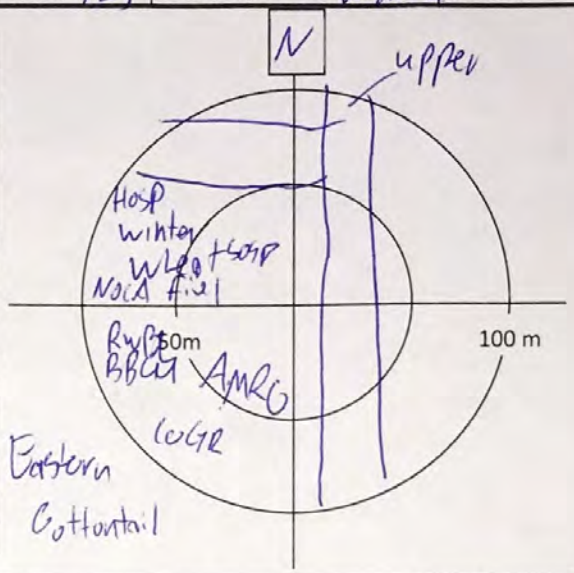
See ELC data sheets for a few extra birds

Breeding Bird Survey Form

Amec Foster Wheeler
160 Traders Blvd East,
Mississauga, ON L4Z 3K7
Tel. (905) 568-2929

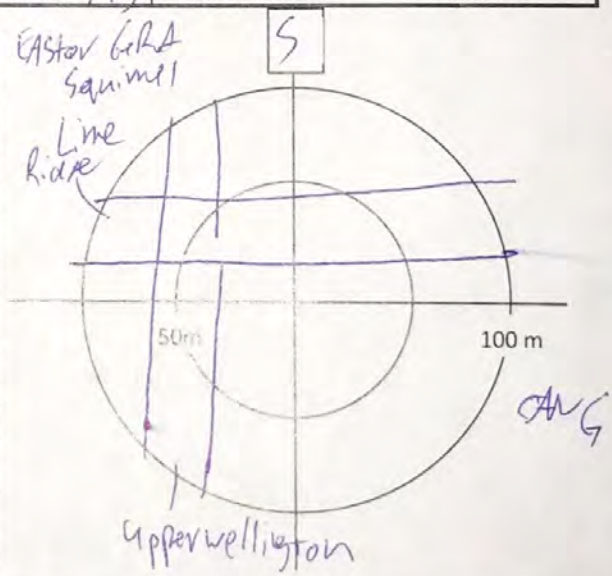
Project Name: upperwellington	Project Number: TM7010303	Observers: T RH	Date: M4y26/21	Round: 1
Point Count #: 3	UTM: 590975 4784465		Primary Habitat: Urban	Modifier:
Cloud:	Temp (°C):	Wind:	Precip:	Start (24hr): 725	Secondary Habitat: ~~MARG~~	Modifier:

Species	<50 m			50-100 m			>100 m			Breeding Evidence
	0-3m	3-5m	5-10m	0-3m	3-5m	5-10m	0-3m	3-5m	5-10m	
RWBL				0						S
NOCA				'						S
HOSP				'						H
GCLP	0									S
EUST					'					F
BBGU						'				S
LOGR						'				H
AMRO						'				H



Project Name:	Project Number:	Observers:	Date:	Round:
Point Count #: 2	UTM: 591323 4784636	Primary Habitat:	Modifier:
Cloud:	Temp (°C):	Wind:	Precip:	Start (24hr): 745	Secondary Habitat:	Modifier:

Species	<50 m			50-100 m			>100 m			Breeding Evidence
	0-3m	3-5m	5-10m	0-3m	3-5m	5-10m	0-3m	3-5m	5-10m	
HOSP	'									H
MODO	'									F
BBGU							'			F
CANG							'			F
EUST					'		⊠			H
AMRO			'							S



Weather:

Wind Scale: 0 – Calm, 1 – Light Air, 2 – Light Breeze, 3 – Gentle Breeze	Precipitation Scale: 0 – None, 1 – Haze/Fog, 2 – Drizzle, 3 - Rain

Habitat:

1. Poplar Forest	6. Spruce Forest	11. Coniferous Treed Swamp	16. Shrub Bog/Poor Fen	21. Hay Crop	**Modifiers:**
2. Poplar–Birch Forest	7. Jack Pine–Spruce Forest	12. Shrub/Thicket Swamp	17. Open Bog/Fen	22. Clearcut	1. Plantation
3. Poplar–Spruce Forest	8. Jack Pine Forest	13. Sedge/Meadow Marsh	18. Open Shrubland	23. Roadside	2. Regenerating/Young
4. Poplar–Jack Pine Forest	9. Deciduous Treed Swamp	14. Cattail/Open Water Marsh	19. Dense Shrubland	24. Open Cut-Line	3. Mid-aged
5. Birch–Spruce Forest	10. Mixed Treed Swamp	15. Treed Bog/Fen	20. Pasture	25. Cultural	4. Mature

Breeding Evidence

Observed (OB)		Probable (PR)		Confirmed (CO)	
X Species Observed	P Pair Observed	A Aggressive Behaviour	DD Distraction Display	FS Carrying Fecal Sac
Possible (PO)	T Territory	N Nest	NU Used Nest	CF Carrying Food
H Suitable Habitat	D Courtship or Display	V Visiting Probable Nest Site	FY Feeding Young	NE Nest With Eggs
S Male Singing			AE Adults Entering or Leaving Nest	NY Nest With Young

upper wellington TRH May 27, 2021

Tally of trees Below 10 DBH

Sp.	#	Location
American elm	3	~~South~~ Between tower crest & expressway East side
Amur Maple	2	
Siberian elm	2	
Red Maple	1	
common Hackberry	1	
Yellow wood	2	
Common Hackberry	2	North of Limeridge East side
Amur Maple	1	
Lilac	1	
Black walnut	17	South east side of upper & expressway
European Beech	2	
Sugar Maple	1	
Redbud	2	
Serviceberry	1	
Little leaf Linden	1	
Siberian Elm	1	
Sugar Maple	1	~~Store~~ South of Stonechurch
Yellow Wood	1	On Lawn of Kingdom worship Centre

Several coffee trees below 10 DBH picked up in ARCGIS

ELC COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: upper wellington | POLYGON: A
SURVEYOR(S): TRH | DATE: May 27, 21 | TIME: start / finish
UTMZ: | UTME: | UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
G TERRESTRIAL G WETLAND G AQUATIC	G ORGANIC G MINERAL SOIL G PARENT MIN. G ACIDIC BEDRK. G BASIC BEDRK. G CARB. BEDRK.	G LACUSTRINE G RIVERINE G BOTTOMLAND G TERRACE G VALLEY SLOPE G TABLELAND G ROLL / UPLAND G CLIFF G TALUS G CREVICE / CAVE G ALVAR G ROCKLAND G BEACH / BAR G SAND DUNE G BLUFF	G NATURAL G CULTURAL	G PLANKTON G SUBMERGED G FLOATING-LVD. G GRAMINOID G FORB G LICHEN G BRYOPHYTE G DECIDUOUS G CONIFEROUS G MIXED	G LAKE G POND G RIVER G STREAM G MARSH G SWAMP G FEN G BOG G BARREN G MEADOW G PRAIRIE G THICKET G SAVANNAH G WOODLAND G FOREST G PLANTATION
SITE G OPEN WATER G SHALLOW WATER G SURFICIAL DEP. G BEDROCK			**COVER** G OPEN G SHRUB G TREED		

Various

~~Mixed~~ Manicured lawn

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	3	[illegible]	See Tree inventory
2	SUB-CANOPY			
3	UNDERSTOREY			
4	GRD. LAYER	7	4	~~Weeds~~ GRASS/weeds

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT≤0.2 m
CVR CODES 0 = NONE 1 = 0% < CVR ≤ 10% 2 = 10 < CVR ≤ 25% 3 = 25 < CVR ≤ 60% 4 = CVR > 60%

STAND COMPOSITION: | BA:

		< 10	10 - 24	25 - 50	> 50
SIZE CLASS ANALYSIS:					
STANDING SNAGS:		< 10	10 - 24	25 - 50	> 50
DEADFALL / LOGS:		< 10	10 - 24	25 - 50	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE		PIONEER		YOUNG		MID-AGE		MATURE		OLD GROWTH
			X							

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:		
INCLUSION		
COMPLEX		

Notes:

CARW, BARS fly over, feeding over soccerfield, might nest in Barn Structure @ SW corner of Limeridge & upper wellington.

ELC PLANT SPECIES LIST

SITE: IM20103037
POLYGON: A
DATE: May 27/2021
SURVEYOR(S): TRH

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER
ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COL.
for trees					
see Tree inventory					
TOXIOF	X				
POA PRAT	X				
common lawn weeds					

SPECIES CODE	LAYER 1	2	3	4	COL.

ELC
MANAGEMENT / DISTURBANCE

SITE: Upper Wellington
POLYGON:
DATE: May 27, 21
SURVEYOR(S):

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC
WILDLIFE

SITE:
POLYGON:
DATE:
SURVEYOR(S):
START TIME: END TIME:

TEMP (°C): CLOUD (10th): WIND: PRECIPITATION:
CONDITIONS:

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS		SNAGS
	HIBERNACULA		FALLEN LOGS

SPECIES LIST: See Breeding Bird Survey

TY	SP. CODE	EV	NOTES	#	TY	SP. CODE	EV	NOTES	#

FAUNAL TYPE CODES (TY):
B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:
SH = SUITABLE HABITAT SM = SINGING MALE

BREEDING BIRD - PROBABLE:
T = TERRITORY D = DISPLAY P = PAIR
A = ANXIETY BEHAVIOUR N = NEST BUILDING V = VISITING NEST

BREEDING BIRD - CONFIRMED:
DD = DISTRACTION NU = USED NEST FY = FLEDGED YOUNG
NE = EGGS NY = YOUNG FS = FOOD/FAECAL SACK
AE = NEST ENTRY

OTHER WILDLIFE EVIDENCE:
OB = OBSERVED VO = VOCALIZATION CA = CARCASS
DP = DISTINCTIVE PARTS HO = HOUSE/DEN FY = EGGS OR YOUNG
TK = TRACKS FE = FEEDING EVIDENCE SC = SCAT
SI = OTHER SIGNS (specify)

BPWA
BCCH

ELC COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: UPPER WELLINGTON POLYGON: B
SURVEYOR(S): TRH DATE: May 27,202 TIME start 2:30 finish
UTMZ: UTME: UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
(G) TERRESTRIAL	G ORGANIC	G LACUSTRINE	(G) NATURAL	G PLANKTON	G LAKE
G WETLAND	G MINERAL SOIL	G RIVERINE	G CULTURAL	G SUBMERGED	G POND
G AQUATIC	G PARENT MIN.	G BOTTOMLAND		G FLOATING-LVD.	G RIVER
	G ACIDIC BEDRK.	(G) TERRACE		G GRAMINOID	G STREAM
SITE	G BASIC BEDRK.	(G) VALLEY SLOPE	COVER	G FORB	G MARSH
G OPEN WATER	(G) CARB. BEDRK.	G TABLELAND		G LICHEN	G SWAMP
G SHALLOW WATER		G ROLL. UPLAND		G BRYOPHYTE	G FEN
(G) SURFICIAL DEP.		G CLIFF		(G) DECIDUOUS	G BOG
G BEDROCK		G TALUS	G OPEN	G CONIFEROUS	G BARREN
		G CREVICE / CAVE	G SHRUB	G MIXED	G MEADOW
		G ALVAR	(G) TREED		G PRAIRIE
		G ROCKLAND			G THICKET
		G BEACH / BAR			G SAVANNAH
		G SAND DUNE			G WOODLAND
		G BLUFF			(G) FOREST
					G PLANTATION

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY			Red Oak
2	SUB-CANOPY			Grey dogwood
3	UNDERSTOREY			
4	GRD. LAYER			Virginia Creeper

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m
CVR CODES 0 = NONE 1 = 0% < CVR ≤ 10% 2 = 10 < CVR ≤ 25% 3 = 25 < CVR ≤ 60% 4 = CVR > 60%

STAND COMPOSITION: BA:

SIZE CLASS ANALYSIS:		< 10		10 - 24		25 - 50		> 50
STANDING SNAGS:	0	< 10	R	10 - 24	N	25 - 50	N	> 50
DEADFALL / LOGS:	0	< 10	R	10 - 24	R	25 - 50	R	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE:		PIONEER		YOUNG	X	MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:		
INCLUSION		
COMPLEX		

Notes:

ELC PLANT SPECIES LIST

SITE:
POLYGON: ~~Road~~ Red Oak forest
DATE:
SURVEYOR(S): TRH

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER
ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COL.
AILA ALT	7				O
QUERRub	T				A
CARYOVA	X				O
~~ACER PLT~~	~~X~~		~~X~~		~~A~~
PARTQUIN				X	D
FRAXAME			X		O
CORNRAC			X		D
RHAMCAT		X	X		O
VITIRI			X		O
ARISTRI			X	X	O
ERYTHRUNIMSP				X	O
PRUNPEN				X	O
RANUABO				X	O
Amelanchier sp		X			O
GERAMAC				X	O
Galium sp		X			O
QUERMAC		X			R
VIBUDENT		X			R
Solidago sp				X	R
GERAROB				X	R
ZANTAME		X			O
TILL AMER	X		X		R

SPECIES CODE	LAYER 1	2	3	4	COL.

ELC

MANAGEMENT / DISTURBANCE

SITE:
POLYGON: B
DATE: May 27
SURVEYOR(S):

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC

WILDLIFE

SITE:
POLYGON:
DATE:
SURVEYOR(S):
START TIME: END TIME:

TEMP (°C):	CLOUD (10th):	WIND:	PRECIPITATION:

CONDITIONS:

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS		SNAGS
	HIBERNACULA		FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#	TY	SP. CODE	EV	NOTES	#

FAUNAL TYPE CODES (TY):
B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:
SH = SUITABLE HABITAT SM = SINGING MALE

BREEDING BIRD - PROBABLE:
T = TERRITORY D = DISPLAY P = PAIR
A = ANXIETY BEHAVIOUR N = NEST BUILDING V = VISITING NEST

BREEDING BIRD - CONFIRMED:
DD = DISTRACTION NU = USED NEST FY = FLEDGED YOUNG
NE = EGGS NY = YOUNG FS = FOOD/FAECAL SACK
AE = NEST ENTRY

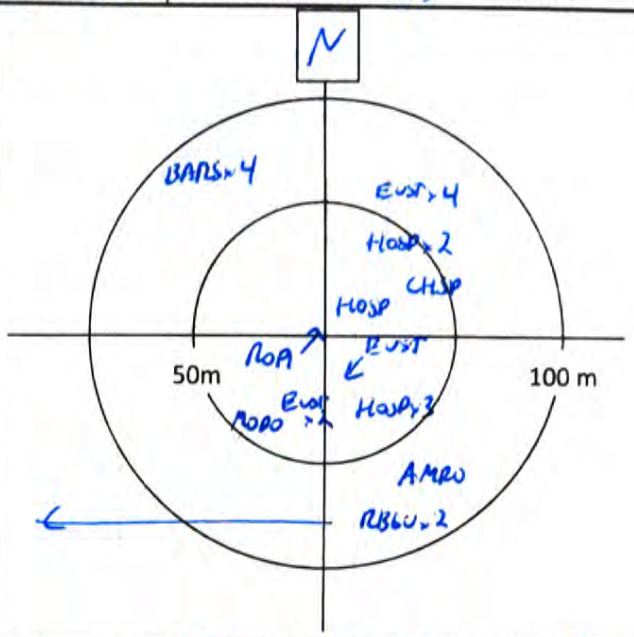
OTHER WILDLIFE EVIDENCE:
OB = OBSERVED VO = VOCALIZATION CA = CARCASS
DP = DISTINCTIVE PARTS HO = HOUSE/DEN FY = EGGS OR YOUNG
TK = TRACKS FE = FEEDING EVIDENCE SC = SCAT
SI = OTHER SIGNS (specify)

Breeding Bird Survey Form

wood.

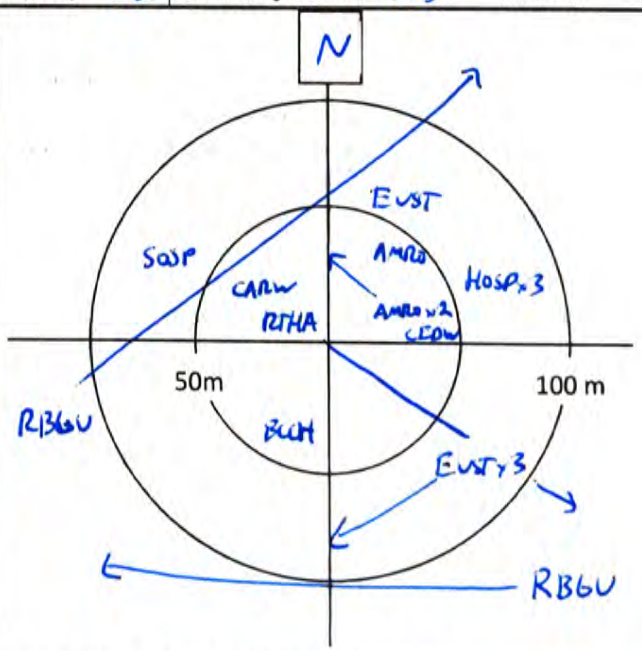
Project Name:	BB4	Project Number:		Observers:	JAH	Date:	2021 07 02	Round:	2
Point Count #:	2	UTM:	17T, 0591324, 4785593			Primary Habitat:	25	Modifier:	
Cloud: 0	Temp (°C): 16	Wind: 1	Precip: 0	Start (24hr): 708		Secondary Habitat:	23	Modifier:	

Species	<50 m			50-100 m			>100 m			Breeding Evidence
	0-3m	3-5m	5-10m	0-3m	3-5m	5-10m	0-3m	3-5m	5-10m	
HOSP			X							P
EVST	X									H
EVST		X								AE
EVST					X					S
HOSP		X								AE
BARS				X						H
NOPO				X						S
AMRO					X					S
AMRO		X								H
CHSP			X							S
HOSP			X							P
NOPO		X								H
RBGU				X						X



Project Name:	BB1	Project Number:		Observers:	JAH	Date:	2021.07.02	Round:	2
Point Count #:	2	UTM:	17T, 0591200, 4785170			Primary Habitat:	25	Modifier:	
Cloud: 0	Temp (°C): 16	Wind: 0	Precip: 0	Start (24hr): 732		Secondary Habitat:	23	Modifier:	

Species	<50 m			50-100 m			>100 m			Breeding Evidence
	0-3m	3-5m	5-10m	0-3m	3-5m	5-10m	0-3m	3-5m	5-10m	
CEDW			X							S
CARW			X							S
AMRO			X							S
RBGU									X	X
HOSP				X						P
EVST						X				H
EVST				X						H
BCCH				X						H
RTHA	X									H
AMRO		X								H
SOSP					X					S
RBGU								X		X



Weather:

Wind Scale:	0 – Calm, 1 – Light Air, 2 – Light Breeze, 3 – Gentle Breeze	Precipitation Scale:	0 – None, 1 – Haze/Fog, 2 – Drizzle, 3 - Rain

Habitat:

1. Poplar Forest	6. Spruce Forest	11. Coniferous Treed Swamp	16. Shrub Bog/Poor Fen	21. Hay Crop	**Modifiers:**
2. Poplar–Birch Forest	7. Jack Pine–Spruce Forest	12. Shrub/Thicket Swamp	17. Open Bog/Fen	22. Clearcut	1. Plantation
3. Poplar–Spruce Forest	8. Jack Pine Forest	13. Sedge/Meadow Marsh	18. Open Shrubland	23. Roadside	2. Regenerating/Young
4. Poplar–Jack Pine Forest	9. Deciduous Treed Swamp	14. Cattail/Open Water Marsh	19. Dense Shrubland	24. Open Cut-Line	3. Mid-aged
5. Birch–Spruce Forest	10. Mixed Treed Swamp	15. Treed Bog/Fen	20. Pasture	25. Cultural	4. Mature

Breeding Evidence

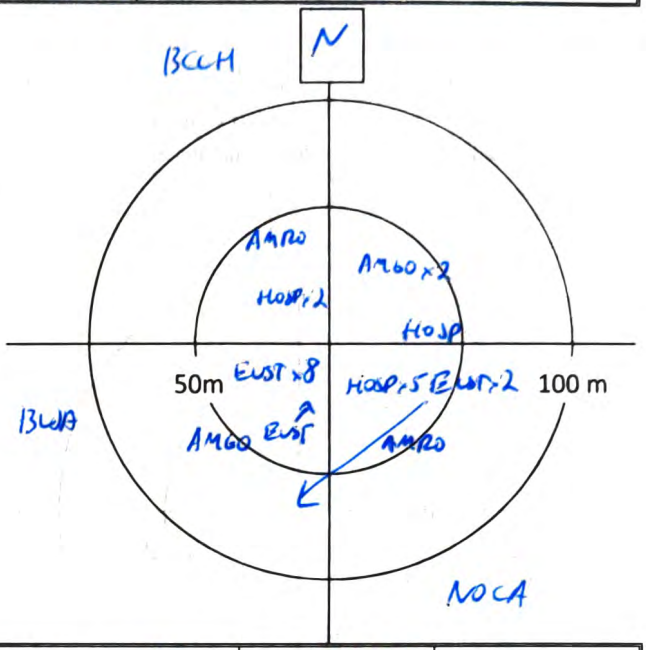
Observed (OB)		Probable (PR)			Confirmed (CO)			
X	Species Observed	P	Pair Observed	A	Aggressive Behaviour	DD	Distraction Display	FS	Carrying Fecal Sac
Possible (PO)		T	Territory	N	Nest	NU	Used Nest	CF	Carrying Food
H	Suitable Habitat	D	Courtship or Display	V	Visiting Probable Nest Site	FY	Feeding Young	NE	Nest With Eggs
S	Male Singing					AE	Adults Entering or Leaving Nest	NY	Nest With Young

Breeding Bird Survey Form

wood.
Wood Environment & Infrastructure Solutions
A Division of Wood Canada Limited
160 Traders Boulevard East, Suite 110
Mississauga, Ontario L4Z 3K7
Canada
T: 905.568.2929

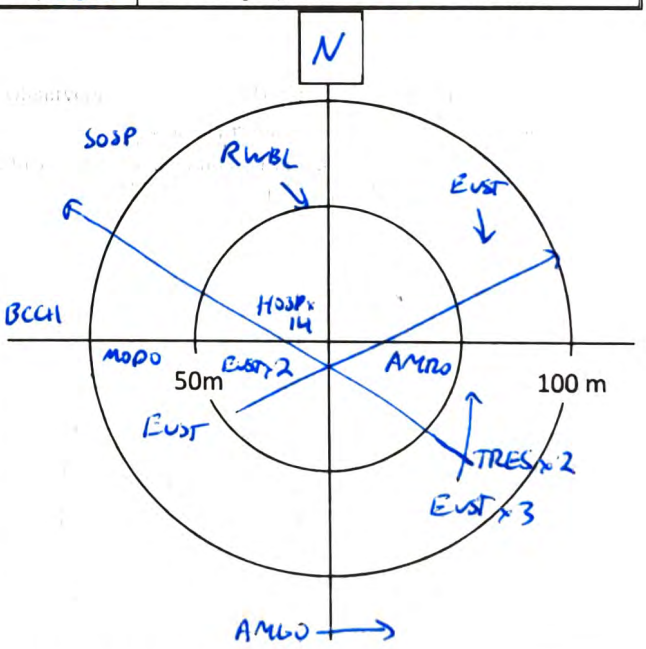
Project Name:	BB2	Project Number:		Observers:	JAH	Date:	2021.07.02	Round:	
Point Count #:	2	UTM:	17T, 0591109, 4784581			Primary Habitat:	25	Modifier:	
Cloud:	0	Temp (°C):	16	Wind:	0	Precip:	0	Start (24hr):	0753	Secondary Habitat:	23	Modifier:	

Species	<50 m			50-100 m			>100 m			Breeding Evidence
	0-3m	3-5m	5-10m	0-3m	3-5m	5-10m	0-3m	3-5m	5-10m	
EUST	X									P
HOSP		X								S
AMRO			X							H
EUST			X							H
AMGO				X						S
AMGO		X			\					S
BLJA								X		H
EUST			X							CF
BCCH									X	S
AMRO			X							H
HOSP		X								S
NOCA									X	S
HOSP		X								H



Project Name:	BB3	Project Number:		Observers:	JAH	Date:	2021.07.02	Round:	
Point Count #:	2	UTM:	17T, 0591003, 4784552			Primary Habitat:	25	Modifier:	
Cloud:	0	Temp (°C):	16	Wind:	1	Precip:	0	Start (24hr):	0818	Secondary Habitat:	23	Modifier:	

Species	<50 m			50-100 m			>100 m			Breeding Evidence
	0-3m	3-5m	5-10m	0-3m	3-5m	5-10m	0-3m	3-5m	5-10m	
RWBL					X					H
MODO						X				H
HOSP			X							P
EUST						X				H
BCCH								X		S
EUST			X							H
AMRO			X							H
TRES						X				H
AMGO									X	H
SOSP									~	S
EUST		X								CF
EUST						X				H



Weather:

Wind Scale:	0 – Calm, 1 – Light Air, 2 – Light Breeze, 3 – Gentle Breeze	Precipitation Scale:	0 – None, 1 – Haze/Fog, 2 – Drizzle, 3 - Rain

Habitat:

1. Poplar Forest	6. Spruce Forest	11. Coniferous Treed Swamp	16. Shrub Bog/Poor Fen	21. Hay Crop	**Modifiers:**
2. Poplar-Birch Forest	7. Jack Pine-Spruce Forest	12. Shrub/Thicket Swamp	17. Open Bog/Fen	22. Clearcut	1. Plantation
3. Poplar-Spruce Forest	8. Jack Pine Forest	13. Sedge/Meadow Marsh	18. Open Shrubland	23. Roadside	2. Regenerating/Young
4. Poplar-Jack Pine Forest	9. Deciduous Treed Swamp	14. Cattail/Open Water Marsh	19. Dense Shrubland	24. Open Cut-Line	3. Mid-aged
5. Birch-Spruce Forest	10. Mixed Treed Swamp	15. Treed Bog/Fen	20. Pasture	25. Cultural	4. Mature

Breeding Evidence

Observed (OB)		Probable (PR)			Confirmed (CO)			
X	Species Observed	P	Pair Observed	A	Aggressive Behaviour	DD	Distraction Display	FS	Carrying Fecal Sac
Possible (PO)		T	Territory	N	Nest	NU	Used Nest	CF	Carrying Food
H	Suitable Habitat	D	Courtship or Display	V	Visiting Probable Nest Site	FY	Feeding Young	NE	Nest With Eggs
S	Male Singing					AE	Adults Entering or Leaving Nest	NY	Nest With Young

ELC COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: Upper Vallington | POLYGON: Field

SURVEYOR(S): RM | DATE: Aug 4 2021 | TIME: start / finish

UTMZ: | UTME: | UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
G TERRESTRIAL	G ORGANIC	G LACUSTRINE	G NATURAL	G PLANKTON	G LAKE
G WETLAND	G MINERAL SOIL	G RIVERINE	G CULTURAL	G SUBMERGED	G POND
G AQUATIC	G PARENT MIN.	G BOTTOMLAND		G FLOATING-LVD.	G RIVER
	G ACIDIC BEDRK.	G TERRACE		G GRAMINOID	G STREAM
SITE	G BASIC BEDRK.	G VALLEY SLOPE		G FORB	G MARSH
G OPEN WATER	G CARB. BEDRK.	G TABLELAND		G LICHEN	G SWAMP
G SHALLOW WATER		G ROLL. UPLAND		G BRYOPHYTE	G FEN
G SURFICIAL DEP.		G CLIFF		G DECIDUOUS	G BOG
G BEDROCK		G TALUS	COVER	G CONIFEROUS	G BARREN
		G CREVICE / CAVE		G MIXED	G MEADOW
		G ALVAR	G OPEN		G PRAIRIE
		G ROCKLAND	G SHRUB		G THICKET
		G BEACH / BAR	G TREED		G SAVANNAH
		G SAND DUNE			G WOODLAND
		G BLUFF			G FOREST
					G PLANTATION

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY		4	QUERALB > CARYOVA > QUERRUB > JUGLNIG
2	SUB-CANOPY		1	CARYOVA > JUGLNIG
3	UNDERSTOREY		3	RHAMCAT > FRAXAME > JUGLNIG
4	GRD. LAYER		3	RHAMCAT > PARTVIT > GERAMAC > ARISTRI

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0 = NONE 1 = 0% < CVR ≤ 10% 2 = 10 < CVR ≤ 25% 3 = 25 < CVR ≤ 60% 4 = CVR > 60%

STAND COMPOSITION: | BA:

SIZE CLASS ANALYSIS:	A	< 10	A	10 - 24	X	25 - 50	O	> 50
STANDING SNAGS:	A	< 10	O	10 - 24	R	25 - 50	R	> 50
DEADFALL / LOGS:	A	< 10	O	10 - 24	R	25 - 50	R	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG		MID-AGE	X	MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:	FOOM2-2 Dry-fresh sub-thicket deciduous	
COMMUNITY SERIES:		forest
ECOSITE:		
VEGETATION TYPE:		
INCLUSION		
COMPLEX		

Notes:

ELC PLANT SPECIES LIST

SITE: | POLYGON: | DATE: | SURVEYOR(S):

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COL.
QUERALB	O	R	R	R	
QUERRUB	O	R	R	R	
CARYOVA	O	O	O	O	
FRAXAME		R	O	O	
JUGLNIG	R	R	R	R	
ACERNEG		R	R	R	
CARYCOR	R	R	R	R	
FRAXPEN		R	O	O	
PRUNSER			R		
QUERVEL	R	R	R	R	
LONIEUX			R	R	
LIGUVUL			O	O	
RUBUCC			O	O	
VIBUOPU			R	R	
TOXIRYD				O	
ZANTAME			R	R	
RHAMCAT			A	A	
LONITAT			O	O	
PRUNVIR			O	O	
PARTVIT			O	O	
VITRIP			O	O	
Crataegus			R	R	
CORNRAC			O	O	

only 1 tree noted

SPECIES CODE	LAYER 1	2	3	4	COL.
GEUMURB				O	
CIRCCAN				O	
GERAMB				O	
ARISTRI				O	
SOLIALT				O	
OXALSTR				R	
POTESIM				R	
GERAMAC				O	
HYPEPUN				R	
EUTHGRA				R	
PRUNVUL				R	
ERIGANN				R	
PERSVIR				O	
ARCTMIN				O	
SYMPURO				O	
JUNCTEN				O	
FRAGVES				R	
GEUMCAN				O	
FRAGVIR				O	
SYMPLAN				R	
ALLIPET				R	
LAPSCOM				R	
VEROOFF				R	
POA_PRA				O	
THALDIO				R	

ELC MANAGEMENT / DISTURBANCE	SITE:				
	POLYGON: Forest				
	DATE:				
	SURVEYOR(S):				
DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
					† INTENSITY x EXTENT = SCORE

ELC WILDLIFE	SITE:	
	POLYGON:	
	DATE:	
	SURVEYOR(S):	
	START TIME:	END TIME:

TEMP (°C):	CLOUD (10th):	WIND:	PRECIPITATION:
CONDITIONS:			

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS		SNAGS
	HIBERNACULA		FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#	TY	SP. CODE	EV	NOTES	#
	CARW								
	NOCA								
	BLJA								
	BCCH								
	ELPE								
	AMRO								
	RTHU								
	AMCR								
	Grey Squirrel								

Notes:

ELC — COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: Upper Vallington		POLYGON: M	
SURVEYOR(S): RDM	DATE: Aug 4 2021	TIME: start	
		finish	
UTMZ:	UTME:	UTMN:	

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
G TERRESTRIAL	G ORGANIC	G LACUSTRINE	G NATURAL	G PLANKTON	G LAKE
G WETLAND	G MINERAL SOIL	G RIVERINE	G CULTURAL	G SUBMERGED	G POND
G AQUATIC	G PARENT MIN.	G BOTTOMLAND		G FLOATING-LVD.	G RIVER
	G ACIDIC BEDRK.	G TERRACE		G GRAMINOID	G STREAM
	G BASIC BEDRK.	G VALLEY SLOPE		G FORB	G MARSH
	G CARB. BEDRK.	G TABLELAND		G LICHEN	G SWAMP
SITE		G ROLL. UPLAND		G BRYOPHYTE	G FEN
		G CLIFF		G DECIDUOUS	G BOG
G OPEN WATER		G TALUS	COVER	G CONIFEROUS	G BARREN
G SHALLOW WATER		G CREVICE / CAVE		G MIXED	G MEADOW
G SURFICIAL DEP.		G ALVAR	G OPEN		G PRAIRIE
G BEDROCK		G ROCKLAND	G SHRUB		G THICKET
		G BEACH / BAR			G SAVANNAH
		G SAND DUNE	G TREED		G WOODLAND
		G BLUFF			G FOREST
					G PLANTATION

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY		1	JUGLNIG > RUGISPE
2	SUB-CANOPY		1	JUGLNIG > RUGISPE
3	UNDERSTOREY		1	JUGLNIG
4	GRD. LAYER		U	SOLIALT > Grass > CIRSARV > SECUVAR

HT CODES: 1 = >25 m 2 = 10<HT<25 m 3 = 2<HT<10 m 4 = 1<HT<2 m 5 = 0.5<HT<1 m 6 = 0.2<HT<0.5 m 7 = HT<0.2 m

CVR CODES 0 = NONE 1 = 0% < CVR < 10% 2 = 10 < CVR < 25% 3 = 25 < CVR < 60% 4 = CVR > 60%

STAND COMPOSITION:	BA:

		< 10	10 - 24	25 - 50	> 50
SIZE CLASS ANALYSIS:					
STANDING SNAGS:		< 10	10 - 24	25 - 50	> 50
DEADFALL / LOGS:		< 10	10 - 24	25 - 50	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER	X	YOUNG		MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:	MEFM1 Dry-fresh forb meadow	
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:		
INCLUSION		
COMPLEX		

Notes:

ELC — PLANT SPECIES LIST

SITE:	
POLYGON:	
DATE:	
SURVEYOR(S):	

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER

ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COL.
RUGISPE	R	R	R	R	
RHUSTYP		R	R		
JUGLNIG	R	R	R	R	
SALIAMY	R	R			

SPECIES CODE	LAYER 1	2	3	4	COL.
MELIALB				O	
HYPEPER				O	
SOLIALT				A	
CONVOFF				O	
SOLADUL				O	
CIRSARV				O	
POA_PRA				O	
SONCARV				O	
TOXIRYD				R	
LOTUCOR				O	
RUMECRI				R	
VICICRA				R	
POA_COM				O	
PHALARU				O	
LONITAT			R	R	
ARCTMIN				O	
ELYMREP				R	
ACHIMIL				O	
DIAFUL				O	
MONAFIS				R	
CICHINT				R	
ASCLSYR				O	
SECUVAR				O	

ELC MANAGEMENT / DISTURBANCE	SITE:				
	POLYGON: Meadow				
	DATE:				
	SURVEYOR(S):				
DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
					† INTENSITY x EXTENT = SCORE

ELC WILDLIFE	SITE:	
	POLYGON:	
	DATE:	
	SURVEYOR(S):	
	START TIME:	END TIME:

TEMP (°C):	CLOUD (10th):	WIND:	PRECIPITATION:
CONDITIONS:			

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS		SNAGS
	HIBERNACULA		FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#	TY	SP. CODE	EV	NOTES	#
	RAOR								
	Cattle Egret								
	Monarch								
	HALO								

Notes:

ELC COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: upper wellington | POLYGON: A
SURVEYOR(S): TRH | DATE: May 27, 21 | TIME: start / finish
UTMZ: | UTME: | UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
G TERRESTRIAL G WETLAND G AQUATIC	G ORGANIC G MINERAL SOIL G PARENT MIN. G ACIDIC BEDRK. G BASIC BEDRK. G CARB. BEDRK.	G LACUSTRINE G RIVERINE G BOTTOMLAND G TERRACE G VALLEY SLOPE G TABLELAND G ROLL UPLAND G CLIFF G TALUS G CREVICE / CAVE G ALVAR G ROCKLAND G BEACH / BAR G SAND DUNE G BLUFF	G NATURAL G CULTURAL	G PLANKTON G SUBMERGED G FLOATING-LVD. G GRAMINOID G FORB G LICHEN G BRYOPHYTE G DECIDUOUS G CONIFEROUS G MIXED	G LAKE G POND G RIVER G STREAM G MARSH G SWAMP G FEN G BOG G BARREN G MEADOW G PRAIRIE G THICKET G SAVANNAH G WOODLAND G FOREST G PLANTATION

SITE	COVER
G OPEN WATER G SHALLOW WATER G SURFICIAL DEP. G BEDROCK	G OPEN G SHRUB G TREED

STAND DESCRIPTION:

Various

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	3	~~M~~	see Tree inventory
2	SUB-CANOPY			
3	UNDERSTOREY			
4	GRD. LAYER	7	4	~~weeds~~ GRASS/weeds

HT CODES: 1 = >25 m 2 = 10<HT<25 m 3 = 2<HT<10 m 4 = 1<HT<2 m 5 = 0.5<HT<1 m 6 = 0.2<HT<0.5 m 7 = HT<0.2 m
CVR CODES 0 = NONE 1 = 0% < CVR < 10% 2 = 10 < CVR < 25% 3 = 25 < CVR < 60% 4 = CVR > 60%

STAND COMPOSITION:	BA:

SIZE CLASS ANALYSIS:		< 10		10 - 24		25 - 50		> 50
STANDING SNAGS:		< 10		10 - 24		25 - 50		> 50
DEADFALL / LOGS:		< 10		10 - 24		25 - 50		> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE		PIONEER	X	YOUNG		MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:		
INCLUSION		
COMPLEX		

Notes:

CARW, BARS fly over, feeding over soccerfield, might nest in Barn Structure @ SW corner of Limeridge & upper wellington.

ELC PLANT SPECIES LIST

SITE: IM20103037
POLYGON: A
DATE: May 27, 2021
SURVEYOR(S): TRH

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER
ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COL.
for trees see Tree inventory					
TOROFF	X			O	
POA PRAT	X			O	
common lawn weeds				O	
N					

~~Acer~~ manicured lawn

SPECIES CODE	LAYER 1	2	3	4	COL.
Plants From FALL 4,5,7					
MEDI LUP				O	
PLANMAJ				O	
LEUC VUL				O	
TRIF REP				O	
GLECHED				O	
LOJ4COR				O	
PLANLAN				O	
CICH INT				O	
ERIG PHIL				O	
DAUCCAR				O	
POLYPER				O	
RUMEX SP.				R	
SONCOLE				R	
POLYAVI					
CERCCAN		R			
AMELANCHIER SP.				R	

EAST, AMCR

COMMU | VEGETATION | INCLUSION | COMPLEX

ELC

MANAGEMENT / DISTURBANCE

SITE: Upper Wellington
POLYGON:
DATE: May 27, 21
SURVEYOR(S):

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC

WILDLIFE

SITE:
POLYGON:
DATE:
SURVEYOR(S):
START TIME: END TIME:

TEMP (°C): CLOUD (10th): WIND: PRECIPITATION:
CONDITIONS:

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS		SNAGS
	HIBERNACULA		FALLEN LOGS

SPECIES LIST: See Breeding Bird Survey

TY	SP. CODE	EV	NOTES	#	TY	SP. CODE	EV	NOTES	#

FAUNAL TYPE CODES (TY):
B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:
SH = SUITABLE HABITAT SM = SINGING MALE

BREEDING BIRD - PROBABLE:
T = TERRITORY D = DISPLAY P = PAIR
A = ANXIETY BEHAVIOUR N = NEST BUILDING V = VISITING NEST

BREEDING BIRD - CONFIRMED:
DD = DISTRACTION NU = USED NEST FY = FLEDGED YOUNG
NE = EGGS NY = YOUNG FS = FOOD/FAECAL SACK
AE = NEST ENTRY

OTHER WILDLIFE EVIDENCE:
OB = OBSERVED VO = VOCALIZATION CA = CARCASS
DP = DISTINCTIVE PARTS HO = HOUSE/DEN FY = EGGS OR YOUNG
TK = TRACKS FE = FEEDING EVIDENCE SC = SCAT
SI = OTHER SIGNS (specify)

Tree On lawn of 1347 Upperwellington had Protetive fencing around it.

BPWA
BCCH

ELC COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: UPPER WELLINGTON | POLYGON: B
SURVEYOR(S): TRH | DATE: May 27 2021 | TIME: start 2:30 finish
UTMZ: | UTME: | UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
(G) TERRESTRIAL	G ORGANIC	G LACUSTRINE	(G) NATURAL	G PLANKTON	G LAKE
G WETLAND	G MINERAL SOIL	G RIVERINE	G CULTURAL	G SUBMERGED	G POND
G AQUATIC	G PARENT MIN.	G BOTTOMLAND		G FLOATING-LVD.	G RIVER
	G ACIDIC BEDRK.	(G) TERRACE		G GRAMINOID	G STREAM
SITE	G BASIC BEDRK.	G VALLEY SLOPE		G FORB	G MARSH
G OPEN WATER	(G) CARB. BEDRK.	G TABLELAND		G LICHEN	G SWAMP
G SHALLOW WATER		G ROLL. UPLAND		G BRYOPHYTE	G FEN
(G) SURFICIAL DEP		G CLIFF	COVER	(G) DECIDUOUS	G BOG
(G) BEDROCK		G TALUS		G CONIFEROUS	G BARREN
		G CREVICE / CAVE	G OPEN	G MIXED	G MEADOW
		G ALVAR	G SHRUB		G PRAIRIE
		G ROCKLAND	(G) TREED		G THICKET
		G BEACH / BAR			G SAVANNAH
		G SAND DUNE			G WOODLAND
		G BLUFF			(G) FOREST
					G PLANTATION

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY			Red Oak
2	SUB-CANOPY			Grey dogwood
3	UNDERSTOREY			
4	GRD. LAYER			Virgins Creeper

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m
CVR CODES 0 = NONE 1 = 0% < CVR ≤ 10% 2 = 10 < CVR ≤ 25% 3 = 25 < CVR ≤ 60% 4 = CVR > 60%

STAND COMPOSITION: BA:

SIZE CLASS ANALYSIS:		< 10		10 - 24		25 - 50		> 50
STANDING SNAGS:	O	< 10	R	10 - 24	N	25 - 50	N	> 50
DEADFALL / LOGS:	O	< 10	R	10 - 24	R	25 - 50	R	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE:		PIONEER		YOUNG	X	MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:		
INCLUSION		
COMPLEX		

Notes:

ELC MANAGEMENT / DISTURBANCE / EXT. TIME SINCE LOGGING INTENSITY OF LOG EXTENT OF LOG

ELC PLANT SPECIES LIST

SITE:
POLYGON: ~~Red Oak~~ Red Oak forest
DATE:
SURVEYOR(S): TRH

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER
ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COL.
ACERALT	T				O
QUERRUB	T				A
CARYOVA	X				O
ACERPEN	~~X~~	~~X~~			~~A~~
PARTQUIN				X	D
FRAXAME		X			O
CORNRAC		X			D
RHAMCAT		X	X		O
VITRIP			V		O
ARISTRI			X	X	O
ERYTHRONIUM				X	O
PRUNPEN				X	O
RANUABO				X	O
Amelanchier sp		X			O
GERAMAC				X	O
Salix sp		X			O
QUERMAC		X			R
VIBUDEN		X			R
Solidago sp				X	R
GERAROB				X	R
ZANTAME		X			R
TILIAME	X				R

SPECIES CODE	LAYER 1	2	3	4	COL.
FALL VISIT					
ROBIPSE		O			
SOLIRUG			O		
SOLIGRA			R		
SYMPLAN			O		
SYMPYRO			R		
CIRCLUT			R		
RIBES Sp.		O			
VIBUACE			R		
TSUGCAR			R	R	
TYPHMIN			R	R	
SOLADUL				R	
RUBUOCC					

} in creek Pool of water

Pooling water after heavy rain, maybe ephemeral / creek 0591181 4785183
Culvert 0591173 4785164

ELC
MANAGEMENT / DISTURBANCE

SITE:
POLYGON: B
DATE: May 27
SURVEYOR(S):

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC
WILDLIFE

SITE:
POLYGON:
DATE:
SURVEYOR(S):
START TIME: END TIME:

TEMP (°C): CLOUD (10th): WIND: PRECIPITATION:
CONDITIONS:

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS		SNAGS
	HIBERNACULA		FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#	TY	SP. CODE	EV	NOTES	#

FAUNAL TYPE CODES (TY):
B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):

BREEDING BIRD - POSSIBLE:
SH = SUITABLE HABITAT
SM = SINGING MALE

BREEDING BIRD - PROBABLE:
T = TERRITORY
A = ANXIETY BEHAVIOUR
D = DISPLAY
N = NEST BUILDING
P = PAIR
V = VISITING NEST

BREEDING BIRD - CONFIRMED:
DD = DISTRACTION
NE = EGGS
AE = NEST ENTRY
NU = USED NEST
NY = YOUNG
FY = FLEDGED YOUNG
FS = FOOD/FAECAL SACK

OTHER WILDLIFE EVIDENCE:
OB = OBSERVED
DP = DISTINCTIVE PARTS
TK = TRACKS
SI = OTHER SIGNS (specify)
VO = VOCALIZATION
HO = HOUSE/DEN
FE = FEEDING EVIDENCE
CA = CARCASS
FY = EGGS OR YOUNG
SC = SCAT

ELC COMMUNITY DESCRIPTION & CLASSIFICATION

Old farm field

SITE: UPPER WELLINGTON | POLYGON: 26
SURVEYOR(S): TRH | DATE: 2021-09-15 | TIME: start 10:40, finish 11:45
UTMZ: | UTME: | UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
G TERRESTRIAL	G ORGANIC	G LACUSTRINE	G NATURAL	G PLANKTON	G LAKE
G WETLAND	G MINERAL SOIL	G RIVERINE	G CULTURAL	G SUBMERGED	G POND
G AQUATIC	G PARENT MIN.	G BOTTOMLAND		G FLOATING-LVD.	G RIVER
	G ACIDIC BEDRK.	G TERRACE		G GRAMINOID	G STREAM
SITE	G BASIC BEDRK.	G VALLEY SLOPE		G FORB	G MARSH
	G CARB. BEDRK.	G TABLELAND		G LICHEN	G SWAMP
G OPEN WATER		G ROLL. UPLAND		G BRYOPHYTE	G FEN
G SHALLOW WATER		G CLIFF	COVER	G DECIDUOUS	G BOG
G SURFICIAL DEP.		G TALUS		G CONIFEROUS	G BARREN
G BEDROCK		G CREVICE / CAVE		G MIXED	G MEADOW
		G ALVAR			G PRAIRIE
		G ROCKLAND	G OPEN		G THICKET
		G BEACH / BAR	G SHRUB		G SAVANNAH
		G SAND DUNE	G TREED		G WOODLAND
		G BLUFF			G FOREST
					G PLANTATION

STAND DESCRIPTION

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY			None
2	SUB-CANOPY			None
3	UNDERSTOREY	6	2	BARBVUL > TRAG DUB > RUMEX CRI
4	GRD. LAYER	7	4	GLECHEB > MEDILUP > PLANLAN

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m
CVR CODES: 0 = NONE 1 = 0% < CVR ≤ 10% 2 = 10 < CVR ≤ 25% 3 = 25 < CVR ≤ 60% 4 = CVR > 60%

STAND COMPOSITION: | BA:

		< 10	10 - 24	25 - 50	> 50
SIZE CLASS ANALYSIS:					
STANDING SNAGS:					
DEADFALL / LOGS:					

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE:		PIONEER	X	YOUNG		MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:		
INCLUSION		
COMPLEX		

Notes:

AMGO
BCCI-1

ELC PLANT SPECIES LIST

SITE:
POLYGON:
DATE:
SURVEYOR(S):

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER
ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COL.
MALVMEG				R	
BARBVUL				A	
TRIPRA				O	
TRAG DUB				O	
SUGLNIG				R	
CIRCARV				R	
POPLORSP.				R	

main field

SPECIES CODE	LAYER 1	2	3	4	COL.
ULMUPUM			R	R	
LEYCVUL				R	
MEDILUP				R	
RUMEX CRI				O	
POTESPM				R	
TRIFREF				O	
GLECHEB				O	
VITRIP				R	
LINAVUL				O	
SYMPLAN				O	
POLYAVI				O	
VICI VIL				O	
PANICAR				O	
DIPSFUL				O	
SONCOLE				O	
TARO off				O	
PLANLAN				O	
TRIFREP				O	
CIRSVUL				O	
ARCMIN				O	
CICHINT				O	
SOLIRUG				A	

Edge

Monarch going to wild flowers
Cabbage white

ELC

MANAGEMENT / DISTURBANCE

SITE: Upper Wellington old ELC
POLYGON:
DATE: Sept. 15 2021
SURVEYOR(S):

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC

WILDLIFE

SITE:
POLYGON:
DATE:
SURVEYOR(S):
START TIME: END TIME:

TEMP (°C):	CLOUD (10th):	WIND:	PRECIPITATION:

CONDITIONS:

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS		SNAGS
	HIBERNACULA		FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#	TY	SP. CODE	EV	NOTES	#

Notes:

Meadow FORB Meadow

ELC COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: Upper wellington | POLYGON:
SURVEYOR(S): TRH | DATE: 2021-09-15 | TIME: start 1145, finish 2:00
UTMZ: | UTME: | UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
G TERRESTRIAL G WETLAND G AQUATIC	G ORGANIC G MINERAL SOIL G PARENT MIN. G ACIDIC BEDRK. G BASIC BEDRK. G CARB. BEDRK.	G LACUSTRINE G RIVERINE G BOTTOMLAND G TERRACE G VALLEY SLOPE G TABLELAND G ROLL. UPLAND G CLIFF G TALUS G CREVICE / CAVE G ALVAR G ROCKLAND G BEACH / BAR G SAND DUNE G BLUFF	G NATURAL G CULTURAL	G PLANKTON G SUBMERGED G FLOATING-LVD. G GRAMINOID G FORB G LICHEN G BRYOPHYTE G DECIDUOUS G CONIFEROUS G MIXED	G LAKE G POND G RIVER G STREAM G MARSH G SWAMP G FEN G BOG G BARREN G MEADOW G PRAIRIE G THICKET G SAVANNAH G WOODLAND G FOREST G PLANTATION

SITE	COVER
G OPEN WATER G SHALLOW WATER G SURFICIAL DEP. G BEDROCK	G OPEN G SHRUB G TREED

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY			None
2	SUB-CANOPY	4	7	ACERNTG
3	UNDERSTOREY	6	4	SOLTRUG > DIPSFUL > SYMPNOV
4	GRD. LAYER	7	4	PHALARU > VICIVIL > PARTQUI

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m
CVR CODES: 0 = NONE 1 = 0% < CVR ≤ 10% 2 = 10 < CVR ≤ 25% 3 = 25 < CVR ≤ 60% 4 = CVR > 60%

STAND COMPOSITION: | BA:

SIZE CLASS ANALYSIS:	< 10	10 - 24	25 - 50	> 50	
STANDING SNAGS:	< 10	10 - 24	25 - 50	> 50	
DEADFALL / LOGS:	< 10	10 - 24	25 - 50	> 50	

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE:	PIONEER	YOUNG	MID-AGE	MATURE	OLD GROWTH

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:		
INCLUSION		
COMPLEX		

ELC PLANT SPECIES LIST

SITE:
POLYGON:
DATE:
SURVEYOR(S):

LAYERS: 1 = CANOPY 2 = SUB-CANOPY 3 = UNDERSTOREY 4 = GROUND (GRD.) LAYER
ABUNDANCE CODES: R = RARE O = OCCASIONAL A = ABUNDANT D = DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COL.
ACERNTG		R			
RHUSTYP		R			
JUGLNIG			R		

SPECIES CODE	LAYER 1	2	3	4	COL.
DIPSFUL				A	
SOLTRUG				A	
SYMPNOV				O	
VICIVIL				O	
RUDBHIR				R	
PHALARU				R	
ASCLSYR				R	
SOLI GRA				R	
PARTQUI				R	
MONAFIS				R	
LINAVUL				R	
SYMPLAN				R	
RUMECRI				R	
CIRSVUL				R	
SYMPURO				R	
CONARV					

RTHA

Page ..... of .....

Notes:

@ NW corner of Soccer field

Meadow near ~~Road~~ Red oak forest, SW side of express way on SE side of express way there is a thin strip of mowed Grass in middle of Road & Houses

Meadow

ELC
MANAGEMENT / DISTURBANCE

SITE:
POLYGON:
DATE:
SURVEYOR(S):

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	Black walnut
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	City
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

ELC
WILDLIFE

SITE:
POLYGON:
DATE:
SURVEYOR(S):
START TIME: END TIME:

TEMP (°C): CLOUD (10th): WIND: PRECIPITATION:
CONDITIONS:

POTENTIAL WILDLIFE HABITAT:

	VERNAL POOLS		SNAGS
	HIBERNACULA		FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#	TY	SP. CODE	EV	NOTES	#

Notes:

APPENDIX C

Tree Inventory

Project: IM20103037 Upper Wellington Street	Field Work Completed By: Todd Hagedorn (ISA ON-2432A)	Study Area: Upper Wellington Road Right of Way plus about 2 m on both sides of the road from the intersection of Upper Wellington Street with Stone Church Road East in the south to about 30 m north of the intersection of Upper Wellington Street with Limeridge Road East.
Dates of Field Work: 2021-05-27	Weather: Sunny, 7°C, no rain	
Tree Condition Assessment		Guidelines: City of Hamilton, Tree Protection Guidelines, 2010
Structure: Assessment of scaffold branches, unions and canopy, overall trunk.		Health: Assessment of the health of the tree, based on the % of deadwood & live crown.
G = Good: Dead branches less than 10%; signs of good compartmentalization on any wounds, no structural defects.		
F = Fair: 10-30% dead branches, size or occurrence of wounds present some concerns, minor structural defects.		
P = Poor: More than 30% dead branches, weak compartmentalization, early leaf drop, presence of insects or disease, major structural defects.		
D = Dead: The tree displayed no apparent signs of live growth		
[1] This number refers to the number assigned to trees in sequential order. Tree ID Numbers are illustrated in Figure 3.		[2] City of Hamilton, Tree Protection Guidelines, 2010- i= Invasive species, *= Non-native species, **= Native to Canada but not the area
[3] Estimated Diameter at Breast Height (DBH) was provided for trees where access was limited. A comma separates the DBH of separate stems of the same tree.		[4] Dripline radius approximate
[5] Bylaws: City of Hamilton, Tree Protection Guidelines, 2010		[6] GPS accuracy of +/- 5 m

WSP Tree Identification[1]	Ownership (Stem Location)	Aluminum Tag Affixed	Scientific Name[2]	Common Name	DBH[3]	Approximate Dripline Radius[4]	TPZ Radius(m)[5]	Tree Structure	Tree Health	Comments	EASTING[6]	NORTHING[6]
15	Shared	Yes	*Acer platanoides* [i] *	Norway Maple	28	5	6	G	G	In front of 1349 Upper Wellington Road	591153.7688	4784949.3121
16	Public	Yes	*Acer platanoides* [i] *	Norway Maple	30	5	6	G	F	In front of 1347 Upper Wellington Road, wound on trunk	591155.2378	4784965.8348
17	Public	Yes	*Tilia cordata**	Little Leaf Linden	44	5	6	F	F	Epicormic shoots	591165.2779	4784993.6952
18	Public	Yes	*Picea abies* [i] *	Norway Spruce	39	3	4	G	F	Some dead branches	591175.2544	4785017.5407
19	Public	Yes	*Picea abies* [i] *	Norway Spruce	40	5	6	G	G		591180.9063	4785039.3077
20	Public	Yes	*Tilia cordata**	Little Leaf Linden	54	6	7	G	G	Near rock and cement block by road	591184.9984	4785047.3139
21	Public	Yes	*Acer platanoides* [i] *	Norway Maple	41	5	6	F	G	Damage to basal roots from lawn mower	591187.2416	4785054.4937
22	Public	Yes	*Acer negundo* [i] **	Manitoba Maple	10,10,10,10	4	5	P	G	Previously pruned, near cement blocks	591189.8767	4785066.7741
23	Public	Yes	*Malus species*	Apple	25, 19	3	4	G	F	Some dead branches	591195.0668	4785077.0402
24	Public	Yes	*Tilia cordata**	Little Leaf Linden	9,7	3	4	G	P	Split stem	591195.2199	4785079.6781
25	Public	Yes	*Juglans nigra*	Black Walnut	24	3	4	G	F	Near cap for gas? Dead branches in canopy	591195.6376	4785083.5686
26	Public	Yes	*Acer platanoides* [i] *	Norway Maple	38	5	6	P	P	Mostly dead canopy, metal stake in base of tree	591197.6262	4785086.3069
27	Public	Yes	*Tilia cordata**	Little Leaf Linden	27, 16	5	6	P	F	Co-dominate stems, metal stake in base	591198.5038	4785089.8103
28	Public	Yes	*Acer saccharinum*	Silver Maple	40	6	7	G	P	Declining, many dead branches in canopy	591197.6202	4785093.8517
29	Private	No	*Picea pungens**	Blue Spruce	15	2	3	G	G	Behind fence	591256.9334	4785212.9960
30	Private	No	*Picea glauca*	White Spruce	17	2	3	G	G	Behind fence	591256.8150	4785214.7392
31	Private	No	*Picea glauca*	White Spruce	18	2	3	G	G	Behind fence	591255.1911	4785217.5252
32	Private	No	*Picea glauca*	White Spruce	15	2	3	G	G	Behind fence	591254.2525	4785219.3952
33	Public	No	*Gymnocladus dioicus*	Kentucky Coffeetree	5	1	2	F	P	Dead branches, tree guard, poor vigour	591254.0196	4785244.6736
34	Public	Yes	*Gymnocladus dioicus*	Kentucky Coffeetree	5	2	3	G	P	Dead branches, tree guard, poor vigour	591259.4123	4785274.3436
35	Public	Yes	*Robinia pseudoacacia* [i]	Black Locust	25	4	5	F	G	Co-dominate stem	591276.4441	4785304.5228
36	Public	Yes	*Populus grandidentata*	Large-toothed Aspen	35, 30	5	6	F	G	Co-dominate stem	591281.6799	4785313.8414
37	Public	Yes	*Gymnocladus dioicus*	Kentucky Coffeetree	4	1	2	G	F	Only 2 dead branches	591284.0968	4785344.5013
38	Private	Yes	*Tilia cordata**	Little Leaf Linden	26	4	5	G	F	Epicormic shoots	591330.7403	4785476.7895
39	Private	Yes	*Acer platanoides* [i] *	Norway Maple	36	4	5	F	G	Exposed roots damaged by lawn mower	591331.2236	4785480.8724
40	Private	Yes	*Tilia cordata**	Little Leaf Linden	25	4	5	G	G	Some exposed roots	591331.8225	4785481.9635
41	Private	Yes	*Acer platanoides* [i] *	Norway Maple	32	4	5	G	G		591332.3550	4785484.7758
42	Private	Yes	*Pinus resinosa*	Red Pine	11	2	3	P	P	Chlorosis and damage to root flare	591334.4082	4785489.4225

WSP Tree Identification[1]	Ownership (Stem Location)	Aluminum Tag Affixed	Scientific Name[2]	Common Name	DBH[3]	Approximate Dripline Radius[4]	TPZ Radius(m)[5]	Tree Structure	Tree Health	Comments	EASTING[6]	NORTHING[6]
43	Private	Yes	*Pinus resinosa*	Red Pine	24	4	5	G	G		591334.5898	4785493.6478
44	Neighbour (Private)	Yes	*Juglans nigra*	Black Walnut	55	8	9	G	G	Large tree, branches overhang side walk	591337.0249	4785503.8794
45	Private	Yes	*Pinus resinosa*	Red Pine	23	4	5	P	F	Topped	591340.5948	4785510.3109
46	Private	Yes	*Pinus resinosa*	Red Pine	16	2	3	G	P	Dead branches, poor vigour	591342.6410	4785512.2148
47	Private	No	*Tilia cordata**	Little Leaf Linden	30	5	6	G	G	Behind fence	591344.2634	4785514.8593
48	Private	No	*Acer platanoides*[i] *	Norway Maple	30	6	7	G	G	Behind fence	591344.6613	4785517.3440
49	Private	No	*Tilia cordata**	Little Leaf Linden	34	4	5	G	G	Behind fence	591346.0097	4785527.0547
50	Neighbour (Private)	No	*Acer platanoides*[i] *	Norway Maple	38	6	7	G	G	Behind fence	591348.8274	4785532.5244
51	Private	Yes	*Pinus resinosa*	Red Pine	29	2	3	G	G	At north end of fence	591348.7782	4785535.9320
52	Neighbour (Private)	Yes	*Pinus resinosa*	Red Pine	32	4	5	G	G		591352.2486	4785542.8218
53	Neighbour (Private)	Yes	*Picea glauca*	White Spruce	20	2	3	F	G	Leaning, wound on root flare	591357.8496	4785546.5955
54	Shared	Yes	*Pinus resinosa*	Red Pine	34	4	5	G	G		591360.8024	4785587.0507
55	Shared	Yes	*Acer platanoides*[i] *	Norway Maple	40	6	7	G	G	Between side walk and fence	591361.0671	4785595.5229
56	Shared	Yes	*Acer platanoides*[i] *	Norway Maple	35	6	7	G	G	Between side walk and fence	591361.9926	4785600.3198
57	Public	Yes	*Acer platanoides*[i] *	Norway Maple	39	6	7	G	G	Between side walk and fence	591362.0867	4785605.7761
58	Shared	Yes	*Gleditsia triacanthos*	Honey Locust	42	7	8	G	G	Between side walk and fence	591370.7670	4785630.5345
59	Neighbour (Private)	Yes	*Gleditsia triacanthos*	Honey Locust	35	6	7	F	G	"Y" structure to canopy	591372.6038	4785634.1261
60	Neighbour (Private)	Yes	*Gleditsia triacanthos*	Honey Locust	30	6	7	F	G	Co-dominate stem	591374.2946	4785639.3646
61	Shared	Yes	*Gleditsia triacanthos*	Honey Locust	40	5	6	F	G	Co-dominate stem	591373.9981	4785645.2764
62	Neighbour (Private)	Yes	*Gleditsia triacanthos*	Norway Maple	35	6	7	G	G	Between side walk and fence	591377.7079	4785653.0383
63	Shared	Yes	*Gleditsia triacanthos*	Red Pine	43	5	6	F	G	Heavily pruned on the east side	591379.7811	4785667.2041
64	Public	Yes	*Gleditsia triacanthos*	Kentucky Coffeetree	3	2	3	G	G	Between side walk and road	591376.5010	4785662.8383
65	Public	Yes	*Gleditsia triacanthos*	Kentucky Coffeetree	4	2	3	G	G	Between side walk and road	591358.5322	4785601.1182
66	Neighbour (Private)	Yes	*Gleditsia triacanthos*	Honey Locust	36	5	6	F	F	Large dead branch in tree	591353.8504	4785693.6336
67	Shared	Yes	*Gleditsia triacanthos*	Honey Locust	38	5	6	G	G	In front of house 15	591353.2915	4785687.2758
68	Shared	Yes	*Gleditsia triacanthos*	Honey Locust	50	6	7	G	G	In front of house 17	591352.1520	4785681.4381
69	Shared	Yes	*Gleditsia triacanthos*	Honey Locust	36	6	7	G	G	In front of house 18	591350.3892	4785675.8547
70	Shared	Yes	*Gleditsia triacanthos*	Honey Locust	36	6	7	G	G	Pruned	591349.6244	4785672.6525
71	Shared	Yes	*Gleditsia triacanthos*	Honey Locust	37	6	7	G	G	In front of house 20 Upper Wellington Street	591348.6435	4785668.8670
72	Neighbour (Private)	Yes	*Gleditsia triacanthos*	Honey Locust	37	6	7	G	G	In front of house 21 Upper Wellington Street	591344.8366	4785659.4041
73	Private	Yes	*Acer platanoides*[i] *	Norway Maple	31	5	6	G	G	Near edge of parking lot	591337.7996	4785652.4364
74	Private	Yes	*Picea glauca*	White Spruce	16	2	3	G	P	Many dead needles	591304.9773	4785564.9503
75	Neighbour (Private)	Yes	*Acer negundo*[i] **	Manitoba Maple	15	3	4	P	G	Growing through fence, poor branching	591296.9786	4785516.2411
76	Public	Yes	*Juglans nigra*	Black Walnut	13	4	5	G	G	Lots of garbage around base	591264.0140	4785398.2879
77	Public	Yes	*Juglans nigra*	Black Walnut	12, 10	4	5	F	G	Co-dominate stem	591261.9022	4785401.5525
78	Public	Yes	*Juglans nigra*	Black Walnut	10	4	5	G	G	Behind fence	591261.9820	4785404.6428
79	Public	Yes	*Juglans nigra*	Black Walnut	27	5	6	G	G	Behind fence	591258.0654	4785404.5779
80	Public	Yes	*Juglans nigra*	Black Walnut	10, 7,8	4	5	F	G	Split stems	591257.5062	4785379.1879
81	Shared	Yes	*Pseudotsuga menziesii**	Douglas Fir	25	4	5	G	G		591250.5891	4785388.4033
82	Shared	Yes	*Quercus rubra*	Red Oak	32	5	6	G	G	Between the two roads	591246.4532	4785371.8893
83	Shared	Yes	*Acer platanoides*[i] * 'Crimson King'	Crimson King Norway Maple	25	4	5	F	G	Scar on trunk	591243.4915	4785364.2091
84	Shared	Yes	*Acer saccharium*	Sugar Maple	34	5	6	F	G	Tight branching	591239.3988	4785342.2328
85	Shared	Yes	*Acer platanoides*[i] *	Norway Maple	24	4	5	F	G	Tight branching	591236.9799	4785331.4304
86	Shared	Yes	*Acer saccharium*	Sugar Maple	28	4	5	F	F	Main stem largely dead	591232.6813	4785321.9476

WSP Tree Identification[1]	Ownership (Stem Location)	Aluminum Tag Affixed	Scientific Name[2]	Common Name	DBH[3]	Approximate Dripline Radius[4]	TPZ Radius(m)[5]	Tree Structure	Tree Health	Comments	EASTING[6]	NORTHING[6]
87	Public	Yes	*Acer saccharium*	Sugar Maple	25	5	6	G	G	Between the two roads	591235.9992	4785316.9992
88	Shared	Yes	*Acer saccharium*	Sugar Maple	26	4	5	F	F	Wound at base, some branch dieback	591231.3230	4785311.8213
89	Public	Yes	*Ulmus americana*	American Elm	19	3	4	G	F	Between the two roads	591237.3876	4785296.7175
90	Public	Yes	*Ulmus americana*	American Elm	17	3	4	G	G	Between the two roads	591234.9481	4785290.5323
91	Neighbour (Private)	Yes	*Acer saccharium*	Sugar Maple	15	3	4	F	G	Pruning damage, 2 metal stakes at base	591223.9183	4785287.6969
92	Neighbour (Private)	Yes	*Acer saccharium*	Sugar Maple	20	2	3	P	P	Half of canopy dead	591222.1994	4785280.3917
93	Shared	Yes	*Acer saccharium*	Sugar Maple	24	4	5	F	F	Large wound on stem, dead branches	591221.4640	4785275.9108
94	Public	Yes	*Ulmus americana*	American Elm	11	3	4	F	G	Wound on stem	591219.9350	4785256.7481
95	Shared	Yes	*Gleditsia triacanthos*	Honey Locust	36	6	7	G	G	In garden	591213.0975	4785239.6122
96	Shared	Yes	*Gleditsia triacanthos*	Honey Locust	36	5	6	G	G	In garden	591208.8056	4785237.4377
97	Shared	Yes	*Ailanthus altissima*[i] *	Tree of Heaven	11	3	4	G	G	Canopy in transmission wires	591181.3492	4785114.2842
98	Shared	Yes	*Ulmus pumila*[i] *	Siberian Elm	74	6	7	G	G	Canopy in transmission wires	591171.4697	4785076.6918
99	Neighbour (Private)	No	*Catalpa speciosa*	Catalpa Tree	28	4	5	F	G	Tight branching, on law of 1350 Upper Wellington Street	591135.9174	4784973.4662
100	Shared	No	*Thuja occidentalis*	Eastern White Cedar	24	3	4	G	G	On lawn of 1356 Upper Wellington Street	591128.6072	4784955.2480
101	Public	No	*Acer rubrum*	Red Maple	13	3	4	G	G	On lawn of 1368 Upper Wellington Street	591115.1112	4784907.5547
201	Public	Yes	*Acer saccharinum*	Silver Maple	95	6	7	F	G	Large wounds on trunk, in hydro wires, in front of 1394 Upper Wellington Street	591093.3707	4784823.5307
202	Shared	Yes	*Acer saccharinum*	Silver Maple	68	6	7	G	G	In transmission wires, in front of 1394 Upper Wellington Stre	591090.0269	4784815.1909
203	Public	Yes	*Ulmus pumila*[i] *	Siberian Elm	43	4	5	F	G	Split stem, in front of 1398 Upper Wellington Street	591082.8233	4784805.6963
204	Public	Yes	*Ulmus pumila*[i] *	Siberian Elm	57	4	5	G	G	In front of 1398 Upper Wellington Street	591081.4753	4784799.1605
205	Neighbour (Private)	Yes	*Ulmus pumila*[i] *	Siberian Elm	57	7	8	F	G	In front of 1398 Upper Wellington Street, heavy lean south	591078.5400	4784792.4629
206	Private	No	*Acer platanoides*[i] *	Norway Maple	28	5	6	G	G	On fire hall property	591073.9754	4784790.8493
207	Private	No	*Acer platanoides*[i] *	Norway Maple	35	5	6	F	G	On fire hall property	591067.5860	4784775.8176
208	Private	Yes	*Acer platanoides*[i] *	Norway Maple	25	3	4	F	F	On fire hall property , some dead branches	591059.1720	4784746.8614
209	Neighbour (Private)	Yes	*Gleditsia triacanthos*	Honey Locust	36	5	6	G	G	In rose garden	591057.4804	4784740.8727
210	Neighbour (Private)	Yes	*Gleditsia triacanthos*	Honey Locust	34	5	6	G	G	In rose garden	591056.4949	4784738.1851
211	Neighbour (Private)	Yes	*Gleditsia triacanthos*	Honey Locust	36	5	6	G	G	In rose garden	591055.2413	4784734.1506
212	Neighbour (Private)	Yes	*Gleditsia triacanthos*	Honey Locust	45	5	6	G	G	In rose garden	591051.4242	4784723.6720
213	Public	Yes	*Juglans nigra*	Black Walnut	53, 58	6	7	F	G	Large hollow wind in one trunk	591055.9204	4784690.5277
214	Public	No	*Malus species**	Ornamental Apple	25	4	5	F	G	Tight branching	591041.8637	4784676.9918
215	Public	No	*Malus species**	Ornamental Apple	25	4	5	F	G	Tight branching	591040.8571	4784671.0419
216	Public	No	*Malus species**	Ornamental Apple	26	4	5	F	G	Tight branching	591039.4254	4784668.7643
217	Public	No	*Malus species**	Ornamental Apple	24	3	4	F	G	Tight branching	591037.1919	4784666.2477
218	Shared	No	*Malus species**	Ornamental Apple	24	4	5	F	G	Tight branching	591028.2696	4784640.5893
219	Neighbour (Private)	No	*Malus species**	Ornamental Apple	25	4	5	F	G	Tight branching	591025.3777	4784636.7708
220	Public	Yes	*Ulmus pumila*[i] *	Siberian Elm	21	4	5	F	G	Tight branching	591020.0583	4784514.3589
221	Public	Yes	*Acer ginnala*	Amur Maple	11	3	4	F	G	Tight branching	591021.1303	4784516.8598
222	Public	Yes	*Ulmus pumilai**	Siberian Elm	13	3	4	F	G	Tight branching	591023.4534	4784526.4981
223	Public	Yes	*Acer saccharium*	Sugar Maple	12	1	2	F	G	Tight branching	591027.1746	4784537.6752
224	Public	Yes	*Malus species**	Ornamental Apple	20	3	4	F	G	Epicormic shoots, tight branching	591029.4251	4784546.3471
225	Public	Yes	*Acer platanoides*[i] *	Norway Maple	34	5	6	F	F	Co-dominate stem, wound on trunk, on lawn of 1445 Upper Wellington Street	591045.6001	4784606.0590
226	Public	Yes	*Acer platanoides*[i] *	Norway Maple	34	5	6	F	F	Co-dominate stem, wound on trunk, on lawn of 1445 Upper Wellington Street	591050.9848	4784625.0472
227	Neighbour (Private)	Yes	*Acer platanoides*[i] *	Norway Maple	35	5	6	F	G	Co-dominate stem, wires in tree	591054.5079	4784632.6186

WSP Tree Identification[1]	Ownership (Stem Location)	Aluminum Tag Affixed	Scientific Name[2]	Common Name	DBH[3]	Approximate Dripline Radius[4]	TPZ Radius(m)[5]	Tree Structure	Tree Health	Comments	EASTING[6]	NORTHING[6]
228	Private	Yes	*Acer platanoides*[i] * 'Crimson King'*	Crimson King Norway Maple	26	4	5	G	F	Pruned, fence near trunk	591058.1669	4784635.5900
229	Shared	No	*Acer platanoides*[i] * 'Crimson King'*	Crimson King Norway Maple	24	4	5	F	G	Tight branching	591060.1240	4784645.9249
230	Shared	No	*Acer platanoides*[i] * 'Crimson King'*	Crimson King Norway Maple	38	6	7	G	G	Pruned	591063.3825	4784652.9738
231	Shared	No	*Picea glauca*	White Spruce	17	3	4	G	G	Lower branches pruned	591063.9935	4784655.9360
232	Private	Yes	*Acer platanoides*[i] * 'Crimson King'*	Crimson King Norway Maple	36	4	5	F	G	On lawn of 1427 Upper Wellington Street, tight branching	591068.5918	4784664.2283
233	Public	Yes	*Acer platanoides**	Norway Maple	48	5	6	G	G	On lawn of 1423 Upper Wellington Street	591076.0558	4784705.3697
234	Neighbour (Private)	Yes	*Pinus nigra**	Black Pine	35, 20	5	6	P	G	In lawn, split stem	591086.2640	4784710.9830
235	Neighbour (Private)	Yes	*Pinus nigra**	Black Pine	38	6	7	F	G	On lawn, split stem	591087.8708	4784715.9830
236	Private	Yes	*Acer platanoides*[i] *	Norway Maple	26	4	5	G	G	On lawn of church	591094.3718	4784733.4351
237	Shared	Yes	*Acer platanoides*[i] *	Norway Maple	29	5	6	F	G	Tight branching	591094.8728	4784767.1011
238	Shared	Yes	*Acer platanoides*[i] * 'Crimson King'*	Crimson King Norway Maple	25	1	2	F	G	Tight branching , previously tagged, 807 Upper Wellington Street	591106.9546	4784805.8792
239	Shared	Yes	*Acer platanoides**	Norway Maple	23	4	5	F	G	Tight branching , co-dominate stem	591109.9935	4784816.5547
240	Shared	Yes	*Acer platanoides**	Norway Maple	24	4	5	F	G	Tight branching	591112.5639	4784824.3663
241	Shared	Yes	*Acer platanoides*[i] * 'Crimson King'*	Crimson King Norway Maple	21	3	4	F	G	Tight branching	591116.1619	4784830.6664
242	Shared	Yes	*Tilia cordata**	Little Leaf Linden	18	0	1	D	D	Dead	591124.2065	4784840.4882
243	Private	Yes	*Fagus sylvatica**	European Beech	18, 10, 12	4	5	P	G	Tight branching , on Bethel church	591141.7122	4784886.0475
244	Private	Yes	*Picea pungens**	Blue Spruce	25	3	4	G	F	Top dead, on Bethel church	591146.6442	4784905.5519
2001	Neighbour (Private)	Yes	*Ailanthus altissima*[i] *	Tree of Heaven	47	7	8	G	G	Previously tagged, in woodlot	591179.0475	4785120.3587
2002	Public	Yes	*Juglans nigra*	Black Walnut	16	3	4	G	G	Previously tagged, in woodlot	591185.1507	4785122.7802
2003	Neighbour (Private)	Yes	*Quercus rubra*	Red Oak	51	6	7	G	P	Dumped soil around base has likely caused branch die back	591177.8660	4785125.1315
2004	Neighbour (Private)	Yes	*Tilia americana*	American Basswood	38	4	5	G	G	Previously tagged, in woodlot, branches near transmission li	591185.2789	4785134.8049
2005	Neighbour (Private)	Yes	*Tilia americana*	American Basswood	12	3	4	G	G	Previously tagged, in woodlot	591188.9153	4785139.3203
2006	Private	Yes	*Tilia americana*	American Basswood	40	3	4	G	G	Previously tagged, in woodlot, fence wrapped around trunk	591185.9677	4785136.0409
2008	Private	Yes	*Juglans nigra*	Black Walnut	40	4	5	G	G	Previously tagged, in woodlot	591189.0094	4785144.4340
2012	Private	Yes	*Quercus macrocarpa*	Bur Oak	38, 25	4	5	P	F	One stem in very poor condition, large scar	591191.2300	4785161.1747
2016	Private	Yes	*Juglans nigra*	Black Walnut	20	5	6	G	G	Vines, canopy in transmission wires	591191.1509	4785161.4395
2017	Private	Yes	*Juglans nigra*	Black Walnut	14	4	5	G	G	Vines, canopy in transmission wires	591193.0102	4785163.5005
2018	Private	Yes	*Prunus avium*	Sweet Cherry	20	4	5	F	G	Previously tagged, in woodlot, leaning east	591190.6921	4785164.7775
2019	Neighbour (Private)	Yes	*Juglans nigra*	Black Walnut	17	6	7	G	G	Previously tagged, in woodlot	591195.4184	4785167.0436
2020	Private	Yes	*Quercus rubra*	Red Oak	39, 41	5	6	F	G	Previously tagged, in woodlot, Co-dominate stem	591193.1826	4785168.0532
2021	Neighbour (Private)	Yes	*Quercus macrocarpa*	Bur Oak	45	6	7	G	G	Previously tagged, in woodlot	591201.1314	4785174.1940
2022	Neighbour (Private)	Yes	*Juglans nigra*	Black Walnut	17	4	5	G	G	Previously tagged	591200.9786	4785178.5503
2028	Private	Yes	*Tilia cordata**	Little Leaf Linden	30	3	4	G	F	Previously tagged, tight branching	591200.3152	4785186.5864

APPENDIX D

Vegetation and Wildlife Data Summaries

English Name	Scientific Name	ELC Community	Hamilton Status from NAI	S Rank (Provincial)	G Rank (Global)	COSEWIC	SARA Schedule 1	SARO	Coefficient of Conservatism	Hamilton County Status from Oldham Carolinian List
Amur Maple	*Acer ginnala*	Manicured								
Annual Fleabane	*Erigeron annuus*	FODM2-2	Common, Native	S5	G5				0	Native, Common
Arrow-leaved Aster	*Symphyotrichum urophyllum*	FODM2-2, MEFM1	Common, Native	S4	G4G5				6	Native, Common
Austrian Pine	*Pinus nigra*	Manicured	Introduced	SNA	GNR					Introduced, Rare
Balsam Poplar	*Populus balsamifera*	old field	Common, Native	S5	G5				4	Native, Common
Basswood	*Tilia americana*	FODM2-2, manicured	Common, Native	S5	G5				4	Native, Common
Bitter Wintercress	*Barbarea vulgaris*	old field	Introduced	SNA	GNR					Introduced, Status unknown or not specified
Bitternut Hickory	*Carya cordiformis*	FODM2-2	Common, Native	S5	G5				6	Native, Common
Bittersweet Nightshade	*Solanum dulcamara*	FODM2-2	Introduced	SNA	GNR					Introduced, Common
Black Cherry	*Prunus serotina*	FODM2-2	Common, Native	S5	G5				3	Native, Common
Black Locust	*Robinia pseudoacacia*	MEFM1, FODM2-2	Introduced	SNA	G5					Introduced, Common
Black Medick	*Medicago lupulina*	old field, manicured	Introduced	SNA	GNR					Introduced, Common
Black Oak	*Quercus velutina*	FODM2-2	Common, Native	S4	G5				8	Native, Common
Black Raspberry	*Rubus occidentalis*	FODM2-2	Common, Native	S5	G5				2	Native, Common
Black Walnut	*Juglans nigra*	FODM2-2, MEFM1,old field	Common, Native	S4?	G5				5	Native, Common
Black-eyed Susan	*Rudbeckia hirta*	MEFM1	Common, Native	S5	G5				0	Native, Common
Blue Spruce	*Picea pungens*	Manicured	Introduced	SNA	G5					Introduced, Rare
Broad-leaved Enchanter's Nightshade	*Circaea canadensis*	FODM2-2	Common, Native	S5	G5				2	Native, Common
Bull Thistle	*Cirsium vulgare*	old field, MEFM1, FODM2-2	Introduced	SNA	GNR					Introduced, Status unknown or not specified
Bur Oak	*Quercus macrocarpa*	FODM2-2	Common, Native	S5	G5				5	Native, Common
Butter-and-eggs	*Linaria vulgaris*	old field, MEFM1	Introduced	SNA	GNR					Introduced, Common
Canada Avens	*Geum canadense*	FODM2-2	Common, Native	S5	G5				3	Native, Common
Canada Bluegrass	*Poa compressa*	MEFM1	Common, Native	SNA	GNR					Introduced, Status unknown or not specified
Canada Thistle	*Cirsium arvense*	MEFM1, old field	Introduced	SNA	G5					Introduced, Common
Chokecherry	*Prunus virginiana*	FODM2-2	Common, Native	S5	G5				2	Native, Common

English Name	Scientific Name	ELC Community	Hamilton Status from NAI	S Rank (Provincial)	G Rank (Global)	COSEWIC	SARA Schedule 1	SARO	Coefficient of Conservatism	Hamilton County Status from Oldham Carolinian List
Coltsfoot	*Tussilago farfara*	FODM2-2	Introduced	SNA	GNR					Introduced, Status unknown or not specified
Common Burdock	*Arctium minus*	FODM2-2, MEFM1, old field	Introduced	SNA	GNR					Introduced, Common
Common Dandelion	*Taraxacum officinale*	old field, manicured	Introduced	SNA	G5					Introduced, Common
Common Hackberry	*Celtis occidentalis*	Manicured	Uncommon	S4	G5				8	Native, Uncommon
Common Lilac	*Syringa vulgaris*	Manicured	Introduced	SNA	GNR					Introduced, Rare
Common Mallow	*Malva neglecta*	old field	Introduced	SNA	GNR					Introduced, Common
Common Milkweed	*Asclepias syriaca*	MEFM1	Common, Native	S5	G5				0	Native, Common
Common Nipplewort	*Lapsana communis*	FODM2-2	Introduced	SNA	GNR					Introduced, Status unknown or not specified
Common Plantain	*Plantago major*	Manicured	Introduced	SNA	G5					Introduced, Common
Common Prickly-ash	*Zanthoxylum americanum*	FODM2-2	Common, Native	S5	G5				3	Native, Common
Common Self-heal	*Prunella vulgaris*	FODM2-2	Common, Native	S5	G5				0	
Common Sow-thistle	*Sonchus oleraceus*	old field, manicured	Introduced	SNA	GNR					Introduced, Status unknown or not specified
Common Speedwell	*Veronica officinalis*	FODM2-2	Introduced	SNA	G5					Introduced, Common
Common St. John's-wort	*Hypericum perforatum*	MEFM1	Introduced	SNA	GNR					Introduced, Common
Common Teasel	*Dipsacus fullonum*	MEFM1, old field	Introduced	SNA	GNR					Introduced, Status unknown or not specified
Common Yarrow	*Achillea millefolium*	MEFM1	Common, Native	SNA	G5					Introduced, Status unknown or not specified
Crimson King Norway Maple	*Acer platanoides 'Crimson King'*	Manicured								
Curled Dock	*Rumex crispus*	MEFM1, old field	Introduced	SNA	GNR					Introduced, Status unknown or not specified
Douglas Fir	*Pseudotsuga menziesii*	Manicured								
Downy Arrowwood	*Viburnum rafinesqueanum*	FODM2-2	Common, Native	S5	G5				7	Native, Common
Early Meadow-rue	*Thalictrum dioicum*	FODM2-2	Common, Native	S5	G5				6	Native, Common
Eastern Redbud	*Cercis canadensis*	Manicured		SX	G5				8	
Eastern White Cedar	*Thuga occidentalis*	Manicured	Common, Native	S5	G5				4	Native, Common
English Plantain	*Plantago lanceolata*	old field, manicured	Introduced	SNA	G5					Introduced, Common
European Beech	*Fagus sylvatica*	Manicured								

English Name	Scientific Name	ELC Community	Hamilton Status from NAI	S Rank (Provincial)	G Rank (Global)	COSEWIC	SARA Schedule 1	SARO	Coefficient of Conservatism	Hamilton County Status from Oldham Carolinian List
European Buckthorn	*Rhamnus cathartica*	FODM2-2	Introduced	SNA	GNR					Introduced, Common
European Privet	*Ligustrum vulgare*	FODM2-2	Introduced	SNA	GNR					Introduced, Status unknown or not specified
Field Bindweed	*Convolvulus arvensis*	MEFM1	Introduced	SNA	GNR					Introduced, Common
Field Sow-thistle	*Sonchus arvensis*	MEFM1	Introduced	SNA	GNR					Introduced, Status unknown or not specified
Garden Bird's-foot Trefoil	*Lotus corniculatus*	MEFM1, manicured	Introduced	SNA	GNR					Introduced, Common
Garlic Mustard	*Alliaria petiolata*	FODM2-2	Introduced	SNA	GNR					Introduced, Common
Grass-leaved Goldenrod	*Euthamia graminifolia*	FODM2-2	Common, Native	S5	G5				2	Native, Common
Grey Dogwood	*Cornus racemosa*	FODM2-2	Common, Native	S5	G5				2	Native, Common
Ground-ivy	*Glechoma hederacea*	old field, manicured	Introduced	SNA	GNR					Introduced, Common
Hairy Vetch	*Vicia villosa*	old field	Introduced	SNA	G5					Introduced, Status unknown or not specified
Herb-Robert	*Geranium robertianum*	FODM2-2	Introduced	S5	G5				2	Native, Common
Honey Locust	*Gleditsia triacanthos*	Manicured	Introduced	S2?	G5				8	Introduced, Status unknown or not specified
Jack-in-the-pulpit	*Arisaema triphyllum*	FODM2-2	Common, Native	S5	G5				5	Native, Common
Kentucky Bluegrass	*Poa pratensis*	FODM2-2, MEFM1, Manicured	Introduced	S5	G5				0	
Kentucky Coffee-tree	*Gymnocladus dioicus*	Manicured	Introduced	S2	G5	THR	THR	THR	6	Introduced, Rare
Kentucky Yellow-wood	*Cladrastis kentukea*	Manicured		SNA	G4					
Kidney-leaved Buttercup	*Ranunculus abortivus*	FODM2-2	Common, Native	S5	G5				2	Native, Common
Large-toothed Aspen	*Populus grandidentata*	Manicured	Common, Native	S5	G5				5	Native, Common
Little-leaved Linden	*Tilia cordata*	Manicured	Introduced	SNA	GNR					Introduced, Rare
Manitoba Maple	*Acer negundo*	FODM2-2,MEFM1, manicured	Common, Native	S5	G5				0	Native, Common
Maple-leaved Viburnum	*Viburnum acerifolium*	FODM2-2	Common, Native	S5	G5				6	Native, Common
Narrow-leaved Cattail	*Typha angustifolia*	FODM2-2	Common, Native	SNA	G5					Introduced, Status unknown or not specified
New England Aster	*Symphyotrichum novae-angliae*	MEFM1	Common, Native	S5	G5				2	Native, Common
Northern Catalpa	*Catalpa speciosa*	Manicured	Introduced	SNA	G4?					Introduced, Rare
Northern Red Oak	*Quercus rubra*	FODM2-2	Common, Native	S5	G5				6	Native, Common

English Name	Scientific Name	ELC Community	Hamilton Status from NAI	S Rank (Provincial)	G Rank (Global)	COSEWIC	SARA Schedule 1	SARO	Coefficient of Conservatism	Hamilton County Status from Oldham Carolinian List
Norway Maple	*Acer platanoides*	Manicured	Introduced	SNA	GNR					Introduced, Status unknown or not specified
Norway Spruce	*Picea abies*	Manicured	Introduced	SNA	G5					Introduced, Rare
Old-field Cinquefoil	*Potentilla simplex*	FODM2-2, old field	Common, Native	S5	G5				3	Native, Common
Oxeye Daisy	*Leucanthemum vulgare*	old field, Manicured	Introduced	SNA	GNR					Introduced, Status unknown or not specified
Panicled Aster	*Symphyotrichum lanceolatum*	FODM2-2, old field, MEFM1	Common, Native	S5	G5				3	Native, Common
Path Rush	*Juncus tenuis*	FODM2-2	Common, Native	S5	G5				0	Native, Common
Peach-leaved Willow	*Salix amygdaloides*	MEFM1	Common, Native	S5	G5				6	Native, Common
Philadelphia Fleabane	*Erigeron philadelphicus*	Manicured	Common, Native	S5	G5				1	Native, Common
Pin Cherry	*Prunus pensylvanica*	FODM2-2	Common, Native	S5	G5				3	Native, Common
Prostrate Knotweed	*Polygonum aviculare*	old field, manicured	Common, Native	S4?	GNR				0	
Purple Crown-vetch	*Securigera varia*	MEFM1	Introduced	SNA	GNR					Introduced, Common
Quackgrass	*Elymus repens*	MEFM1	Introduced	SNA	GNR					Introduced, Common
Red Ash	*Fraxinus pennsylvanica*	FODM2-2	Common, Native	S4	G5				3	Native, Common
Red Clover	*Trifolium pratense*	old field	Introduced	SNA	GNR					Introduced, Common
Red Maple	*Acer rubrum*	Manicured	Common, Native	S5	G5				4	Native, Common
Red Pine	*Pinus resinosa*	Manicured	Common, Native	S5	G5				8	Native, Rare
Reed Canarygrass	*Phalaris arundinacea*	MEFM1	Common, Native	S5	G5				0	Native, Common
Riverbank Grape	*Vitis riparia*	FODM2-2, old field	Common, Native	S5	G5				0	Native, Common
Rough-stemmed Goldenrod	*Solidago rugosa*	FODM2-2	Common, Native	S5	G5				4	Native, Common
Shagbark Hickory	*Carya ovata*	FODM2-2	Common, Native	S5	G5				6	Native, Common
Siberian Elm	*Ulmus pumila*	old field, manicured	Introduced	SNA	GNR					Introduced, Status unknown or not specified
Silver Maple	*Acer saccharinum*	Manicured	Common, Native	S5	G5				5	Native, Common
Spotted Geranium	*Geranium maculatum*	FODM2-2	Common, Native	S5	G5				6	Native, Common
Spotted St. John's-wort	*Hypericum punctatum*	FODM2-2	Common, Native	S5	G5				5	Native, Common
Staghorn Sumac	*Rhus typhina*	MEFM1	Common, Native	S5	G5				1	Native, Common
Sweet Cherry	*Prunus avium*	Manicured	Introduced	SNA	GNR					Introduced, Status unknown or not specified
Tall Goldenrod	*Solidago altissima*	FODM2-2, MEFM1, old field	Common, Native	S5	G5				1	

English Name	Scientific Name	ELC Community	Hamilton Status from NAI	S Rank (Provincial)	G Rank (Global)	COSEWIC	SARA Schedule 1	SARO	Coefficient of Conservatism	Hamilton County Status from Oldham Carolinian List
Tall Yellow Sweet-clover	*Melilotus altissimus*	MEFM1		SNA	GNR					
Tatarian Honeysuckle	*Lonicera tatarica*	FODM2-2, MEFM1	Introduced	SNA	GNR					Introduced, Status unknown or not specified
Thicket Creeper	*Parthenocissus vitacea*	FODM2-2	Common, Native	S5	G5				4	Native, Common
Tree-of-heaven	*Ailanthus altissima*	FODM2-2	Introduced	SNA	GNR					Introduced, Common
Tufted Vetch	*Vicia cracca*	MEFM1	Introduced	SNA	GNR					Introduced, Common
Upright Yellow Wood-sorrel	*Oxalis stricta*	FODM2-2	Common, Native	S5	G5				0	Native, Common
Virginia Creeper	*Parthenocissus quinquefolia*	MEFM1, FOD2-2	Common, Native	S4?	G5				6	Native, Common
Virginia Smartweed	*Persicaria virginiana*	FODM2-2	Common, Native	S4	G5				6	Native, Common
Western Poison Ivy	*Toxicodendron radicans var. rydbergii*	FODM2-2, MEFM1	Common, Native	S5	G--T5				2	Native, Common
White Ash	*Fraxinus americana*	FODM2-2	Common, Native	S4	G5				4	Native, Common
White Clover	*Trifolium repens*	old field, manicured	Introduced	SNA	GNR					Introduced, Common
White Elm	*Ulmus americana*	Manicured	Common, Native	S5	G4				3	Native, Common
White Oak	*Quercus alba*	FODM2-2	Common, Native	S5	G5				6	Native, Common
White Spruce	*Picea glauca*	Manicured	Common, Native	S5	G5				6	Native, Common
Wild Bergamot	*Monarda fistulosa*	MEFM1	Common, Native	S5	G5				6	
Wild Carrot	*Daucus carota*	old field, manicured	Introduced	SNA	GNR					Introduced, Common
Wild Chicory	*Cichorium intybus*	MEFM1, old field, manicured	Introduced	SNA	GNR					Introduced, Common
Wild Strawberry	*Fragaria virginiana*	FODM2-2	Common, Native	S5	G5				2	Native, Common
Wood Avens	*Geum urbanum*	FODM2-2	Introduced	SNA	G5					Introduced, Status unknown or not specified
Woodland Strawberry	*Fragaria vesca*	FODM2-2	Common, Native	S5	G5				4	
	Amelancher sp.	Manicured, FODM2-2								
	Crataegus sp.	FODM2-2								
	Erthronium species	FODM2-2								
	ribes species	FODM2-2								
	Rumex sp.	Manicured								
	Malus species	Manicured								

English Name	Scientific Name	OBBA	NHIC	eBird	iNaturalist	Wood BBS1	Wood BBS2	Wood Breeding Evidence	Wood Incidental ELC 15 Sept 21	Wood Incidental ELC 4 Aug 21	Hamilton Status from NAI	S Rank (Provincial)	G Rank (Global)	COSEWIC	SARA Schedule 1	SARO
American Crow	*Corvus brachyrhynchos*	x		x	x	x		OB		x	Common	S5	G5			
American Goldfinch	*Spinus tristis*	x		x		S	S	PR	x		Abundant	S5	G5			
American Goldfinch	*Spinus tristis*			x	x						Common	S5	G5			
American Kestrel	*Falco sparverius*	x		x							Uncommon	S4	G5			
American Redstart	*Setophaga ruticilla*	x		x							Uncommon	S5B	G5			
American Robin	*Turdus migratorius*	x		x	x	H	S	PR		x	Abundant	S5	G5			
American Tree Sparrow	*Spizelloides arborea*			x	x						Not listed	S5	G5			
American Woodcock	*Scolopax minor*	x		x							Common	S4B	G5			
Bald Eagle	*Haliaeetus leucocephalus*			x							Rare	S4	G5	NAR		NAR
Baltimore Oriole	*Icterus galbula*	x		x					x		Common	S4B	G5			
Barn Swallow	*Hirundo rustica*	x		x	x	x	H	PO			Common	S4B	G5	SC	THR	SC
Bay-breasted Warbler	*Setophaga castanea*			x							Not listed	S5B	G5			
Belted Kingfisher	*Megaceryle alcyon*	x									Uncommon	S5B,S4N	G5			
Black-and-white Warbler	*Mniotilta varia*			x							Uncommon	S5B	G5			
Black-billed Cuckoo	*Coccyzus erythropthalmus*	x				S		PO			Uncommon	S4S5B	G5			
Blackburnian Warbler	*Setophaga fusca*			x							Not listed	S5B	G5			
Black-capped Chickadee	*Poecile atricapillus*	x		x	x	x	S	PO	x	x	Abundant	S5	G5			
Black-crowned Night-heron	*Nycticorax nycticorax*			x							Rare	S3B,S2N,S4M	G5			
Blackpoll Warbler	*Setophaga striata*			x	x	x		OB			Not listed	S5B	G5			
Black-throated Blue Warbler	*Setophaga caerulescens*			x							Rare	S5B	G5			
Black-throated Green Warbler	*Setophaga virens*			x							Rare	S5B	G5			
Blue Jay	*Cyanocitta cristata*	x		x	x	H	H	PR		x	Abundant	S5	G5			
Blue-gray Gnatcatcher	*Polioptila caerulea*	x									Uncommon	S4B	G5			
Blue-headed Vireo	*Vireo solitarius*			x	x						Rare	S5B	G5			
Blue-winged Teal	*Spatula discors*			x							Rare	S3B,S4M	G5			
Blue-winged Warbler	*Vermivora cyanoptera*	x									Uncommon	S4B	G5			
Bobolink	*Dolichonyx oryzivorus*	x									Uncommon	S4B	G5	SC	THR	THR
Brown Creeper	*Certhia americana*			x							Uncommon	S5	G5			
Brown Thrasher	*Toxostoma rufum*	x		x							Uncommon	S4B	G5			
Brown-headed Cowbird	*Molothrus ater*	x		x	x						Abundant	S5	G5			

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Bufflehead	*Bucephala albeola*			x							Not listed	S5	G5			
Canada Goose	*Branta canadensis*	x		x	x	x		OB			Common	S5	G5			
Carolina Wren	*Thryothorus ludovicianus*	x		x	x	x	S	PO		x	Rare	S4	G5			
Caspian Tern	*Hydroprogne caspia*			x							Uncommon	S3B,S5M	G5	NAR		NAR
Cedar Waxwing	*Bombycilla cedrorum*	x		x			S	PO			Common	S5	G5			
Chestnut-sided Warbler	*Setophaga pensylvanica*	x		x							Uncommon	S5B	G5			
Chimney Swift	*Chaetura pelagica*	x		x							Uncommon	S3B	G4G5	THR	THR	THR
Chipping Sparrow	*Spizella passerina*	x		x	x	H	S	PR			Abundant	S5B,S3N	G5			
Common Grackle	*Quiscalus quiscula*	x		x	x	H		PO			Abundant	S5	G5			
Common Merganser	*Mergus merganser*				x						Not listed	S5	G5			
Common Nighthawk	*Chordeiles minor*	x		x							Rare	S4B	G5	SC	SC	SC
Common Raven	*Corvus corax*			x							Rare	S5	G5			
Common Tern	*Sterna hirundo*			x							Uncommon	S4B	G5	NAR		NAR
Common Yellowthroat	*Geothlypis trichas*	x		x							Common	S5B,S3N	G5			
Cooper's Hawk	*Accipiter cooperii*	x		x	x						Uncommon	S4	G5	NAR		NAR
Dark-eyed Junco	*Junco hyemalis*			x	x						Not listed	S5	G5			
Double-crested Cormorant	*Nannopterum auritum*			x	x						Common	S5B,S4N	G5	NAR		NAR
Downy Woodpecker	*Dryobates pubescens*	x		x	x						Common	S5	G5			
Eastern Bluebird	*Sialia sialis*			x							Uncommon	S5B,S4N	G5	NAR		NAR
Eastern Kingbird	*Tyrannus tyrannus*	x		x							Abundant	S4B	G5			
Eastern Meadowlark	*Sturnella magna*	x		x	x						Uncommon	S4B,S3N	G5	THR	THR	THR
Eastern Phoebe	*Sayornis phoebe*	x		x	x						Uncommon	S5B	G5			
Eastern Screech-Owl	*Megascops asio*	x			x						Uncommon	S4	G5	NAR		NAR
Eastern Towhee	*Pipilo erythrophthalmus*	x		x							Uncommon	S4B,S3N	G5			
Eastern Wood-pewee	*Contopus virens*	x		x						x	Common	S4B	G5	SC	SC	SC
European Starling	*Sturnus vulgaris*	x		x	x	H	AE	CO			Abundant	SNA	G5			
Field Sparrow	*Spizella pusilla*	x		x							Common	S4B,S3N	G5			
Fish Crow	*Corvus ossifragus*			x	x						Not listed	S1B,S3N	G5			
Fox Sparrow	*Passerella iliaca*			x							Not listed	S5B,S3N	G5			
Golden-crowned Kinglet	*Regulus satrapa*			x	x						Rare	S5	G5			
Grasshopper Sparrow	*Ammodramus savannarum*		x								Uncommon	S4B	G5	SC	SC	SC
Gray Catbird	*Dumetella carolinensis*	x		x							Abundant	S5B,S3N	G5			

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Gray Catbird	*Dumetella carolinensis*				x						Common	S5B,S3N	G5			
Great Blue Heron	*Ardea herodias*			x	x						Uncommon	S4	G5			
Great Crested Flycatcher	*Myiarchus crinitus*	x		x							Common	S5B	G5			
Great Horned Owl	*Bubo virginianus*	x									Common	S4	G5			
Greater Yellowlegs	*Tringa melanoleuca*			x							Not listed	S4B,S5M	G5			
Green Heron	*Butorides virescens*	x		x							Uncommon	S4B	G5			
Hairy Woodpecker	*Dryobates villosus*	x		x						x	Uncommon	S5	G5			
Hermit Thrush	*Catharus guttatus*			x							Not listed	S5B,S4N	G5			
Herring Gull	*Larus argentatus*			x							Uncommon	S4B,S5N	G5			
Hooded Merganser	*Lophodytes cucullatus*			x							Rare	S5	G5			
Horned Lark	*Eremophila alpestris*	x		x							Common	S4	G5			
House Finch	*Haemorhous mexicanus*	x		x	x	S		PO			Abundant	SNA	G5			
House Sparrow	*Passer domesticus*	x		x	x	H	AE	CO			Abundant	SNA	G5			
House Wren	*Troglodytes aedon*	x		x	x	S		PO			Common	S5B	G5			
Indigo Bunting	*Passerina cyanea*	x		x	x						Common	S5B	G5			
Killdeer	*Charadrius vociferus*	x		x	x						Abundant	S4B	G5			
Least Bittern	*Ixobrychus exilis*			x							Rare	S4B	G4	SC	THR	THR
Least Flycatcher	*Empidonax minimus*	x		x							Uncommon	S5B	G5			
Lesser Yellowlegs	*Tringa flavipes*			x							Not listed	S3S4B,S5M	G5	THR		THR
Loggerhead Shrike	*Lanius ludovicianus*				x						Not listed	S1B	G4	END	END	END
Long-eared Owl	*Asio otus*	x									Rare	S4	G5			
Magnolia Warbler	*Setophaga magnolia*			x							Rare	S5B	G5			
Mallard	*Anas platyrhynchos*	x		x	x						Common	S5	G5			
Merlin	*Falco columbarius*			x	x						Not listed	S5	G5	NAR		NAR
Mourning Dove	*Zenaida macroura*	x		x	x	H	S	PR			Abundant	S5	G5			
Mute Swan	*Cygnus olor*				x						Exotic	SNA	G5			
Nashville Warbler	*Leiothlypis ruficapilla*			x							Uncommon	S5B	G5			
Northern Bobwhite	*Colinus virginianus*		x								Extirpated	S1?	G4G5	END	END	END
Northern Cardinal	*Cardinalis cardinalis*	x		x	x	S	S	PR		x	Abundant	S5	G5			
Northern Flicker	*Colaptes auratus*	x		x	x						Common	S5	G5			
Northern Goshawk	*Accipiter gentilis*	x									Rare	S4	G5	NAR		NAR
Northern Mockingbird	*Mimus polyglottos*	x		x	x						Uncommon	S4	G5			

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Northern Parula	*Setophaga americana*			x	x						Not listed	S5B	G5			
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*	x		x							Common	S4B	G5			
Northern Shoveler	*Spatula clypeata*			x							Rare	S4B,S4N,S5M	G5			
Northern Shrike	*Lanius borealis*			x							Not listed	S4B,S5N	G5			
Orange-crowned Warbler	*Leiothlypis celata*			x							Not listed	S5B	G5			
Orchard Oriole	*Icterus spurius*	x									Uncommon	S4B	G5			
Osprey	*Pandion haliaetus*			x							Rare	S5B	G5			
Ovenbird	*Seiurus aurocapilla*	x		x							Common	S5B	G5			
Palm Warbler	*Setophaga palmarum*			x							Not listed	S5B	G5			
Peregrine Falcon	*Falco peregrinus*	x		x	x						Rare	S4	G4	NAR	NAR	SC
Philadelphia Vireo	*Vireo philadelphicus*			x							Not listed	S5B	G5			
Pied-billed Grebe	*Podilymbus podiceps*			x	x						Rare	S4B,S2N	G5			
Purple Finch	*Haemorhous purpureus*			x	x						Rare	S5	G5			
Purple Martin	*Progne subis*	x									Uncommon	S3B	G5			
Red-bellied Woodpecker	*Melanerpes carolinus*	x		x							Uncommon	S5	G5			
Red-breasted Nuthatch	*Sitta canadensis*	x		x							Uncommon	S5	G5			
Red-eyed Vireo	*Vireo olivaceus*	x		x		S		PO			Common	S5B	G5			
Red-tailed Hawk	*Buteo jamaicensis*	x		x	x		H	PO	x		Common	S5	G5	NAR		NAR
Red-throated Loon	*Gavia stellata*			x							Not listed	S2B,S4M	G5			
Red-winged Blackbird	*Agelaius phoeniceus*	x		x	x	S	H	PR			Abundant	S5	G5			
Ring-billed Gull	*Larus delawarensis*			x	x	x	x	OB			Abundant	S5	G5			
Ring-necked Duck	*Aythya collaris*			x	x						Not listed	S5B,S4N	G5			
Ring-necked Pheasant	*Phasianus colchicus*	x									Rare	SNA	G5			
Rock Pigeon	*Columba livia*	x		x			H	PO			Abundant	SNA	G5			
Rose-breasted Grosbeak	*Pheucticus ludovicianus*	x		x	x						Common	S5B	G5			
Ruby-crowned Kinglet	*Corthylio calendula*			x	x						Not listed	S5B,S3N	G5			
Ruby-throated Hummingbird	*Archilochus colubris*	x		x						x	Uncommon	S5B	G5			
Rusty Blackbird	*Euphagus carolinus*			x							Not listed	S4B,S3N	G4	SC	SC	SC
Savannah Sparrow	*Passerculus sandwichensis*	x		x							Abundant	S5B,S3N	G5			
Scarlet Tanager	*Piranga olivacea*	x		x							Uncommon	S5B	G5			
Sedge Wren	*Cistothorus stellaris*	x									Rare	S4B	G5	NAR		NAR
Sharp-shinned Hawk	*Accipiter striatus*	x		x	x						Rare	S5	G5	NAR		NAR

English Name	Scientific Name	OBBA	NHIC	eBird	iNaturalist	Wood BBS1	Wood BBS2	Wood Breeding Evidence	Wood Incidental ELC 15 Sept 21	Wood Incidental ELC 4 Aug 21	Hamilton Status from NAI	S Rank (Provincial)	G Rank (Global)	COSEWIC	SARA Schedule 1	SARO
Short-eared Owl	*Asio flammeus*			x							Rare	S4?B,S2S3N	G5	THR	SC	THR
Solitary Sandpiper	*Tringa solitaria*			x							Migrant	S4B,S5M	G5			
Song Sparrow	*Melospiza melodia*	x		x	x	S	S	PR			Abundant	S5	G5			
Spotted Sandpiper	*Actitis macularius*	x		x							Common	S5B	G5			
Swainson's Thrush	*Catharus ustulatus*			x	x						Not listed	S5B	G5			
Swamp Sparrow	*Melospiza georgiana*	x		x							Common	S5B,S4N	G5			
Tennessee Warbler	*Leiothlypis peregrina*			x							Not listed	S5B	G5			
Tree Swallow	*Tachycineta bicolor*	x		x			H	PO			Abundant	S4S5B	G5			
Tufted Titmouse	*Baeolophus bicolor*	x		x							Rare	S3	G5			
Turkey Vulture	*Cathartes aura*	x		x							Uncommon	S5B,S3N	G5			
Veery	*Catharus fuscescens*	x		x							Common	S5B	G5			
Vesper Sparrow	*Pooecetes gramineus*	x									Uncommon	S4B	G5			
Warbling Vireo	*Vireo gilvus*	x		x							Common	S5B	G5			
White-breasted Nuthatch	*Sitta carolinensis*	x		x	x						Common	S5	G5			
White-crowned Sparrow	*Zonotrichia leucophrys*			x	x						Not listed	S5B,S3N	G5			
White-throated Sparrow	*Zonotrichia albicollis*			x	x						Uncommon	S5	G5			
Wild Turkey	*Meleagris gallopavo*	x		x							Common	S5	G5			
Willow Flycatcher	*Empidonax traillii*	x		x							Common	S4B	G5			
Wilson's Snipe	*Gallinago delicata*			x							Rare	S5B	G5			
Wilson's Warbler	*Cardellina pusilla*			x							Migrant	S5B	G5			
Wood Duck	*Aix sponsa*	x									Uncommon	S5B,S3N	G5			
Wood Thrush	*Hylocichla mustelina*	x		x							Common	S4B	G4	THR	THR	SC
Yellow Warbler	*Setophaga petechia*	x		x							Abundant	S5B	G5			
Yellow-bellied Sapsucker	*Sphyrapicus varius*			x	x						Rare	S5B,S3N	G5			
Yellow-billed Cuckoo	*Coccyzus americanus*	x									Rare	S4B	G5			
Yellow-rumped Warbler	*Setophaga coronata*			x	x						Rare	S5B,S4N	G5			
Yellow-throated Vireo	*Vireo flavifrons*			x							Uncommon	S4B	G5			

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American Mink	*Neovison vison*	Common	S4	G5	x					
Beaver	*Castor canadensis*	Common	S5	G5	x					
Big Brown Bat	*Eptesicus fuscus*	Uncertain	S4	G5	x					
Coyote	*Canis latrans*	Common	S5	G5	x	x				
Deer Mouse	*Peromyscus maniculatus*	Common	S5	G5	x	x				
Eastern Chipmunk	*Tamias striatus*	Common	S5	G5	x					
Eastern Cottontail	*Sylvilagus floridanus*	Common	S5	G5	x	x				x
Eastern Gray Squirrel	*Sciurus carolinensis*	Common	S5	G5	x	x				x
Ermine	*Mustela erminea*	Rare-Uncommon	S5	G5	x					
European Hare	*Lepus europaeus*	Common, Introduced	SNA	G5	x					
Hairy-tailed Mole	*Parascalops breweri*	Uncommon	S4	G5	x					
House Mouse	*Mus musculus*	Common, Introduced	SNA	G5	x					
Long-tailed Weasel	*Mustela frenata*	Common	S4	G5	x					
Meadow Jumping Mouse	*Zapus hudsonius*	Common	S5	G5	x					
Meadow Vole	*Microtus pennsylvanicus*	Common	S5	G5	x					
Muskrat	*Ondatra zibethicus*	Common	S5	G5	x					
Northern Flying Squirrel	*Glaucomys sabrinus*	Rare	S5	G5	x					
Northern Raccoon	*Procyon lotor*	Common	S5	G5	x	x				
Northern Short-tailed Shrew	*Blarina brevicauda*	Common	S5	G5	x					
Northern Short-tailed Shrew	*Blarina brevicauda*	Common	S5	G5	x					
Norway Rat	*Rattus norvegicus*	Common, Introduced	SNA	G5	x	x				
Porcupine	*Erethizon dorsatum*	Common	S5	G5	x					
Red Fox	*Vulpes vulpes*	Common	S5	G5	x					
Red Squirrel	*Tamiasciurus hudsonicus*	Common	S5	G5	x					
Smoky Shrew	*Sorex fumeus*	Common	S5	G5	x					
Snowshoe Hare	*Lepus americanus*	Rare, Possibly Extirpated	S5	G5	x					

English Name	Scientific Name	Hamilton Status from NAI	S Rank (Provincial)	G Rank (Global)	Mammal Atlas of Ontario	iNaturalist	COSEWIC	SARA Schedule 1	SARO	Wood Incidental
Southern Bog Lemming	*Synaptomys cooperi*		S4	G5	x					
Star-nosed Mole	*Condylura cristata*	Common	S5	G5	x					
Striped Skunk	*Mephitis mephitis*	Common	S5	G5	x	x				
Virginia Opossum	*Didelphis virginiana*	Common	S4	G5	x	x				
White-footed Mouse	*Peromyscus leucopus*	Common	S5	G5	x					
White-tailed Deer	*Odocoileus virginianus*	Common	S5	G5	x	x				
Woodchuck	*Marmota monax*	Common	S5	G5	x	x				
Eastern Red Bat	*Lasiurus borealis*	Uncertain	S4	G3G4	x		END		END	
Eastern Small-footed Myotis	*Myotis leibii*		S2S3	G4	x				END	
Hoary Bat	*Lasiurus cinereus*	Uncertain	S4	G3G4	x		END		END	
Little Brown Myotis	*Myotis lucifugus*	Uncertain	S3	G3	x		END	END	END	
Northern Myotis	*Myotis septentrionalis*	Uncertain	S3	G1G2	x		END	END	END	
Silver-haired Bat	*Lasionycteris noctivagans*	Uncertain	S4	G3G4	x		END		END	
Tricolored Bat	*Perimyotis subflavus*		S3?	G2G3	x		END	END	END	
Southern Flying Squirrel	*Glaucomys volans*	Common	S4	G5	x		NAR		NAR	

Reptile and Amphibian List

Project # CA-EI-IM20103037

English Name	Scientific Name	Hamilton Status from NAI	S Rank (Provincial)	G Rank (Global)	Ontario Amphibian and Reptile Atlas	iNaturalist	COSEWIC	SARA Schedule 1	SARO
American Bullfrog	*Lithobates catesbeianus*	Uncommon	S4	G5	x				
American Toad	*Anaxyrus americanus*	Abundant	S5	G5	x	x			
Blanding's Turtle	*Emydoidea blandingii*	Rare	S3	G4		x	END	END	THR
DeKay's Brownsnake	*Storeria dekayi*	Uncommon	S5	G5	x		NAR		NAR
Eastern Gartersnake	*Thamnophis sirtalis sirtalis*	Abundant	S5	G5T5	x				
Eastern Milksnake	*Lampropeltis triangulum*	Uncommon	S4	G5	x		SC	SC	NAR
Eastern Red-backed Salamander	*Plethodon cinereus*	Common	S5	G5	x	x			
Gray Treefrog	*Hyla versicolor*	Abundant	S5	G5	x				
Green Frog	*Lithobates clamitans*	Abundant	S5	G5	x				
Jefferson Salamander	*Ambystoma jeffersonianum*	Rare	S2	G4	x	x	END	END	END
Midland Painted Turtle	*Chrysemys picta marginata*	Common	S4	G5T5	x	x	SC		
Northern Leopard Frog	*Lithobates pipiens*	Abundant	S5	G5	x	x	NAR		NAR
Northern Map Turtle	*Graptemys geographica*	Rare	S3	G5	x	x	SC	SC	SC
Northern Watersnake	*Nerodia sipedon sipedon*	Rare	S5	G5T5	x		NAR		NAR
Pickerel Frog	*Lithobates palustris*	Rare	S4	G5	x		NAR		NAR
Pond Slider	*Trachemys scripta*		SNA	G5	x	x			
Red-bellied Snake	*Storeria occipitomaculata*	Rare	S5	G5	x				
Red-spotted Newt	*Notophthalmus viridescens viridescens*	Rare	S5	G5T5	x				
Ring-necked Snake	*Diadophis punctatus*	Rare	S4	G5	x	x			
Smooth Greensnake	*Opheodrys vernalis*	Rare	S4	G5	x				
Snapping Turtle	*Chelydra serpentina*	Common	S4	G5	x	x	SC	SC	SC
Spotted Salamander	*Ambystoma maculatum*	Rare	S4	G5	x	x			

English Name	Scientific Name	Hamilton Status from NAI	S Rank (Provincial)	G Rank (Global)	Ontario Amphibian and Reptile Atlas	iNaturalist	COSEWIC	SARA Schedule 1	SARO
Spring Peeper	*Pseudacris crucifer*	Abundant	S5	G5	x				
Western Chorus Frog - Carolinian Population	*Pseudacris triseriata pop. 2*	Common	S4	G5TNR	x		NAR		NAR
Wood Frog	*Lithobates sylvaticus*	Common	S5	G5	x				
Timber Rattlesnake	*Crotalus horridus*		SX	G4	x		EXP	EXP	EXP
Unisexual Ambystoma	*Ambystoma sp.*	Uncommon	S4	GNA		x	NAR	NAR	NAR

Butterfly List

Project #: CA-EI-IM20103037

English Name	Scientific Name	Hamilton Status from NAI	S Rank (Provincial)	G Rank (Global)	COSEWIC	SARA Schedule 1	SARO	Wood Incidental ELC 15 Sept 21	Wood Incidental ELC 4 Aug 21
Silver-spotted Skipper	*Epargyreus clarus*	Common, Permanent Resident	S4	G5					
Southern Cloudywing	*Thorybes bathyllus*	Extirpated, Former Permanent Resident	S3	G5					
Northern Cloudywing	*Thorybes pylades*	Rare, Permanent Resident	S5	G5					
Dreamy Duskywing	*Erynnis icelus*	Uncommon, Permanent Resident	S5	G5					
Juvenal's Duskywing	*Erynnis juvenalis*	Common, Permanent Resident	S5	G5					
Mottled Duskywing	*Erynnis martialis*	Rare, Permanent Resident	S2	G3	END	END	END		
Columbine Duskywing	*Erynnis lucilius*	Uncommon, Permanent Resident	S4	G5					
Wild Indigo Duskywing	*Erynnis baptisiae*	Uncommon, Permanent Resident	S4	G5					
Common Sootywing	*Pholisora catullus*	Uncommon, Permanent Resident	S4	G5					
Arctic Skipper	*Carterocephalus palaemon*	Uncommon, Permanent Resident	S5	G5					
Least Skipper	*Ancyloxypha numitor*	Common, Permanent Resident	S5	G5					
European Skipper	*Thymelicus lineola*	Common, Permanent Resident	SNA	G5					
Fiery Skipper	*Hylephila phyleus*	Rare, Breeding Immigrant	SNA	G5					
Leonard's Skipper	*Hesperia leonardus*	Uncommon, Permanent Resident	S4	G5					
Peck's Skipper	*Polites peckius*	Common, Permanent Resident	S5	G5					
Tawny-edged Skipper	*Polites themistocles*	Common, Permanent Resident	S5	G5					
Crossline Skipper	*Polites origenes*	Common, Permanent Resident	S4	G4G5					
Long Dash Skipper	*Polites mystic*	Common, Permanent Resident	S5	G5					
Northern Broken-Dash	*Wallengrenia egeremet*	Common, Permanent Resident	S5	G5					
Little Glassywing	*Pompeius verna*	Common, Permanent Resident	S4	G5					
Delaware Skipper	*Anatrytone logan*	Common, Permanent Resident	S4	G5					
Hobomok Skipper	*Poanes hobomok*	Common, Permanent Resident	S5	G5					
Broad-winged Skipper	*Poanes viator*	Common, Permanent Resident	S4	G5					

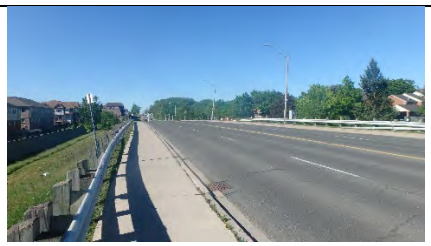
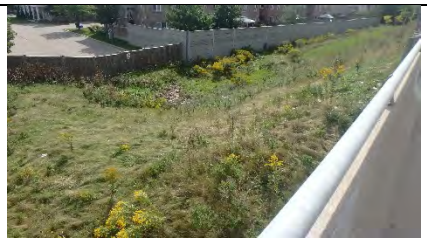
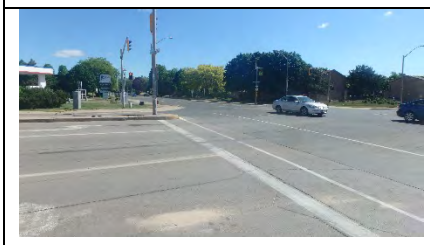
English Name	Scientific Name	Hamilton Status from NAI	S Rank (Provincial)	G Rank (Global)	COSEWIC	SARA Schedule 1	SARO	Wood Incidental ELC 15 Sept 21	Wood Incidental ELC 4 Aug 21
Dion Skipper	*Euphyes dion*	Uncommon, Permanent Resident	S4	G4					
Two-spotted Skipper	*Euphyes bimacula*	Rare, Permanent Resident	S4	G4					
Dun Skipper	*Euphyes vestris*	Common, Permanent Resident	S5	G5					
Pipevine Swallowtail	*Battus philenor*	Rare, Breeding Immigrant	SNA	G5					
Zebra Swallowtail	*Eurytides marcellus*		SNA	G5					
Black Swallowtail	*Papilio polyxenes*	Common, Permanent Resident	S5	G5					
Giant Swallowtail	*Papilio cresphontes*	Common, Permanent Resident	S4	G5					
Eastern Tiger Swallowtail	*Papilio glaucus*	Common, Permanent Resident	S5	G5					
Spicebush Swallowtail	*Papilio troilus*	Rare, Permanent Resident	S4	G4?					
Checkered White	*Pontia protodice*	Rare, Breeding Immigrant/Temporary Resident	SNA	G5					
Mustard White	*Pieris oleracea*	Uncommon, Permanent Resident	S4	G5					
West Virginia White	*Pieris virginiensis*	Uncommon, Permanent Resident	S3	G4			SC		
Cabbage White	*Pieris rapae*	Common, Permanent Resident	SNA	G5				X	X
Clouded Sulphur	*Colias philodice*	Common, Permanent Resident	S5	G5					
Orange Sulphur	*Colias eurytheme*	Common, Breeding Immigrant	S5	G5					
Southern Dogface	*Zerene cesonia*		SNA	G5					
Little Yellow	*Pyrisitia lisa*	Rare, Immigrant	SNA	G5					
Harvester	*Feniseca tarquinius*	Rare, Permanent Resident	S4	G5					
American Copper	*Lycaena phlaeas*	Uncommon, Permanent Resident	S5	G5					
Purplish Copper	*Lycaena helloides*	Extirpated, Former Temporary Resident	S3	G5					
Acadian Hairstreak	*Satyrium acadica*	Common, Permanent Resident	S4	G5					
Coral Hairstreak	*Satyrium titus*	Uncommon, Permanent Resident	S5	G5					
Edwards' Hairstreak	*Satyrium edwardsii*	Rare, Permanent Resident	S4	G5					
Banded Hairstreak	*Satyrium calanus*	Common, Permanent Resident	S4	G5					

English Name	Scientific Name	Hamilton Status from NAI	S Rank (Provincial)	G Rank (Global)	COSEWIC	SARA Schedule 1	SARO	Wood Incidental ELC 15 Sept 21	Wood Incidental ELC 4 Aug 21
Striped Hairstreak	*Satyrium liparops*	Common, Permanent Resident	S5	G5					
Gray Hairstreak	*Strymon melinus*	Rare, Immigrant	S4	G5					
Eastern Tailed Blue	*Cupido comyntas*	Common, Permanent Resident	S5	G5					
Silvery Blue	*Glaucopsyche lygdamus*	Uncommon, Permanent Resident	S5	G5					
American Snout	*Libytheana carinenta*	Rare, Immigrant	SNA	G5					
Great Spangled Fritillary	*Speyeria cybele*	Common, Permanent Resident	S5	G5					
Aphrodite Fritillary	*Speyeria aphrodite*	Uncommon, Permanent Resident	S5	G5					
Atlantis Fritillary	*Speyeria atlantis*		S5	G5					
Silver-bordered Fritillary	*Boloria selene*	Uncommon, Permanent Resident	S5	G5					
Meadow Fritillary	*Boloria bellona*	Common, Permanent Resident	S5	G5					
Silvery Checkerspot	*Chlosyne nycteis*	Extirpated, Former Permanent Resident	S5	G5					
Pearl Crescent	*Phyciodes tharos*	Common, Permanent Resident	S4	G5					
Northern Crescent	*Phyciodes cocyta*	Common, Permanent Resident	S5	G5					
Tawny Crescent	*Phyciodes batesii*	Extirpated, Former Permanent Resident	S4	G5					
Baltimore Checkerspot	*Euphydryas phaeton*	Uncommon, Permanent Resident	S4	G5					
Question Mark	*Polygonia interrogationis*	Common, Breeding Immigrant	S5	G5					
Eastern Comma	*Polygonia comma*	Common, Permanent Resident	S5	G5					
Green Comma	*Polygonia faunus*	Rare, Immigrant	S4	G5					
Gray Comma	*Polygonia progne*	Uncommon, Permanent Resident	S5	G5					
Compton Tortoiseshell	*Nymphalis l-album*	Uncommon, Permanent Resident	S5	G5					
Mourning Cloak	*Nymphalis antiopa*	Common, Permanent Resident	S5	G5					
Milbert's Tortoiseshell	*Aglais milberti*	Rare, Temporary Resident	S5	G5					
American Lady	*Vanessa virginiensis*	Common, Breeding Immigrant	S5	G5					
Painted Lady	*Vanessa cardui*	Common, Breeding Immigrant	S5	G5					

English Name	Scientific Name	Hamilton Status from NAI	S Rank (Provincial)	G Rank (Global)	COSEWIC	SARA Schedule 1	SARO	Wood Incidental ELC 15 Sept 21	Wood Incidental ELC 4 Aug 21
Red Admiral	*Vanessa atalanta*	Common, Breeding Immigrant	S5	G5					
Common Buckeye	*Junonia coenia*	Uncommon, Breeding Immigrant	SNA	G5					
White Admiral	*Limenitis arthemis arthemis*	Uncommon, Permanent Resident	S5	G5T5					
Red-spotted Purple	*Limenitis arthemis astyanax*	Common, Permanent Resident	S5	G5T5					
Viceroy	*Limenitis archippus*	Common, Permanent Resident	S5	G5					
Northern Pearly-Eye	*Lethe anthedon*	Common, Permanent Resident	S5	G5					
Eyed Brown	*Lethe eurydice*	Common, Permanent Resident	S5	G5					
Appalachian Brown	*Lethe appalachia*	Common, Permanent Resident	S4	G4					
Little Wood-Satyr	*Megisto cymela*	Common, Permanent Resident	S5	G5					
Common Ringlet	*Coenonympha tullia*	Common, Permanent Resident	S5	G5					
Common Wood-Nymph	*Cercyonis pegala*	Common, Permanent Resident	S5	G5					
Monarch	*Danaus plexippus*	Common, Breeding Immigrant	S2N,S4B	G4	END	END	SC	X	X

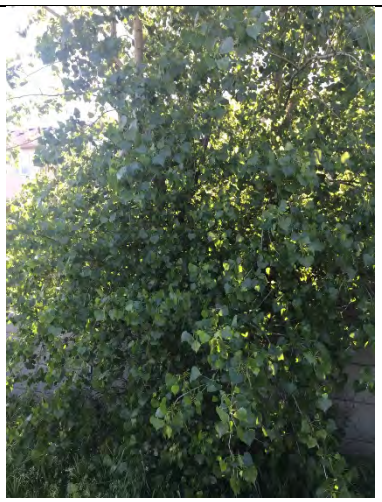
APPENDIX E

Site Photograph Logs

		
Photograph No. 1: Manicured area along Upper Wellington Street	Photograph No. 2: View of Upper Wellington Street facing south	Photograph No. 3: Dry-fresh Oak-hickory Deciduous Forest
		
Photograph No. 4: Old Field at the south end of the Study Area	Photograph No. 5: Fresh-moist Forb Meadow near the intersection of Towercrest Drive and Upper Wellington Street	Photograph No. 6: Fresh-moist Forb Meadow near the Upper Wellington Street bridge over the Lincoln M. Alexander Parkway
		
Photograph No. 7: Intersection of Upper Wellington Street and Limeridge Road East	Photograph No. 8: Tree 15	Photograph No. 9: Tree 16

		
Photograph No. 10: Tree 17	Photograph No. 11: Tree 18	Photograph No. 12: Tree 19
		
Photograph No. 13: Tree 20	Photograph No. 14: Tree 21	Photograph No. 15: Tree 22
		
Photograph No. 16: Tree 23	Photograph No. 17: Tree 24	Photograph No. 18: Tree 25

		
Photograph No. 19: Tree 26	Photograph No. 20: Tree 27	Photograph No. 21: Tree 28
		
Photograph No. 22: Tree 29	Photograph No. 23: Tree 30	Photograph No. 24: Tree 31
		
Photograph No. 25: Tree 32	Photograph No. 26: Tree 33	Photograph No. 27: Tree 34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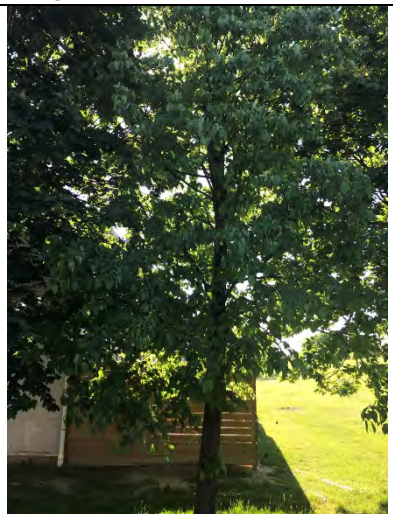
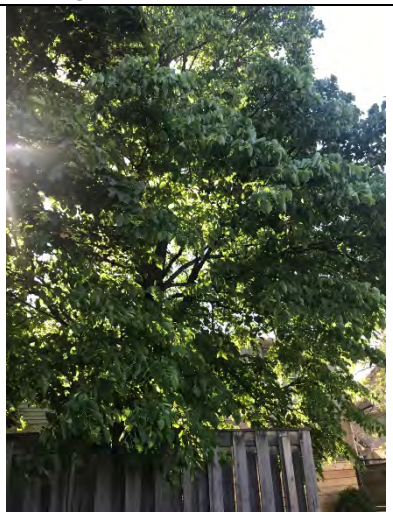
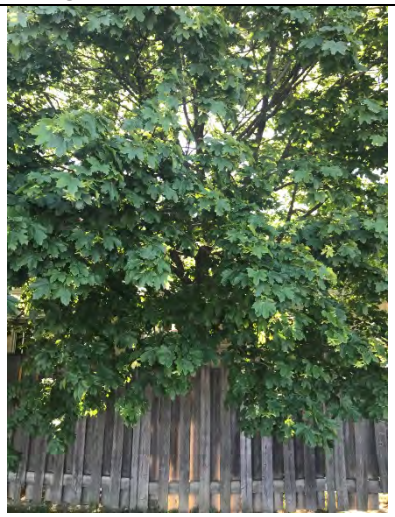
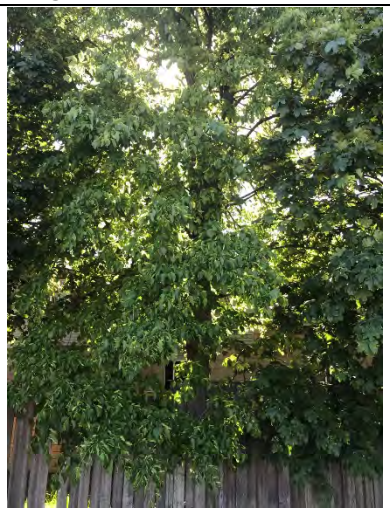
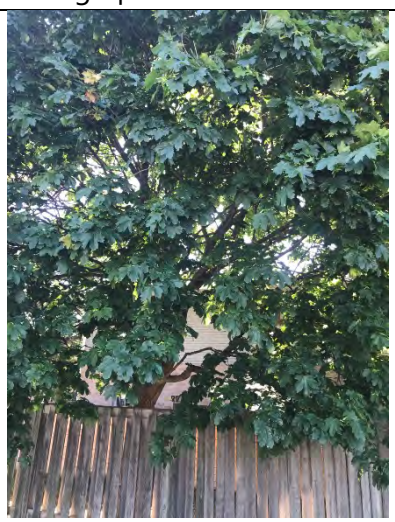
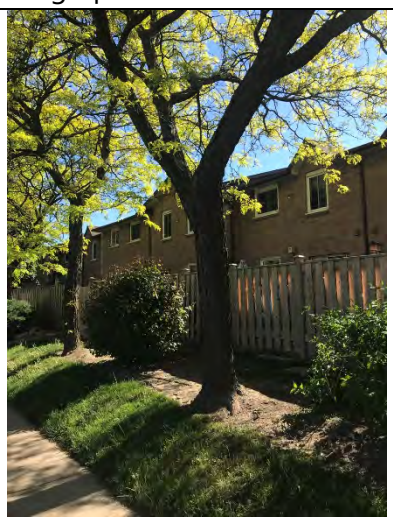
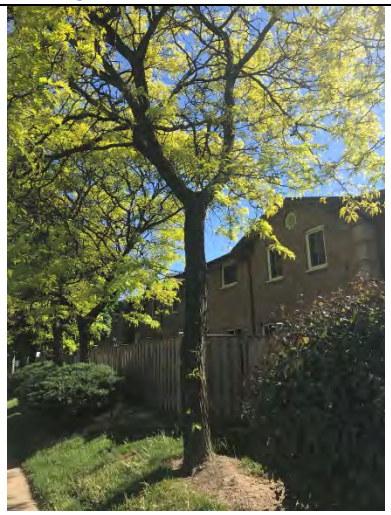
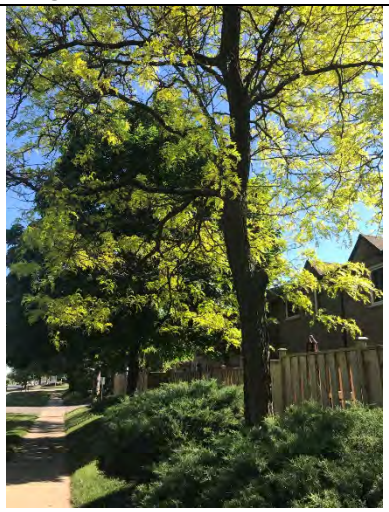
		
Photograph No. 31: Tree 38	Photograph No. 32: Tree 39	Photograph No. 33: Tree 40
		
Photograph No. 34: Tree 41	Photograph No. 35: Tree 42	Photograph No. 36: Tree 43

		
Photograph No. 37: Tree 44	Photograph No. 38: Tree 45	Photograph No. 39: Tree 46
		
Photograph No. 40: Tree 47	Photograph No. 41: Tree 48	Photograph No. 42: Tree 49
		
Photograph No. 43: Tree 50	Photograph No. 44: Tree 51	Photograph No. 45: Tree 52

		
Photograph No. 46: Tree 53	Photograph No. 47: Tree 54	Photograph No. 48: Tree 55
		
Photograph No. 49: Tree 56	Photograph No. 50: Tree 57	Photograph No. 51: Tree 58
		
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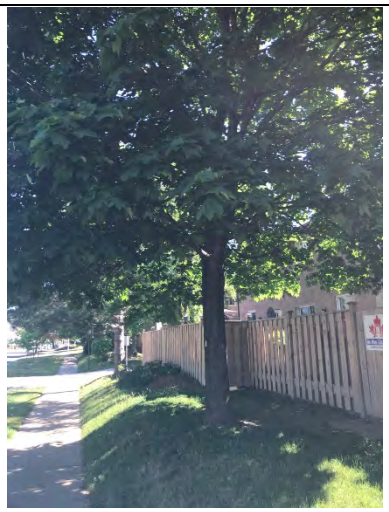		
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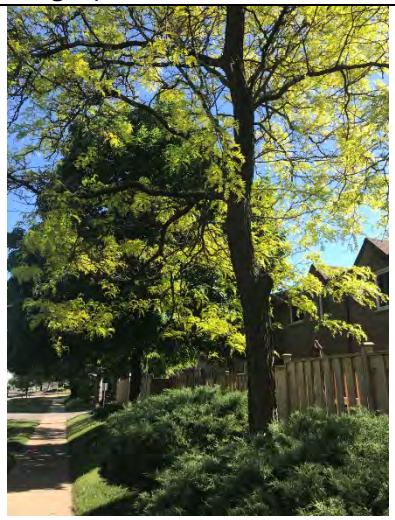
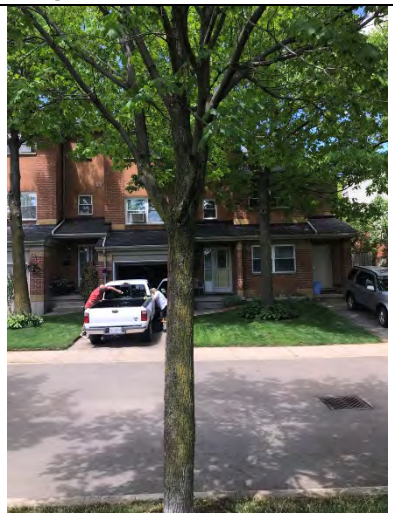
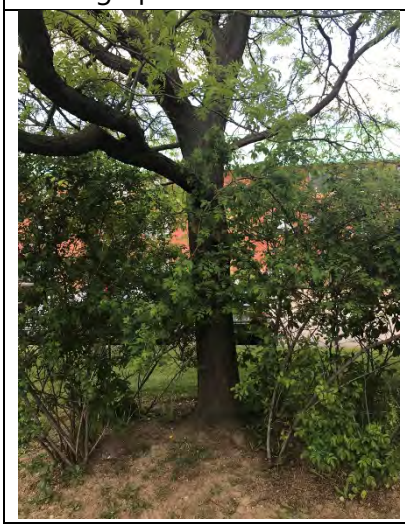
		
Photograph No. 58: Tree 65	Photograph No. 59: Tree 66	Photograph No. 60: Tree 67
		
Photograph No. 61: Tree 68	Photograph No. 62: Tree 69	Photograph No. 63: Tree 70

		
Photograph No. 64: Tree 71	Photograph No. 65: Tree 72	Photograph No. 66: Tree 73
		
Photograph No. 67: Tree 74	Photograph No. 68: Tree 75	Photograph No. 69: Tree 76
		
Photograph No. 70: Tree 77	Photograph No. 71: Tree 78	Photograph No. 72: Tree 79

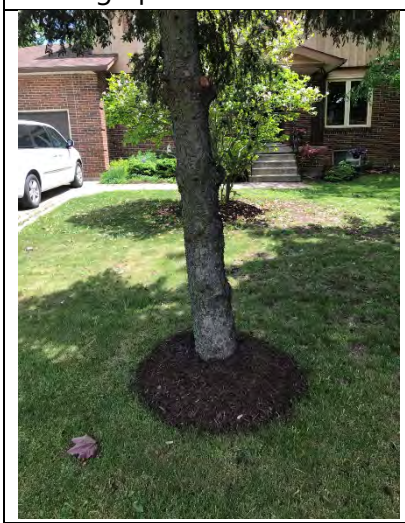
		
Photograph No. 73: Tree 80	Photograph No. 74: Tree 81	Photograph No. 75: Tree 82
		
Photograph No. 76: Tree 83	Photograph No. 77: Tree 84	Photograph No. 78: Tree 85
		
Photograph No. 79: Tree 86	Photograph No. 80: Tree 87	Photograph No. 81: Tree 88

		
Photograph No. 82: Tree 89	Photograph No. 83: Tree 90	Photograph No. 84: Tree 91
		
Photograph No. 85: Tree 92	Photograph No. 86: Tree 93	Photograph No. 87: Tree 94
		
Photograph No. 88: Tree 95	Photograph No. 89: Tree 96	Photograph No. 90: Tree 97

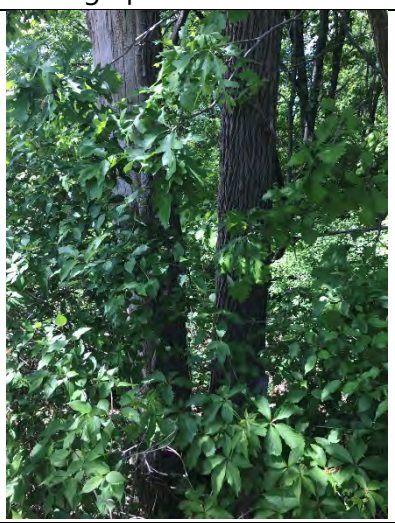
		
Photograph No. 91: Tree 98	Photograph No. 92: Tree 99	Photograph No. 93: Tree 100
		
Photograph No. 94: Tree 101	Photograph No. 95: Tree 201	Photograph No. 96: Tree 202
		
Photograph No. 97: Tree 203	Photograph No. 98: Tree 204	Photograph No. 99: Tree 205

		
Photograph No. 100: Tree 206	Photograph No. 101: Tree 207	Photograph No. 102: Tree 208
		
Photograph No. 103: Tree 209	Photograph No. 104: Tree 210	Photograph No. 105: Tree 211
		
Photograph No. 106: Tree 212	Photograph No. 107: Tree 213	Photograph No. 108: Tree 214

		
Photograph No. 109: Tree 215	Photograph No. 110: Tree 216	Photograph No. 111: Tree 217
		
Photograph No. 112: Tree 218	Photograph No. 113: Tree 219	Photograph No. 114: Tree 221
		
Photograph No. 114: Tree 222	Photograph No. 115: Tree 223	Photograph No. 116: Tree 224

		
Photograph No. 117: Tree 225	Photograph No. 118: Tree 226	Photograph No. 119: Tree 227
		
Photograph No. 120: Tree 228	Photograph No. 121: Tree 229	Photograph No. 122: Tree 230
		
Photograph No. 123: Tree 231	Photograph No. 124: Tree 232	Photograph No. 125: Tree 234

		
Photograph No. 126: Tree 235	Photograph No. 127: Tree 236	Photograph No. 128: Tree 237
		
Photograph No. 129: Tree 238	Photograph No. 130: Tree 239	Photograph No. 131: Tree 240
		
Photograph No. 132: Tree 241	Photograph No. 133: Tree 242	Photograph No. 134: Tree 243

		
Photograph No. 135: Tree 244	Photograph No. 136: Tree 2001	Photograph No. 137: Tree 2002
		
Photograph No. 138: Tree 2003	Photograph No. 139: Tree 2004	Photograph No. 140: Tree 2005
		
Photograph No. 141: Tree 2006	Photograph No. 142: Tree 2008	Photograph No. 143: Tree 2012

		
Photograph No. 144: Tree 2016	Photograph No. 145: Tree 2017	Photograph No. 146: Tree 2018
		
Photograph No. 147: Tree 2019	Photograph No. 148: Tree 2020	Photograph No. 149: Tree 2021
		
Photograph No. 150: Tree 2022	Photograph No. 151: Tree 2028	

APPENDIX F

Significant Wildlife Habitat Screening Table

APPENDIX F

Significant Wildlife Habitat (SWH) Screening 7 E

Confirmed: Indicates that the area has been verified to meet the defining criteria for SWH. It means that the habitat has been assessed and found to support the specific wildlife species or ecological functions that qualify it as significant.
Candidate: Indicates that the area may meet the criteria for SWH, but has not yet been fully verified. These areas require further assessment and data collection to determine if they qualify as significant.
Not Present: Indicates that the area does not meet the criteria for SWH. Habitat has been assessed and found not to support the specific wildlife species or ecological functions required for it to be considered significant.

Significant Wildlife Habitat Type (7E)	Indicator Wildlife Species	Candidate SWH		Confirmed SWH	Evaluation
		Ecosites/ Habitat Description	Habitat Criteria and Information Sources	Defining Criteria	
Seasonal Concentration Areas					
Waterfowl Stopover and Staging Areas: Terrestrial (Rationale – Habitat important to migrating waterfowl)	American Black Duck Wood Duck Green-winged Teal Blue-winged Teal Mallard Northern Pintail Northern Shoveler American Wigeon Gadwall	CUM1 CUT1 Plus evidence of annual spring flooding from meltwater or run-off within these Ecosites.	•Fields with sheet water during Spring (mid-March to May) •Fields flooding during spring melt and run-off provide important invertebrate foraging habitat for migrating waterfowl •Agricultural fields with waste grains are commonly used by waterfowl, these are not considered SWH unless they have spring sheet water available •Anecdotal information from the landowner, adjacent landowners or local naturalist clubs may be good information in determining occurrence. •Reports and other information available from Conservation Authorities •Sites documented through waterfowl planning processes (*e.g.,* EHJV implementation plan) •Field Naturalist Clubs •Ducks Unlimited Canada •Natural Heritage Information Centre (NHIC) Waterfowl Concentration Area	Studies carried out and verified presence of an annual concentration of any listed species, evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" • Any mixed species aggregations of 100 or more individuals required • The flooded field ecosite habitat plus a 100-300m radius, dependent on local site conditions and adjacent land use is the significant wildlife habitat • Annual use of habitat is documented from information sources or field studies (annual use can be based on studies or determined by past surveys with species numbers and dates) • SWH MIST Index #7 provides development effects and mitigation measures.	**Not Present** No ponds, marshes, lakes, bays, coastal inlets, watercourses (aquatic), or fields (terrestrial) with evidence of standing water in spring and concentrations of waterfowl.
Waterfowl Stopover and Staging Areas: Aquatic (Rationale – Important for local and migrant waterfowl populations during	Canada Goose Cackling Goose Snow Goose American Black Duck Northern Pintail Northern Shoveler American Wigeon Gadwall	MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 SWD1 SWD2	•Ponds, marshes, lakes, bays, coastal inlets and watercourses used during migration. Sewage treatment ponds and storm water ponds do not qualify as a SWH, however a reservoir managed as a large wetland or pond/lake does qualify •These habitats have an abundant	Studies carried out and verified presence of: • Aggregations of 100 or more of listed species for 7 days, results in >700 waterfowl use days • Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWH	

Significant Wildlife Habitat Type (7E)	Indicator Wildlife Species	Candidate SWH		Confirmed SWH	Evaluation
		Ecosites/ Habitat Description	Habitat Criteria and Information Sources	Defining Criteria	
the spring or fall migration or both periods combined. Sites identified are usually only one of a few in the eco-district)	Green-winged Teal Blue-winged Teal Hooded Merganser Common Merganser Lesser Scaup Greater Scaup Long-tailed Duck Surf Scoter White-winged Scoter Black Scoter Ring-necked duck Common Goldeneye Bufflehead Redhead Ruddy Duck Red-breasted Merganser Brant Canvasback Ruddy Duck	SWD3 SWD4 SWD5 SWD6 SWD7	food supply (mostly aquatic invertebrates and vegetation in shallow water). •Environment Canada •Naturalist clubs often are aware of staging/stopover areas. •OMNRF Wetland Evaluations indicate presence of locally and regionally significant waterfowl staging. •Sites documented through waterfowl planning processes (*e.g.,* EHJV implementation plan) •Ducks Unlimited projects •Element occurrence specification by Nature Serve: http://www.natureserve.org •Natural Heritage Information Centre (NHIC) Waterfowl Concentration Area	• The combined area of the ELC ecosites and a 100m radius area is the SWH • Wetland area and shorelines associated with sites identified within the SWHTG Appendix K are significant wildlife habitat. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" • Annual Use of Habitat is Documented from Information Sources or Field Studies (Annual can be based on completed studies or determined from past surveys with species numbers and dates recorded). • SWH MIST Index #7 provides development effects and mitigation measures.	
Shorebird Migratory Stopover Area (Rationale: High quality shorebird stopover habitat is extremely rare and typically has a long history of use.)	Greater Yellowlegs Lesser Yellowlegs Marbled Godwit Hudsonian Godwit Black-bellied Plover American Golden-Plover Semipalmated Plover Solitary Sandpiper Spotted Sandpiper Semipalmated Sandpiper Pectoral Sandpiper White-rumped Sandpiper Baird's Sandpiper Least Sandpiper Purple Sandpiper Stilt Sandpiper Short-billed Dowitcher Red-necked Phalarope Whimbrel Ruddy Turnstone Sanderling Dunlin	BBO1 BBO2 BBS1 BBS2 BBT1 BBT2 SDO1 SDS2 SDT1 MAM1 MAM2 MAM3 MAM4 MAM5	• Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats. • Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores, are extremely important for migratory shorebirds in May to mid-June and early July to October. • Sewage treatment ponds and storm water ponds do not qualify as a SWH. <u>Information Sources</u> • Western hemisphere shorebird reserve network. • Canadian Wildlife Service (CWS) Ontario Shorebird Survey. • Bird Studies Canada • Ontario Nature • Local birders and naturalist clubs • Natural Heritage Information	Studies confirming: • Presence of 3 or more of listed species and > 1000 shorebird use days during spring or fall migration period. (shorebird use days are the accumulated number of shorebirds counted per day over the course of the fall or spring migration period) • Whimbrel stop briefly (<24hrs) during spring migration, any site with >100 Whimbrel used for 3 years or more is significant. • The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100m radius area cxlviii • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects' • SWHMiST Index #8 provides	**Not Present** No shorelines of lakes, rivers, wetlands, beach areas, bars, seasonally flooded muddy and un-vegetated habitats.

Significant Wildlife Habitat Type (7E)	Indicator Wildlife Species	Candidate SWH		Confirmed SWH	Evaluation
		Ecosites/ Habitat Description	Habitat Criteria and Information Sources	Defining Criteria	
			Center (NHIC) Shorebird Migratory Concentration Area	development effects and mitigation measures.	
Raptor Wintering (Rationale: Sites used by multiple species, a high number of individuals and used annually are most significant)	Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl **Special Concern:** Short-eared Owl Bald Eagle	HAWKS/OWLS: Combination of ELC Community Series; need to have present one Community Series from each land class; Forest: FOD, FOM, FOC. Upland: CUM, CUT, CUS, CUW. BALD EAGLE Forest Community Series: FOD, FOM, FOC, SWD, SWM or SWC on shoreline areas adjacent to large rivers or adjacent to lakes with open water (hunting area).	• The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors • Raptor wintering (hawk/owl) sites need to be >20 ha with a combination of forest and upland • Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15ha) with adjacent woodlands • Field area of the habitat is to be wind swept with limited snow depth or accumulation. • Eagle sites have open water and large trees and snags available for roosting INFORMATION SOURCES • OMNRF Ecologist or Biologist • Naturalist clubs • Natural Heritage Information Centre (NHIC) Raptor Winter Concentration Area • Data from Bird Studies Canada • Results of Christmas Bird Counts • Reports and other information available from Conservation Authorities	Studies confirm the use of these habitats by: • One or more Short-eared Owls or; one of more Bald Eagles or; at least 10 individuals and two of the listed hawk/owl species • To be significant a site must be used regularly (3 in 5 years) for a minimum of 20 days by the above number of birds. • The habitat area for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" • SWH MIST Index #10 and #11 provides development effects and mitigation measures.	**Not Present** Forests in the area are small but has a variety of habitat in and adjacent. Red-tailed Hawk and American Kestrel documented in secondary sources however the Project Location and Study Area does not contain the habitat requirements.
Bat Hibernacula (Rationale; Bat hibernacula are rare habitats in all Ontario landscapes.)	Big Brown Bat Tri-coloured Bat	Bat Hibernacula may be found in these ecosites: CCR1 CCR3 CCA1 CCA2 (Note: buildings are not considered SWH)	•Hibernacula may be found in caves, mine shafts, underground foundations and Karsts •Active mine sites should not be considered as SWH •The locations of Bat Hibernacula are relatively poorly known. INFORMATION SOURCES •OMNRF for possible locations and contact for local experts •Natural Heritage Information Centre (NHIC) Bat Hibernaculum	•All sites with confirmed hibernating bats are SWH •The area includes 200 m radius around the entrance of the hibernaculum for most development types and 1000 m for wind farms •Studies are to be conducted during the peak swarming period (Aug. – Sept.). Surveys should be conducted following methods outlined in the "Bats and Bat Habitats: Guidelines for Wind	**Not Present** No caves, mine shafts, underground formations/foundations, crevices, or Karst observed. The Niagara Escarpment in the general area of Hamilton has known and potential karst.

Significant Wildlife Habitat Type (7E)	Indicator Wildlife Species	Candidate SWH		Confirmed SWH	Evaluation
		Ecosites/ Habitat Description	Habitat Criteria and Information Sources	Defining Criteria	
			•Ministry of Northern Development and Mines for location of mine shafts. •Clubs that explore caves (*e.g.,* Sierra Club) •University Biology Departments with bat experts.	Power Projects" •SWH MIST Index #1 provides development effects and mitigation measures.	
Bat Maternity Colonies (Rationale: Known locations of forested bat maternity colonies are extremely rare in all Ontario landscapes.)	Big Brown Bat Silver-haired Bat	Maternity colonies considered SWH are found in forested Ecosites. All ELC Ecosites in ELC Community Series: FOD, FOM, SWD, SWM	•Maternity colonies can be found in tree cavities, vegetation and often in buildings (buildings are not considered to be SWH). •Maternity roosts are not found in caves and mines in Ontario •Maternity colonies located in Mature deciduous or mixed forest stands with >10/ha large diameter (>25cm dbh) wildlife trees •Female bats prefer wildlife trees (snags) in early stages if decay, class 1-3 or class 1 or 2 •Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred INFORMATION SOURCES •OMNRF for possible locations and contact for local experts •University Biology Departments with bat experts.	•Maternity colonies with confirmed use by: o>10 Big Brown Bats (EPFU) o>5 adult female Silver-haired (LANO) Bats •The area of habitat includes the entire woodland or a forest stand ELC Ecosite or an Eco element containing the maternity colonies •Evaluation methods for maternity colonies should be conducted following methods outlined in the "Bats and Bat Habitats: Guidelines for Wind Power Projects" •SWH MIST Index #12 provides the development effects and mitigation measures.	**Candidate** The Dry-fresh Oak-hickory Deciduous Forest likely meets the habitat criteria in the Study Area. Indicator species: The ranges of the Big Brown Bat and Silver-Haired Bat overlap the Project. Snag surveys were not completed to confirm maternity habitat SWH. Does not exclude the MECP requirements for SAR bats.
Turtle Wintering Areas (Rationale: Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant.)	Midland Painted Turtle **Special Concern:** Northern Map Turtle Snapping Turtle	Snapping and Midland Painted Turtles: SW, MA, OA and SA; FEO and BOO. Northern Map Turtle: Open water areas such as deeper rivers or streams and lakes with current can also be used as overwintering habitat.	•For most turtles, wintering areas are in the same general areas as their core habitat. Water must be deep enough not to freeze and have soft mud substrates. •Overwintering sites are permanent water bodies, large wetlands and bots or fens with adequate dissolved oxygen. •Manmade ponds such as sewage lagoons or storm water ponds	•Presence of five overwintering Midland Painted Turtles is significant. •One or more Northern Map Turtle or Snapping Turtle overwintering within a wetland is significant. •The mapped ELC ecosite area with the overwintering turtles is the SWH. If the hibernation site is within a stream or river, the deep-water pool where the turtles are	**Not Present** No waterbodies within the Study Area.

Significant Wildlife Habitat Type (7E)	Indicator Wildlife Species	Candidate SWH		Confirmed SWH	Evaluation
		Ecosites/ Habitat Description	Habitat Criteria and Information Sources	Defining Criteria	
			should not be considered SWH. INFORMATION SOURCES •EIS studies carried out by conservation authorities. •Field naturalists clubs. •OMNRF ecologist or biologist •NHIC	overwintering is the SWH. •Overwintering areas may be identified by searching for congregations (basking areas) of turtles on warm, sunny days during the fall (September to October) or spring (March to May). Congregation of turtles is more common where wintering areas are limited and therefore significant. •SWH MIST Index #28 provides development effects and mitigation measures for turtle wintering habitat.	
Reptile Hibernaculum (Rationale: Generally, sites are the only known sites in the area. Sites with the highest number of individuals are most significant.)	SNAKES Eastern Gartersnake Northern Watersnake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake SPECIAL CONCERN Milksnake Eastern Ribbonsnake LIZARD SPECIAL CONCERN (Southern Shield population): Five-lined Skink	For all snakes, habitat may be found in any ecosite other than very wet ones. Talus, Rock Barren, Crevice, Cave, and Alvar sites may be directly related to these habitats. Observations or congregations of snakes on sunny warm days in the spring or fall is a good indicator. For Five-lined Skink, ELC Community Series of FOD and FOM and Ecosites: FOC1 FOC3	•For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural or naturalized locations. The existence of features that go below frost line; such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying candidate SWH. •Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line •Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover. •Five-lined skink prefer mixed forests with rock outcrop openings providing cover rock overlaying granite bedrock with fissures. INFORMATION SOURCES •In spring, local residents or landowners may have observed the emergence of snakes on their property (*e.g.,* old dug wells).	Studies confirming: •Presence of snake hibernacula used by a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. •Congregations of a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. near potential hibernacula (*e.g.,* foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct) •NOTE: If there are Special Concern Species present, then site is SWH •NOTE: Sites for hibernation possess specific habitat parameters (*e.g.,* temperature, humidity, *etc.*) and consequently are used annually, often by many of the same individuals of a local population (*i.e.,* strong hibernation site fidelity). Other critical life processes (*e.g.,* mating) often take place near hibernacula. •The feature in which the hibernacula is located plus a 30 m radius area is the SWH •SWH MIS Index #13 provides development effects and mitigation	**Not Present** Indicator species have been documented in secondary sources in the Study Area. However, the necessary characteristics for hibernacula were not identified. Unlikely overwintering habitat within the Project Location.

Significant Wildlife Habitat Type (7E)	Indicator Wildlife Species	Candidate SWH		Confirmed SWH	Evaluation
		Ecosites/ Habitat Description	Habitat Criteria and Information Sources	Defining Criteria	
			•Reports and other information available from Conservation Authorities. •Field Naturalist Clubs •University herpetologists •Natural Heritage Information Centre (NHIC) •OMNRF ecologist or biologist may be aware of locations of wintering skinks	measures for snake hibernacula. •Presence of any active hibernaculum for skink is significant. •SWHMiST Index #37 provides development effects and mitigation measures for five-lined skink wintering habitat.	
Colonially Nesting Bird Breeding Habitat: cliff/bank (Rationale: Historical use and number of nests in a colony make this habitat significant. An identified colony can be very important to local populations. All swallow populations are declining in Ontario.)	Cliff Swallow Northern Rough-winged Swallow (this species is not colonial but can be found in Cliff Swallow colonies)	Eroding banks, sandy hills, borrow pits, steep slopes, and sand piles Cliff faces, bridge abutments, silos, barns. Habitat found in the following ecosites: CUM1 CUT1 CUS1 BLO1 BLS1 BLT1 CLO1 CLS1 CLT1	• Any site or areas with exposed soil banks, undisturbed or naturally eroding that is not a licensed/permitted aggregate area. • Does not include man-made structures (bridges or buildings) or recently (2 years) disturbed soil areas, such as berms, embankments, soil or aggregate stockpiles. • Does not include a licensed/permitted Mineral Aggregate Operation. INFORMATION SOURCES • Reports and other information available from Conservation Authorities • Ontario Breeding Bird Atlas • Bird Studies Canada; http://www.birdscanada.org/birdmon • Field Naturalist Clubs.	Studies confirming: • Presence of 1 or more nesting sites with 8 or more cliff swallow pairs and/or rough-winged swallow pairs during the breeding season. • A colony identified as SWH will include a 50m radius habitat area from the peripheral nests • Field surveys to observe and count swallow nests are to be completed during the breeding season. Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” • SWH MIST Index #4 provides development effects and mitigation measures.	**Not Present** No indicator species documented by secondary sources in the Study Area. No undisturbed exposed soil was found in the Project Location.
Colonially Nesting Bird Breeding Habitat: tree/shrub (Rationale: Large colonies are important to local bird populations, typically sites are only known colony in area and are used annually.)	Great Blue Heron Black-crowned Night-Heron Great Egret Green Heron	SWM2 SWM3 SWM5 SWM6 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7 FET1	• Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used. • Most nests in trees are 11 to 15 m from ground, near the top of the tree. INFORMATION SOURCES • Ontario Breeding Bird Atlas colonial nest records.	Studies confirming: • Presence of 5 or more active nests of Great Blue Heron or other listed species. • The habitat extends from the edge of the colony and a minimum 300m radius or extent of the Forest Ecosite containing the colony or any island <15 ha with a colony is the SWH • Confirmation of active heronries are to be achieved through site	**Not Present** Although indicator species documented in the vicinity, habitat not present.

Significant Wildlife Habitat Type (7E)	Indicator Wildlife Species	Candidate SWH		Confirmed SWH	Evaluation
		Ecosites/ Habitat Description	Habitat Criteria and Information Sources	Defining Criteria	
			• Ontario Heronry Inventory 1991 available from Bird Studies Canada or NHIC (OMNRF). • Natural Heritage Information Centre (NHIC) Mixed Wader Nesting Colony • Aerial photographs can help identify large heronries. • Reports and other information available from Conservation Authorities. • MNRF District Offices • Field Naturalist Clubs.	visits conducted during the nesting season (April to August) or by evidence such as the presence of fresh guano, dead young and/or eggshells • SWH MIST Index #5 provides development effects and mitigation measures.	
Colonially Nesting Bird Breeding Habitat: ground (Rationale: Colonies are important to local bird populations, typically sites are only known colony in area and are used annually.)	Herring Gull Great Black-backed Gull Little Gull Ring-billed Gull Common Tern Caspian Tern Brewer's Blackbird	Any rocky island or peninsula (natural or artificial) within a lake or large river (two-lined on a 1;50,000 NTS map). Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird) MAM1 – 6 MAS1 – 3 CUM CUT CUS	• Nesting colonies of gulls and terns are on islands or peninsulas associated with open water or in marshy areas. • Brewers Blackbird colonies are found loosely on the ground in or in low bushes in close proximity to streams and irrigation ditches within farmlands. INFORMATION SOURCES • Ontario Breeding Bird Atlas, rare/colonial species records. • Canadian Wildlife Service • Reports and other information available from Conservation Authorities. • Natural Heritage Information Centre (NHIC) Colonial Waterbird Nesting Area • MNRF District Offices. • Field Naturalist Clubs	Studies confirming: • Presence of > 25 active nests for Herring Gulls or Ring-billed Gulls, >5 active nests for Common Tern or >2 active nests for Caspian Tern • Presence of 5 or more pairs for Brewer's Blackbird • Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant • The edge of the colony and a minimum 150m radius area of habitat, or the extent of the ELC ecosites containing the colony or any island <3 ha with a colony is the SWH • Studies would be done during May/June when actively nesting. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" • SWH MIST Index #6 provides development effects and mitigation measures.	**Not Present** Although indicator species documented in the vicinity, habitat not present.
Migratory Butterfly Stopover Areas (Rationale: Butterfly stopover areas are extremely rare habitats and are	Painted Lady Red Admiral SPECIAL CONCERN Monarch	Combination of ELC Community Series; need to have present one Community Series from each land class:	• A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Erie or Lake Ontario	Studies confirm: • The presence of Monarch Use Days (MUD) during fall migration (Aug/Oct). MUD is based on the number of days the site is used by Monarchs, multiplied by the	**Not Present** Not within 5km of Lake Ontario

Significant Wildlife Habitat Type (7E)	Indicator Wildlife Species	Candidate SWH		Confirmed SWH	Evaluation
		Ecosites/ Habitat Description	Habitat Criteria and Information Sources	Defining Criteria	
biologically important for butterfly species that migrate south for the winter.)		FIELD: CUM, CUT, CUS FOREST: FOC, FOD, FOM, CUP Anecdotally, a candidate site for butterfly stopover will have a history of butterflies being observed.	• The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south • The habitat should not be disturbed, fields/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat • Staging areas usually provide protection from the elements and are often spits of land or areas with the shortest distance to cross the Great Lakes INFORMATION SOURCES • MNRF District Offices • Natural Heritage Information Centre (NHIC) • Agriculture Canada in Ottawa may have list of butterfly experts. • Field Naturalist Clubs • Toronto Entomologists Association • Conservation Authorities	number of individuals using the site. Numbers of butterflies can range from 100-500/day, significant variation can occur between years and multiple years of sampling should occur • Observational studies are to be completed and need to be done frequently during the migration period to estimate MUD. • MUD of >5000 or >3000 with the presence of Painted Ladies or Red Admiral's is to be considered significant. • SWH MIST Index #16 provides development effects and mitigation measures.	
Landbird Migratory Stopover Areas (Rationale: Sites with a high diversity of species as well as high numbers are most significant.)	All migratory songbirds Canadian Wildlife Service Ontario website: http://www.ec.gc.ca/nature/default.asp?lang=En&n=421B7A9D-1 All migrant raptor species: Ontario Ministry of Natural Resources: Fish and Wildlife Conservation Act, 1997. Schedule 7: Specially Protected Birds (Raptors)	All Ecosites associated with these ELC Community Series: FOC FOM FOD SWC SWM SWD	• Woodlots >10 ha in size and within 5 km of Lake Ontario. • If multiple woodlands are located along the shoreline those woodlands <2 km from and Lake Ontario are more significant • Sites have a variety of habitats: forest, grassland and wetland complexes • The largest sites are more significant • Woodlots and forest fragments are important habitats to migrating birds, these features located along the shore and within 5 km of and Lake Ontario are Candidate SWH. INFORMATION SOURCES	Studies confirm: • Use of the habitat by >200 birds/day and with >35 species and with at least 10 bird species recorded on at least 5 different survey dates. This abundance and diversity of migrant bird species is considered above average and significant • Studies should be completed during spring (Mar.-May) and fall (Aug.-Oct.) migration using standardized assessment techniques. Evaluation to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" • SWH MIST Index #9 provides	**Not Present** Not within 5km of Lake Ontario

Significant Wildlife Habitat Type (7E)	Indicator Wildlife Species	Candidate SWH		Confirmed SWH	Evaluation
		Ecosites/ Habitat Description	Habitat Criteria and Information Sources	Defining Criteria	
			• Bird Studies Canada • Ontario Nature • Local birders and field naturalist clubs • Ontario Important Bird Areas (IBA) Program	development effects and mitigation measures.	
Deer Winter Congregation Areas (Rationale: Deer movement during winter in the southern areas of Ecoregion 7E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands to reduce or avoid the impacts of winter conditions.)	White-tailed Deer	All forested Ecosites with these ELC Community Series: FOC, FOM, FOD, SWC, SWM, SWD Conifer plantations much smaller than 50 ha may also be used.	• Woodlots >100 ha in size. Woodlots <100ha may be considered as significant based on MNRF studies or assessment • Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands • If deer are constrained by snow death refer to the Deer Yarding Area habitat within Table 1.1 of this Schedule • Large woodlots >100 ha and up to 1,500 ha are known to be used annually by densities of deer that range from 0.1-1.5 deer/ha • Woodlots with high densities of deer due to artificial feeding are not significant. INFORMATION SOURCES • MNRF District Offices • LIO/NRVIS	Studies confirm: • Deer management is an MNRF responsibility, deer winter congregation areas considered significant will be mapped by MNRF • Use of the woodlot by white-tailed deer will be determined by MNRF, all woodlots exceeding the area criteria are significant, unless determined not to be significant by MNRF • Studies should be completed during winter (Jan./Feb.) when >20 cm of snow is on the ground using aerial survey techniques, ground road surveys, or a pellet count deer survey If a SWH is determined for Deer Wintering Area or if a proposed development is within Stratum II yarding area then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule • SWH MIST Index #2 provides development effects and mitigation measures	**Not Present** Not delineated by MNRF
Rare Vegetation Communities or Specialized Habitat for Wildlife					
Rare Vegetation Communities					
Cliffs and Talus Slopes (Rationale: Cliffs and Talus Slopes are extremely rare habitats in Ontario.)		Any ELC Ecosite within Community Series: TAO, TAS, TAT, CLO, CLS, CLT A Cliff is vertical to near vertical bedrock >3 m in	• Most cliff and talus slopes occur along the Niagara Escarpment INFORMATION SOURCES • The Niagara Escarpment Commission has detailed information	• Confirm any ELC Vegetation Type for Cliffs or Talus Slopes • SWH MIST Index #21 provides development effects and mitigation measures	**Not Present** ELC surveys eliminated the possibility of this habitat occurring in the Project Location

Significant Wildlife Habitat Type (7E)	Indicator Wildlife Species	Candidate SWH		Confirmed SWH	Evaluation
		Ecosites/ Habitat Description	Habitat Criteria and Information Sources	Defining Criteria	
		height. A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris.	on location of these habitats • OMNRF Districts • Natural Heritage Information Centre (NHIC) has location information available on their website • Field Naturalist Clubs • Conservation Authorities		
Sand Barren (Rationale: Sand barrens are rare in Ontario and support rare species. Most sand barrens have been lost due to cottage development and forestry.)		ELC Ecosites: SBO1, SBS1, SBT1 Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicket-like (SBS1), or more closed and treed (SBT1). Tree cover always <60% Sand barrens typically are exposed sand, generally sparsely vegetated and caused by a lack of moisture, periodic fires and erosion. Usually located within other types of natural habitat such as forest or savannah. Vegetation can vary from patchy and barren to tree covered but less than 60%.	• A sand barren area >0.5 ha in size INFORMATION SOURCES • The Niagara Escarpment Commission has detailed information on location of these habitats • OMNRF Districts • Natural Heritage Information Centre (NHIC) has location information available on their website • Field Naturalist Clubs • Conservation Authorities	• Confirm any ELC Vegetation Type for Sand Barrens • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic spp.) • SWH MIST Index #20 provides development effects and mitigation measures	**Not Present** ELC surveys eliminated the possibility of this habitat occurring in the Project Location
Alvar (Rationale: Alvars are extremely rare habitats in Ecoregion 6E.)	FIVE ALVAR INDICATOR SPECIES *Carex crawei* *Panicum philadelphicum* *Eleocharis compressa* *Scutellaria parvula* *Trichostema brachiatum* These indicator species are very specific to Alvars within Ecoregion 6E	ALO1, ALS1, ALT1, FOC1, FOC2, CUM2, CUS2, CUT2-1, CUW2 An Alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a	• An Alvar site >0.5 ha in size • Alvar is particularly rare in Ecoregion 7E where the only known sites are found in the western islands of Lake Erie INFORMATION SOURCES • Alvars of Ontario (Federation of Ontario Naturalists, 2000) • Conserving Great Lakes Alvars	• Field studies identify that four of the five ALVAR INDICATOR SPECIES at a Candidate Alvar Site is significant • Site must not be dominated by exotic of introduced species (<50% vegetative cover are exotic spp.) • The alvar must be in excellent condition and fit in with surrounding landscape with few	**Not Present** ELC surveys eliminated the possibility of this habitat occurring in the Project Location

Significant Wildlife Habitat Type (7E)	Indicator Wildlife Species	Candidate SWH		Confirmed SWH	Evaluation
		Ecosites/ Habitat Description	Habitat Criteria and Information Sources	Defining Criteria	
		thin veneer of soil. The hydrology of alvars is complex, with alternating periods of inundation and drought. Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plants. Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animal species. Vegetation cover varies from patchy to barren with a less than 60% tree cover	(Ontario Nature) • OMNRF Districts • Natural Heritage Information Centre (NHIC) has location information available on their website • Field Naturalist Clubs • Conservation Authorities	conflicting land uses • SWH MIST Index #17 provides development effects and mitigation measures	
Old Growth Forest (Rationale: Due to historic logging practices and land clearance for agriculture, old growth forest is rare in Ecoregion 6E.)		Forest Community Series: FOD, FOC, FOM, SWD, SWC, SWM Old Growth Forests are characterized by heavy mortality or turnover of over-story trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris.	• Woodland areas 30 ha or greater in size or with at least 10 ha interior habitat assuming 100 m buffer at edge of forest INFORMATION SOURCES • OMNRF Forest Resource Inventory mapping • OMNRF Districts • Field Naturalist Clubs • Conservation Authorities • Sustainable Forestry License (SFL) companies will possibly know locations through field operations • Municipal forestry departments	Field studies will determine: • If dominant tree species of the forest are >140 years old, then the area containing these trees is SWH • The forested area containing the old growth characteristics will have experienced no recognizable forestry activities (cut stumps will not be present) • The area of forest ecosites combined or an eco-element within an ecosite that contain the old growth characteristics is the SWH • Determine ELC vegetation types for the forest area containing the old growth characteristics • SWH MIST Index #23 provides development effects and mitigation measures	**Not Present** ELC surveys eliminated the possibility of this habitat occurring in the Project Location

Significant Wildlife Habitat Type (7E)	Indicator Wildlife Species	Candidate SWH		Confirmed SWH	Evaluation
		Ecosites/ Habitat Description	Habitat Criteria and Information Sources	Defining Criteria	
Savannah (Rationale: Savannahs are extremely rare habitats in Ontario.)		TPS1, TPS2, TPW1, TPW2, CUS2 A Savannah is a tallgrass prairie habitat that has tree cover between 25-60%.	• No minimum size to site • Site must be restored or a natural site. Remnant sites such as railway right-of-ways are not considered SWH INFORMATION SOURCES • Natural Heritage Information Centre (NHIC) has location information available on their website • Field Naturalist Clubs • Conservation Authorities	Field studies confirm: • One or more of the Savannah indicator species listed in Appendix N should be present. Note: savannah plant spp. List from Ecoregion 6E should be used. • Area of the ELC Ecosite is the SWH • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic spp.) • SWH MIST Index #18 provides development effects and mitigation measures.	**Not Present** ELC surveys eliminated the possibility of this habitat occurring in the Project Location
Tallgrass Prairie (Rationale: Tallgrass Prairies are extremely rare habitats in Ontario.)		TPO1, TPO2 A tallgrass prairie has ground cover dominated by prairie grasses. An open tallgrass prairie habitat has <25% tree cover.	• No minimum size to site • Site must be restored or a natural site. Remnant sites such as railway right-of-ways are not considered SWH INFORMATION SOURCES • Natural Heritage Information Centre (NHIC) has location information available on their website • Field Naturalist Clubs • Conservation Authorities	Field studies confirm: • One or more of the Prairie indicator species listed in Appendix N should be present. Note: savannah plant spp. List from Ecoregion 6E should be used. • Area of the ELC Ecosite is the SWH • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic spp.) • SWH MIST Index #19 provides development effects and mitigation measures.	**Not Present** ELC surveys eliminated the possibility of this habitat occurring in the Project Location
Other Rare Vegetation Communities (Rationale: Plant communities that often contain rare species which depend on the habitat for survival.)		Provincially rare (S1, S2, S3) vegetation communities are listed in Appendix M of the Significant Wildlife Habitat Technical Guide (MNRF, 2000). Any ELC Ecosite Code that has a possible ELC Vegetation Type that is provincially rare is candidate SWH. Rare Vegetation Communities may include beaches, fens,	• ELC Ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in Appendix M of the Significant Wildlife Habitat Technical Guide (MNRF, 2000). • OMNRF/NHIC will have up to date listing for rare vegetation communities. INFORMATION SOURCES • Natural Heritage Information Centre (NHIC) has location information available on their website • OMNRF Districts	• Field studies should confirm if an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of the Significant Wildlife Habitat Technical Guide (MNRF, 2000). • Area of the ELC Vegetation Type polygon is the SWH. • SWH MIST Index #37 provides development effects and mitigation measures.	**Confirmed** Dry-fresh Oak-hickory Deciduous Forest (FOD2-2) S3S4

Significant Wildlife Habitat Type (7E)	Indicator Wildlife Species	Candidate SWH		Confirmed SWH	Evaluation
		Ecosites/ Habitat Description	Habitat Criteria and Information Sources	Defining Criteria	
		forest, marsh, barrens, dunes and swamps.	• Field Naturalist Clubs • Conservation Authorities		
Specialized Habitat for Wildlife					
Waterfowl Nesting Area (Rationale: Important to local waterfowl populations, sites with greatest number of species and highest number of individuals are significant)	American Black Duck Northern Pintail Northern Shoveler Gadwall Blue-winged Teal Green-winged Teal Wood Duck Hooded Merganser Mallard	All upland habitats located adjacent to these wetland ELC Ecosites are Candidate SWH: MAS1, MAS2, MAS3, SAS1, SAM1, SAF1, MAM1, MAM2, MAM3, MAM4, MAM5, MAM6, SWT1, SWT2, SWD1, SWD2, SWD3, SWD4 NOTE Includes adjacency to Provincially Significant Wetlands	• A waterfowl nesting area extends 120 m from a wetland (>0.5 ha) or a wetland (>0.5 ha) and any small wetlands (0.5 ha) within 120 m or a cluster of 3 or more small (<0.5 ha) wetlands within 120 m of each individual wetland where waterfowl nesting is known to occur • Upland areas should be at least 120 m wide so that predators such as raccoons, skunks and foxes have difficulty finding nests • Wood Ducks and Hooded Mergansers utilize large diameter trees (>40 cm dbh) in woodlands for cavity nest sites. INFORMATION SOURCES • Ducks Unlimited staff may know the locations of particularly productive nesting sites • MNRF Wetland Evaluations for indication of significant waterfowl nesting habitat • Reports and other information available from Conservation Authorities	Studies confirmed: • Presence of 3 or more nesting pairs for listed species excluding Mallards, or; • Presence of 10 or more nesting pairs for listed species including Mallards. • Any active nesting site of an American Black Duck is considered significant. • Nesting studies should be completed during the spring breeding season (April - June). Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" • A field study confirming waterfowl nesting habitat will determine boundary of the waterfowl nesting habitat for the SWH, this may be greater or less than 120 m from the wetland and will provide enough habitat for waterfowl to successfully nest • SWH MIST Index #25 provides development effects and mitigation measures.	**Not Present** Habitat not present
Bald Eagle and Osprey nesting, foraging and Perching Habitat (Rationale: Nest sites are uncommon in Ecoregion 6E and are used annually by these species. Many suitable nesting locations may be lost due to increasing shoreline	Osprey SPECIAL CONCERN Bald Eagle	ELC Forest Community Series: FOD, FOM, FOC, SWD, SWM and SWC directly adjacent to riparian areas – rivers, lakes, ponds and wetlands.	• Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water. • Osprey nests are usually at the top a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree's canopy. • Nests located on man-made objects are not to be included as SWH (*e.g.,* telephone poles and constructed nesting platforms)	Studies confirm the use of these nests by: • One or more active Osprey or Bald Eagle nests in an area • Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the SWH. • For an Osprey, the active nest and a 300 m radius around the nest or the contiguous woodland stand is the SWH, maintaining undisturbed	**Not Present** Species not present

Significant Wildlife Habitat Type (7E)	Indicator Wildlife Species	Candidate SWH		Confirmed SWH	Evaluation
		Ecosites/ Habitat Description	Habitat Criteria and Information Sources	Defining Criteria	
development pressures and scarcity of habitat.)			INFORMATION SOURCES • NHIC compiles all known nesting sites for Bald Eagles in Ontario • MNRF values information (LIO/NRVIS) will list known nesting locations. Note: data from NRVIS is provided as a point and does not represent all the habitat • Nature Counts, Ontario Nest Records Scheme data. • OMNRF District. • Check the Ontario Breeding Bird Atlas or Rare Breeding Birds in Ontario for species documented • Reports and other information available from Conservation Authorities. • Field Naturalists clubs	shorelines with large trees within this area is important • For a Bald Eagle the active nest and a 400-800 m radius around the nest is the SWH. Area of the habitat from 400-800 m is dependent on sight lines from the nest to the development and inclusion of perching and foraging habitat • To be significant a site must be used annually. When found inactive, the site must be known to be inactive for > 3 years or suspected of not being used for >5 years before being considered not significant. • Observational studies to determine nest site use, perching sites and foraging areas need to be done from early March to mid-August. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" • SWH MIST Index #26 provides development effects and mitigation measures	
Woodland Raptor Nesting Habitat (Rationale: Nest sites for these species are rarely identified; these area sensitive habitats are often used annually by these species.)	Northern Goshawk Cooper's Hawk Sharp-shinned Hawk Red-shouldered Hawk Barred Owl Broad-winged Hawk	May be found in all forested ELC Ecosites. May also be found in SWC, SWM, SWD and CUP3.	• All natural or conifer plantation woodland/forest stands >30 ha with > 4 ha of interior habitat. Interior habitat determined with a 200 m buffer. • Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests, within tops or crotches of trees. Species such as Cooper's Hawk nest along forest edges sometimes on peninsulas or small off-shore islands. • In disturbed sites, nests may be used again, or a new nest will be near old nest INFORMATION SOURCES	Studies confirm: • Presence of one or more active nests from species list is considered significant • Red-shouldered Hawk and Northern Goshawk – A 400 m radius around the nest or 28 ha area of habitat is the SWH. The 28 ha habitat area would be applied where optimal habitat is irregularly shaped around the nest. • Barred Owl – A 200m radius around the nest is the SWH • Broad-winged Hawk and Coopers Hawk, – A 100m radius around the nest is the SWH • Sharp-Shinned Hawk – A 50m	**Not Present** Woodland is not >30 ha.

Significant Wildlife Habitat Type (7E)	Indicator Wildlife Species	Candidate SWH		Confirmed SWH	Evaluation
		Ecosites/ Habitat Description	Habitat Criteria and Information Sources	Defining Criteria	
			• OMNRF Districts. • Check the Ontario Breeding Bird Atlas or Rare Breeding Birds in Ontario for species documented. • Check data from Bird Studies Canada. • Reports and other information available from Conservation Authorities.	radius around the nest is the SWH • Conduct field investigations from early March to end of May. The use of call broadcasts can help in locating territorial (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search area. • SWH MIST Index #27 provides development effects and mitigation measures	
Turtle Nesting Habitat (Rationale: These habitats are rare and when identified will often be the only breeding site for local populations of turtles.)	Midland Painted Turtle SPECIAL CONCERN Northern Map Turtle Snapping Turtle	Exposed mineral soil (sand or gravel) areas adjacent (<100 m) or within the following ELC Ecosites: MAS1, MAS2, MAS3, SAS1, SAM1, SAF1, BOO1, FEO1	• Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, ~~raccoons~~raccoons, or other animals. • For an area to function as a turtle-nesting area, it must provide sand and gravel that turtles are able to dig in and is located in open, sunny areas. Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH. • Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes and rivers are most frequently used. INFORMATION SOURCES • Use Ontario Soil Survey reports and maps to help find suitable substrate for nesting turtles (well-drained sands and fine gravels). • Check the Ontario Herpetofaunal Summary Atlas records or other similar atlases for uncommon turtles; location information may help to find potential nesting habitat for them. • Natural Heritage Information Centre (NHIC). • Field naturalist clubs.	Studies confirm: • Presence of 5 or more nesting Midland Painted Turtles. • One or more Northern Map Turtles or Snapping Turtles nesting is a SWH. • The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30 to 100 m around the nesting area dependent on slope, riparian vegetation and adjacent land use is the SWH. • Travel routes from wetland to nesting area are to be considered within the SWH as part of the 30 to 100 m area of habitat. • Field investigations should be conducted in prime nesting season typically late spring to early summer. Observational studies observing the turtles nesting is a recommended method. • SWH MIST Index #28 provides development effects and mitigation measures for turtle nesting habitat.	**Not Present** Habitat not present. Turtle habitat not likely in the Study Area or in the vicinity

Significant Wildlife Habitat Type (7E)	Indicator Wildlife Species	Candidate SWH		Confirmed SWH	Evaluation
		Ecosites/ Habitat Description	Habitat Criteria and Information Sources	Defining Criteria	
Seeps and Springs (Rationale: Seeps/springs are typical of headwater areas and are often at the source of Coldwater streams.)	Wild Turkey Ruffed Grouse Spruce Grouse White-tailed Deer Salamanders	Seeps/springs are areas where groundwater comes to the surface. Often, they are found within headwater areas within forested habitats. Any forested Ecosite within the headwater areas of a stream could have seeps/springs.	• Any forested area (with <25% meadow/field/ pasture) within the headwaters of a stream or river system • Seeps and springs are important feeding and drinking areas. Especially in the winter will support a variety of plant and animal species. INFORMATION SOURCES • Topographical Map. • Thermography. • Hydrological surveys conducted by Conservation Authorities and MOECC. • Field Naturalists Clubs and landowners. • Municipalities and Conservation Authorities may have drainage maps and headwater areas mapped	Field studies confirm: • Presence of a site with 2 or more seeps/springs should be considered SWH. • The area of an ELC forest ecosite or an Eco element within ecosite containing the seeps/springs is the SWH. The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation the habitat • SWH MIST Index #30 provides development effects and mitigation measures	**Not Present** One seep documented but not two. Not in the headwaters of a stream or river.
Amphibian Breeding Habitat: Woodland (Rationale: These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations.)	Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog	All Ecosites associated with these ELC Community Series: FOC, FOM, FOD, SWC, SWM, SWD Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians.	• Presence of a wetland, pond or woodland pool (including vernal pools) >500 m2 (about 25 m diameter) within or adjacent (within 120 m) to a woodland (no minimum size). Some small wetlands may not be mapped and may be important breeding pools for amphibians. • Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat. INFORMATION SOURCES • Ontario Herpetofaunal Summary Atlas (or other similar atlases) for records • Local landowners may also provide assistance as they may hear spring-time choruses of amphibians on their property. • OMNRF Districts and wetland evaluations	Studies confirm: • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog species with at least 20 individuals (adults or egg masses) or 2 or more of the listed frog species with Call Level Codes of 3. • A combination of observational study and call count surveys will be required during the spring (Mar.-Jun.) when amphibians are concentrated around suitable breeding habitat within or near the woodland/wetlands • The habitat is the wetland area plus a 230m radius of woodland area. If a wetland area is adjacent to a woodland, a travel corridor connecting the wetland to the woodland is to be included in the habitat.	**Not Present** The one seep found in the Study Area is not large enough to support this habitat.

Significant Wildlife Habitat Type (7E)	Indicator Wildlife Species	Candidate SWH		Confirmed SWH	Evaluation
		Ecosites/ Habitat Description	Habitat Criteria and Information Sources	Defining Criteria	
			• Field Naturalist clubs • Canadian Wildlife Service Amphibian Road Call Survey • Ontario Vernal Pool Association: http://www.ontariovernalpools.org	• SWH MIST Index #14 provides development effects and mitigation measures	
Amphibian Breeding Habitat: Wetland (Rationale: Wetlands supporting breeding for these amphibian species are extremely important and rare within central Ontario landscapes.)	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	ELC Community Classes SW, MA, FE, BO, OA and SA. Typically these wetland ecosites will be isolated (>120 m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (*e.g.,* Bullfrog) may be adjacent to woodlands.	• Wetlands >500m2 (about 25m diameter), supporting high species diversity are significant; some small or ephemeral habitats may not be identified on MNRF mapping and could be important amphibian breeding habitats • Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators • Bullfrogs require permanent water bodies with abundant emergent vegetation. INFORMATION SOURCES • Ontario Herpetofaunal Summary Atlas (or other similar atlases) • Canadian Wildlife Service Amphibian Road Surveys and Backyard Amphibian Call Count. • OMNRF Districts and wetland evaluations. • Reports and other information available from Conservation Authorities	Studies confirm: • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog/toad species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog/toad species with Call Level Codes of 3 or; Wetland with confirmed breeding Bullfrogs are significant • The ELC ecosite wetland area and the shoreline are the SWH • A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the wetlands. • If a SWH is determined for Amphibian Breeding Habitat (Wetlands) then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • SWH MIST Index #15 provides development effects and mitigation measures.	**Not Present** Indicator species documented in other sources, but wetland habitat is not present
Woodland Area-Sensitive Bird Breeding Habitat (Rationale: Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are	Yellow-bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler Ovenbird	All Ecosites associated with these ELC Community Series: FOC, FOM, FOD, SWC, SWM, SWD	CRITERIA • Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs. old) forest stands or woodlots >30 ha • Interior forest habitat is at least 200 m from forest edge habitat INFORMATION SOURCES	Studies confirm: • Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. • Note: any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH • Conduct field investigations in spring and early summer when	**Not Present** Breeding bird surveys eliminated the possibility of this habitat occurring in the Project Location. Interior woodland habitat of >30 ha not present.

Significant Wildlife Habitat Type (7E)	Indicator Wildlife Species	Candidate SWH		Confirmed SWH	Evaluation
		Ecosites/ Habitat Description	Habitat Criteria and Information Sources	Defining Criteria	
important habitats for area sensitive interior forest songbirds.)	Scarlet Tanager Winter Wren SPECIAL CONCERN Cerulean Warbler Canada Warbler		• Local birder clubs. • Canadian Wildlife Service (CWS) for the location of forest bird monitoring. • Bird Studies Canada conducted a 3-year study of 287 woodlands to determine the effects of forest fragmentation on forest birds and to determine what forests were of greatest value to interior species • Reports and other information available from Conservation Authorities.	birds are singing and defending their territories • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" • SWH MIST Index #34 provides development effects and mitigation measures	
Habitats of Species of Conservation Concern					
Marsh Bird Breeding Habitat (Rationale: Wetlands for these bird species are typically productive and rare in Southern Ontario landscapes.)	American Bittern Virginia Rail Sora Common Moorhen American Coot Pied-billed Grebe Marsh Wren Sedge Wren Common Loon Green Heron Trumpeter Swan SPECIAL CONCERN Black Tern Yellow Rail	MAM1, MAM2, MAM3, MAM4, MAM5, MAM6, SAS1, SAM1, SAF1, FEO1, BOO1 For Green Heron: all SW, MA and CUM1 sites	• Nesting occurs in wetlands. • All wetland habitat is to be considered if there is shallow water with emergent aquatic vegetation present • For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently, it may be found in upland shrubs or forest a considerable distance from water INFORMATION SOURCES • OMNRF District and wetland evaluations. • Field Naturalist clubs • Natural Heritage Information Centre (NHIC) Records. • Reports and other information available from Conservation Authorities • Ontario Breeding Bird Atlas	Studies confirm: • Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or breeding by any combination of 4 or more of the listed species • Note: any wetland with breeding of 1 or more Black Terns, Trumpeter Swan, Green Heron or Yellow Rail is SWH • Area of the ELC ecosite is the SWH. • Breeding surveys should be done in May/June when these species are actively nesting in wetland habitats. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" • SWH MIST Index #35 provides development effects and mitigation measures	**Not Present** ELC surveys eliminated the possibility of this habitat occurring in the Project Location. Breeding bird surveys did not identify any of the indicator species.
Open Country Bird Breeding Habitat (Rationale: This wildlife habitat is declining throughout Ontario and North	Upland Sandpiper Grasshopper Sparrow Vesper Sparrow Northern Harrier Savannah Sparrow	CUM1, CUM2	• Large grassland areas (includes natural and cultural fields and meadows) >30 ha • Grasslands not Class 1 or 2 agricultural lands, and not being actively used for farming (*i.e.,* no row	Field studies confirm: • Presence of nesting or breeding of 2 or more of the listed species • A field with 1 or more breeding Short-eared Owls is to be considered SWH	**Not Present** ELC surveys eliminated the possibility of this habitat occurring in the Project Location, no large open country habitat in the Study Area.

Significant Wildlife Habitat Type (7E)	Indicator Wildlife Species	Candidate SWH		Confirmed SWH	Evaluation
		Ecosites/ Habitat Description	Habitat Criteria and Information Sources	Defining Criteria	
America. Species such as the Upland Sandpiper have declined significantly the past 40 years based on CWS (2004) trend records.)	SPECIAL CONCERN Short-eared Owl		cropping or intensive hay or livestock pasturing in the last 5 years) • Grassland sites considered significant should have a history of longevity, either abandoned fields, mature hayfields and pasturelands that are at least 5 years or older. • The Indicator bird species are area sensitive requiring larger grassland areas than the common grassland species INFORMATION SOURCES • Agricultural land classification maps, Ministry of Agriculture. • Local bird clubs. • Ontario Breeding Bird Atlas • EIS Reports and other information available from Conservation Authorities	• The area of SWH is the contiguous ELC ecosite field areas • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" • SWH MIST Index #32 provides development effects and mitigation measures	
Shrub / Early Successional Breeding Bird habitat (Rationale: This wildlife habitat is declining throughout Ontario and North America. The Brown Thrasher has declined significantly over the past 40 years based on CWS (2004) trend records.)	INDICATOR SPECIES Brown Thrasher Clay-coloured Sparrow COMMON SPECIES Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher SPECIAL CONCERN Yellow-breasted Chat Golden-winged Warbler	CUT1, CUT2, CUS1, CUS2, CUW1, CUW2 Patches of shrub ecosites can be complexed into a larger habitat for some bird species	• Large field areas succeeding to shrub and thicket habitats >10 ha in size • Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (*i.e.,* no row-cropping, haying or live-stock pasturing in the last 5 years) • Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species • Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands INFORMATION SOURCES • Agricultural land classification maps, Ministry of Agriculture. • Local bird clubs. • Ontario Breeding Bird Atlas • Reports and other information	Field studies confirm: • Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species • A habitat with breeding Yellow-breasted Chat or Golden-winged Warbler is to be considered as Significant Wildlife Habitat • The area of the SWH is the contiguous ELC ecosite field/thicket area. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" • SWH MIST Index #33 provides development effects and mitigation measures	**Not Present** ELC surveys eliminated the possibility of this habitat occurring in the Project Location, no large shrub/ early successional breeding habitat in the Study Area

Significant Wildlife Habitat Type (7E)	Indicator Wildlife Species	Candidate SWH		Confirmed SWH	Evaluation
		Ecosites/ Habitat Description	Habitat Criteria and Information Sources	Defining Criteria	
			available from Conservation Authorities		
Terrestrial Crayfish Habitat (Rationale: Terrestrial Crayfish are only found within SW Ontario in Canada and their habitats are very rare.)	Chimney or Digger Crayfish Devil Crayfish or Meadow Crayfish	MAM1, MAM2, MAM3, MAM4, MAM5, MAM6, MAS1, MAS2, MAS3, SWD, SWT, SWM CUM1 with inclusions of above meadow marsh ecosites can be used by terrestrial crayfish	• Wet meadow and edges of shallow marshes (no minimum size) should be surveyed for terrestrial crayfish • Constructs burrows in marshes, mudflats, meadows, the ground can't be too moist. Can often be found far from water • Both species are a semi-terrestrial burrower which spends most of its life within burrows consisting of a network of tunnels. Usually, the soil is not too moist so that the tunnel is well-formed. INFORMATION SOURCES • Information sources from "Conservation Status of Freshwater Crayfishes" by Dr. Premek Hamr for the WWF and CNF, March, 1998	Studies confirm: • Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable meadow marsh, swamp or moist terrestrial sites • Area of ELC ecosite or an Eco element area of meadow marsh or swamp within the larger ecosite area is the SWH • Surveys should be done April to August in temporary or permanent water. Note the presence of burrows or chimneys are often the only indicator of presence, observance or collection of individuals is very difficult • SWH MIST Index #36 provides development effects and mitigation measures	**Not Present** Chimneys not present during field investigations.
Special Concern and Rare Wildlife Species (Rationale: These species are quite rare or have experienced significant population declines in Ontario.)	All Special Concern and Provincially Rare (S1, S2, S3, SH) plant and animal species. Lists of these species are tracked by the NHIC	All plant and animal element occurrences (EOs) within a 1 km or 10 km grid. Older EOs were recorded prior to GPS being available, therefore location information may lack accuracy.	• When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or provincially Rare species; linking candidate habitat on the site needs to be completed to ELC Ecosites INFORMATION SOURCES • Natural Heritage Information Centre (NHIC) will have Special Concern and Provincially Rare (S1-S3, SH) species lists with element occurrences data. • NHIC Website "Get Information": http://nhic.mnr.gov.on.ca • Ontario Breeding Bird Atlas • Expert advice should be sought as many of the rare spp. Have little information available about their requirements	Studies confirm: • Assessment/inventory of the site for the identified special concern or rare species needs to be completed during the time of year when the species is present or easily identifiable. • The area of the habitat to the finest ELC scale that protects the habitat form and function is the SWH, this must be delineated through detailed field studies. The habitat needs be easily mapped and cover an important life stage component for a species *e.g.*, specific nesting habitat or foraging habitat. • SWH MIST Index #37 provides development effects and mitigation measures	**Confirmed** Three species of Special Concern: Monarch, Barn Swallow, and Eastern Wood-pewee were documented in Study area.

Significant Wildlife Habitat Type (7E)	Indicator Wildlife Species	Candidate SWH		Confirmed SWH	Evaluation
		Ecosites/ Habitat Description	Habitat Criteria and Information Sources	Defining Criteria	
Animal Movement Corridors					
Amphibian Movement Corridors (Rationale: Movement corridors for amphibians moving from their terrestrial habitat to breeding habitat can be extremely important for local populations.)	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	Corridors may be found in all ecosites associated with water. Corridors will be determined based on identifying the significant breeding habitat for these species in Table 1.1	• Movement corridors between breeding habitat and summer habitat • Movement corridors must be determined when amphibian breeding habitat is confirmed as SWH (Amphibian Breeding Habitat, Wetland) INFORMATION SOURCES • MNRF District Office. • Natural Heritage Information Centre (NHIC). • Reports and other information available from Conservation Authorities. • Field Naturalist Clubs	• Field Studies must be conducted at the time of year when species are expected to be migrating or entering breeding sites • Corridors should consist of native vegetation, with several layers of vegetation. Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant • Corridors should have at least 15m of vegetation on both sides of waterway or be up to 200m wide of woodland habitat and with gaps <20m • Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat • SWH MIST Index #40 provides development effects and mitigation measures	Only delineated when breeding habitat is confirmed.

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