APPENDIX B

Natural Environment Report

CITY OF TORONTO

Southwest Agincourt Transportation Connections Study Environmental Assessment

Natural Environment Existing Conditions and Impact Assessment Report

March 2023

wsp

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CITY OF TORONTO

PROJECT NO.: 19M-01888-00
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1 Introduction

The City of Toronto has retained WSP to undertake the Southwest Agincourt Transportation Connections Study (Herein referred to as the SW Agincourt EA) following the Municipal Class Environmental Assessment process for Schedule 'C'. The purpose of this study is to identify improvements to enhance connectivity for all modes of transportation from Village Green Square (south of the Canadian Pacific Railway corridor), Cowdray Court and Collingwood Street to Sheppard Avenue East (in the vicinity of Reidmount Avenue and the Agincourt GO Station). A map of the study area can be found in **Appendix A; Figure 1**.

The number of people living and working in this area has grown and will continue to grow as a result of planned development. As the number of people using the transportation system increases, transportation infrastructure improvements will be needed to ensure that people can drive, walk, and cycle to destinations safely and efficiently.

The study Focus Area is bound by Kennedy Road to the west, Dowry Street to the north, the Stouffville GO Train Line to the east, and Village Green Square to the south.

The study objectives are as follows:

— Provide high-quality transportation infrastructure that addresses the needs of this growing area;

— Improve street network connectivity to key destinations, particularly the Agincourt GO station, Collingwood Park and schools; and

— Improve the safety of people walking, cycling, taking public transit, and driving.

The surveys documented below describe the characteristics of the natural and culturally influenced vegetation communities, with a focus on the natural features of the Natural Heritage System (NHS), which included the riparian corridor of West Highland Creek and the railway corridor. Designated natural areas are shown in **Appendix A; Figure 2** and existing condition features (both aquatic and terrestrial) are shown in **Appendix A; Figure 3**.

2 Background Information and Survey Approach

Background information sources were reviewed to develop an understanding of the general character of the natural features in the study area, identify potential constraints and sensitivities, and assess the general connectivity to natural features within the surrounding landscape. Areas accessible included the railway corridor, West Highland Creek, Collingwood Park and a large cleared green space east of Cowdray Court. Areas with no permission to enter (PTE) included residential homes, apartment complexes and industry complexes, which contained little to no vegetation or habitat based on the review of aerial imagery from Google Earth.

Background natural environment information collection included the following sources:

- Topographic mapping and Google satellite mapping (over the timeframe of 2002 to 2019);
- A request for information was sent to the Aurora District Ministry of Natural Resources and Forestry (MNRF), Ministry of Conservation and Parks (MECP) and Toronto Region Conservation Authority (TRCA) on January 20 and 21, 2020 (**Appendix B**). The request was to gather and confirm existing natural environment information in the vicinity of the study area, including information concerning the presence or potential for species at risk (SAR) and species of conservation concern (SCC) to be present within the study area.
  - A response was received from the TRCA on January 22, 2020, indicating land use and natural cover layers will be provided by the TRCA GIS team, which were received in February 2020.
  - A response from MECP was received on January 21, 2020, indicating that if trees or buildings are to be removed, bats should also be considered.
  - No response has been received by MNRF.
- MNRF's Natural Heritage Information Centre (NHIC) database (NHIC website 2019) revealed records for American Beetle (EXP, last observed 1896), and Barn Swallow (THR, last observed 2015);
- MNRF Regional SAR lists (MNRF website 2019);
- Ontario Breeding Bird Atlas (OBBA, Bird Studies Canada Website 2016);
- Ebird (website, 2020);
- iNaturalist (website 2020);
- Ontario Reptile and Amphibian Atlas (ORAA, Ontario Nature 2018); and,
- Fisheries and Oceans Canada (DFO) Distribution of Fish SAR mapping (DFO website 2020).

2.1 Aquatic Survey Approach

An aquatic survey was conducted by WSP, as property access permitted, on May 25, 2020, for West Highland Creek. Fish community sampling was not undertaken as background information from

agencies was deemed sufficient. Habitat surveys were conducted throughout the entire reach of the study area. Information collected included the following aquatic habitat parameters:

- Channel dimensions, general gradient and profile, bank character (e.g. height and erosion);
- General flow characteristics (permanent, intermittent, dry, pooling) including evidence of groundwater discharge;
- General morphology (flats, pools, riffles);
- Substrates;
- Instream / overhead cover opportunities (e.g. woody debris, undercut banks, boulders, vegetation);
- Riparian vegetation;
- Physical barriers to fish movement;
- Identification of potential critical or specialized habitat areas or features (e.g. potential spawning areas, nursery cover);
- Observations of habitat alterations / land use (e.g. channel modification, potential pollutant point sources); and,
- Potential habitat enhancement opportunities.

In addition to the parameters documented in habitat mapping and data sheets, photographs were taken and are available in **Appendix A; Figure 4**.

2.2 Vegetation Survey Approach

The vegetation field investigation was conducted by WSP on May 25, 2020. This survey documented the characteristics of the natural and culturally influenced vegetation communities, with a focus on the natural features within the Natural Heritage System (NHS), which included the riparian corridor of West Highland Creek and the railway corridor. Street trees and planted landscape features were not assessed during the natural environment field investigation as a separate tree inventory was completed and the results of the tree inventory are documented under separate cover in an Arborist Report (WSP, 2022).

Vegetation field investigation and associated data assessment involved:

- Botanical inventory and analysis, including preparation of a vascular plant species list (**Appendix C**);
- Classifying and mapping vegetation communities according to the Ecological Land Classification (ELC) System for Southern Ontario (Lee et. al., 1998);
- Evaluating the sensitivity and significance of vegetation species and vegetation communities using the MNRF's NHIC database and SAR websites (updated periodically), the TRCA L Ranks (TRCA, 2019), the rare species list from The Distribution and Status of the Vascular Plants of the Greater Toronto Area (Varga et al. 2000), and the Natural Heritage Resources of Ontario: Vegetation Communities of Southern Ontario (Bakowsky 1996);

- Analysis of floristics of all inventoried plant species to determine their Coefficient of Conservatism (CC)[1];
- Evaluating habitat potential for vegetation SCC, and in particular, SAR known or thought to exist in the general vicinity of the study area; and,
- Noting general vegetation characteristics including age, general habitat features drainage conditions, as well as any anthropogenic disturbance.

All terrestrial natural areas within the NHS were documented and photographs were taken during field investigations and are available in **Appendix A**.

2.3 Wildlife Survey Approach

The wildlife field investigation was conducted by WSP on May 25, 2020. All wildlife observed are listed in **Appendix D**. Given the urban nature of the site and lack of significant breeding sites (e.g. grasslands or forest for breeding birds, wetlands for amphibians) field surveys were general and did not include targeted surveys such as the Breeding Bird Survey and Marsh Monitoring Program. Wildlife field investigation and associated data assessment involved:

- Recording all direct wildlife observations and wildlife signs (including browse, track/trails, animal scat, bird nesting activity, tree cavities, burrows, excavated holes and vocalizations) and identifying potential wildlife usage and habitat functions associated with vegetation communities;
- SAR wildlife habitat assessment for species with the potential to occur in the study area according to background review and evaluated using a SAR Screening Table (**Appendix E**); and,
- A general SAR bat habitat / cavity tree survey was conducted. Trees were examined from multiple vantage points using binoculars to visually inspect potential cavities. When a tree with one or more suitable cavities was found, photos were taken and the following information was recorded[2]:
  - UTM coordinates
  - Tree species
  - Diameter at Breast Height (DBH)
  - Decay class (Watt and Caceres, 1999; Classes 1-3 are preferred)
  - Relative tree height (meters above/below average surrounding tree heights; visually estimated)
  - Open areas in the surrounding canopy (visually estimated %)
  - Cavity descriptions (number, height above ground, size)

[1] Coefficient of Conservatism: Rank of 0 to 10 based on plants degree of fidelity to a range of synecological parameters: (0-3) Taxa found in a variety of plant communities; (4-6) Taxa typically associated with a specific plant community but tolerate moderate disturbance; (7-8) Taxa associated with a plant community in an advanced successional stage that has undergone minor disturbance; (9-10) Taxa with a high fidelity to a narrow range of synecological parameters (Oldham et al., 1995).

[2] These characteristics are important in determining the suitability of potential bat roosting / maternity colony habitat (MNRF 2017).

3 Existing Conditions

3.1 Overview

The following sections describe the existing natural environment features. Designated natural areas are shown in **Appendix A; Figure 2** and existing condition features (both aquatic and terrestrial) are shown in **Appendix A; Figure 3**.

3.2 Environmental Designations

The majority of the study area is comprised of dense residential/business/industrial land uses. There are very few designated natural areas within the study area associated with environmental policy designations. Natural features observed through background review and field investigations were confined to the West Highland Creek watercourse and the treed area surrounding the railway corridor. A summary of identified natural area designations is provided below:

- **Natural Heritage System** – The City of Toronto Official Plan, Land Use Plan (Map 19), 2019 and the Interactive Toronto Map v2 (2020) classifies West Highland Creek as part of an NHS. The NHS is composed of Natural Areas (i.e. greenspace along the watercourse), parklands (i.e. Collingwood Park), and a key hydrologic feature (i.e. the permanent corridor of West Highland Creek). The municipal policies require that these features form and functions be protected, and where possible, enhanced. The purpose of the NHS policies is to maintain and enhance an interconnected system of natural open space and linkages that will preserve these areas of significant ecological value (e.g. wildlife habitat, eco-corridors, flood reduction areas).
- **Conservation Authorities Act (1990)** – Portions of the lands in the study area are partially regulated by the TRCA under Ontario Regulation 166/06 – *Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses*. For the study area, the regulation applies to the watercourse plus a defined buffer. To ensure that development has regard for natural hazard features and the natural environment while conforming to watershed development policies, the TRCA is authorized under *Section 28* of the Conservation Authorities Act to implement and enforce their regulation. Under the regulation, no person shall undertake development or permit another person to undertake development in, or on, the areas within the jurisdiction of a Conservation Authority. A permit to undertake development within the regulated area may be granted by the governing Conservation Authority.
- **Fisheries Act (Fisheries and Oceans Canada, 1985) –** The federal Fisheries Act (FA) is under the jurisdiction of Fisheries and Oceans Canada (DFO). Its focus is to protect fish and fish habitat. The provisions of the FA are to provide protection for all fish and fish habitats; prohibit 'harmful alteration, disruption or destruction of fish habitat' (HADD); and prohibit activities, other than fishing, that cause 'the death of fish'. All work taking place near or in water should be assessed for compliance with the FA. Any works that may cause the death of fish or a HADD to fish habitat must be reviewed by DFO through submission of a Request for Review to determine the need for an Authorization under the FA.
- **Endangered Species Act (ESA) (MNRF, 2007) –** SAR definitions are discussed in Section 3.6 below. All species listed as SAR under the ESA (2007) have protection from being killed, harmed, or harassed. Species listed as Endangered or Threatened also have habitat protection. This

habitat protection is either regulated or general and is determined by COSSARO on a species-by-species basis and is published by the MECP in regulations tied to the ESA.

3.3 Fisheries and Aquatic Habitat

West Highland Creek is a southerly flowing warmwater and permanent watercourse that originates in L'Amoreaux North Park, northwest of Kennedy Road and McNicoll Avenue. It is regulated by TRCA. The creek flows through commercial and residential areas for approximately 5 km before reaching the study area. Within the study area, the watercourse flows primarily through a straightened concrete-lined channel. Sections of the banks have soil and vegetation that is slumping down the concrete-lined banks. The concrete-lined banks have a mean height of 3.5 m, the slopes of the banks are steep, and the riparian vegetation consists of grasses, shrubs and forbs.

The aquatic habitat consists of flats (90%) and riffles (10%). Flat sections had a mean wetted width of 6.5 m, a mean wetted depth of 0.3 m at the time of the survey and a mean bankfull width of 9.5 m and a mean bankfull depth of 1.0 m. The substrate consists of concrete (50%), cobble (25%) and gravel (25%). Riffle sections had a mean wetted width of 5.0 m, a mean wetted depth of 0.1 m at the time of the survey and a mean bankfull width of 9.0 m and a mean bankfull depth of 0.5 m. The substrate consists of gravel (60%), cobble (30%) and silt (10%). Instream cover consists of overhanging vegetation (15%) and rocks / boulders (10%).

Within the study area, the watercourse is conveyed under three bridges and a culvert crossing: a bridge crossing at Sheppard Avenue, a pedestrian bridge crossing (located off Collingwood Street), the Canadian Pacific (CP) Rail bridge over a twin box culvert (each with a 5.5 m span and 3.5 height) conveying water under the Stouffville GO Train Line. Numerous drain outlets flow into the watercourse, contributing runoff water.

There is a 0.4 m drop (created by a concrete lip) located downstream of the rail corridor, which likely is a low flow fish barrier to fish movement upstream. However, fish were observed throughout the assessed reach. Approximately 15 m upstream of the barrier, there is a concrete-lined channel discharging into West Highland Creek. Its outlet has a drop of 1.2 m into the watercourse, creating a permanent barrier for fish passage into the channel. This channel is approximately 50 m in length and appears to convey flow through underground storm sewers. West Highland Creek continues to flow through residential and commercial areas for approximately 10.5 km before outletting into the main Highland Creek.

3.3.1 Fish Community

As discussed in **Section 1.2.1**, no fish sampling was conducted by WSP. The fish community information presented below in **Table 1** is a summary of species compiled from the TRCA Open Information and Data portal between 2021 to 2022.

Table 1: Fish Species Identified in West Highland Creek

Common Name	Scientific Name	Location
Blacknose Dace	*Rhinichthys atratulus*	2300 m downstream of study area
Bluntnose Minnow	*Pimephales notatus*	150 m upstream of study area
Brook Stickleback	*Culaea inconstans*	400 m upstream of study area
Common Shiner	*Luxilus cornutus*	1700 m upstream of study area
Creek Chub	*Semotilus atromaculatus*	2300 m downstream of study area
Fathead Minnow	*Pimephales promelas*	Within study area
Goldfish	*Carassius auratus*	150 m upstream of study area
Longnose Dace	*Rhinichthys cataractae*	2300 m downstream of study area
White Sucker	*Catostomus commersonii*	2300 m downstream of study area

The fish species identified are associated with cool and warmwater thermal regimes and are tolerant generalist species. Minnows were visually observed throughout the reach assessed.

3.4 Vegetation and Flora

The vegetation of the study area can be characterized broadly into three types of communities: disturbed vegetation communities that are associated with cleared lands for apartment complex development and railway maintenance, and which contain several exotic / introduced / invasive species; residential and parkland communities that are composed of mainly introduced/cultivar species; and small riparian communities that are confined along West Highland Creek. Details of the vegetation species and communities in the study area are presented in the following sections and detailed in **Appendix A; Figure 3**.

3.4.1 Flora Overview

A list of vascular plant species recorded during WSP surveys is provided in **Appendix C**. Based on the data collected, a total of 118 plant species have been identified within the study area. An additional 10 records were identified to genus only. A smaller number and low diversity of species were expected given the disturbed nature of the site.

Of the 118 species recorded by WSP, 60 (51%) are native, and 58 (49%) are non-native. Many of the non-native species are typical of old fields and disturbed areas. Plant species of conservation concern identified during the survey are reviewed below.

- **Kentucky Coffee-tree (*Gymnocladus dioicus*) (planted)** - This species is designated as Threatened only in the following geographic areas of Ontario: Counties of Essex, Elgin, Lambton, Middlesex, Norfolk and Oxford and in the Municipality of Chatham-Kent. Outside these areas, the tree is assumed to be planted, thus considered non-native stock, and is not subject to the policies and regulations of the ESA. This species was observed on residential private properties, within the City's ROW along Kennedy Road, and Collingwood Park.
- **Black Ash (*Fraxinus nigra*)** – Endangered species under ESA - was observed in Section A (north section) within the naturalized area adjacent to West Highland Creek (Refer to **Section 3.6.2**). Protection of this species will come into effect in January 2024.

For this assessment, regionally rare species are considered rare if they are classified with an R-value under The Distribution and Status of the Vascular Plants of the Greater Toronto Area (Varga et al., 2000) or an L3 or lower classification under TRCA L Ranks (TRCA, 2019). The following regionally rare species were observed in the study area:

- **Eastern Red Cedar (*Juniperus virginiana*)** - (R1) (Varga et al., 2000) - This species was found in low abundance in the disturbed sites of the study area. It is often considered an escape landscape species in residential areas, and therefore, it should not be taken into consideration for habitat preservation for this assessment.
- **Sycamore (*Platanus occidentalis*)** - (R2) (Varga et al, 2000) and (L2) (TRCA, 2019) - This specie was found planted in Collingwood Park (not naturally occurring) and should not be taken into consideration for habitat preservation for this assessment.
- **White Spruce (*Picea glauca*)** - (L3) (TRCA, 2019) - This specie was found planted along the berms of Kennedy Road, north of the railway corridor, and should not be taken into consideration for habitat preservation for this assessment.

No other regionally rare species were observed in the study area. The remainder of the native species have a provincial ranking of S4 or S5 [apparently secure (S4) or secure (S5) in Ontario] and are not listed under the ESA.

A CC rank (0 to 10) is defined by how closely associated a species is with a specific (typically natural) habitat. A high CC means that the species in question is more closely tied to a specific habitat, while species with a low CC can adapt to multiple habitats, including altered or disturbed habitats. The following species observed in the study area have a CC value of 8: Common Hackberry (*Celtis occidentalis*), Honey Locust (*Gleditsia triacanthos*), Sycamore and Tulip Tree (*Liriodendron tulipifera*). However, these species were found planted in Collingwood Park (not naturally occurring) and their CC value should not be taken into consideration for habitat preservation for this assessment.

3.4.2 Vegetation Communities Overview

Vegetation community types as classified by the ELC system were delineated within the study area as shown in **Appendix A; Figure 3**. Due to their small size vegetation communities listed below as "inclusions" were not mapped in **Appendix A; Figures 3.** No vegetation types observed are provincially rare (Bakowsky, 1996 / NHIC).

A description of these vegetation communities is provided below.

CUM1-1 – Dry-Moist Old Field Meadow Type

Old Field Meadow habitat occurred within unmaintained and non-treed edges of industry complexes, the railway corridor and as a large cleared section east of Cowdray Court. The large cleared section contained remnants of asphalt parking areas and building footings and is the proposed site for a future apartment complex and park. The vegetation is comprised of early successional, disturbance-tolerant species. This community included a dense layer of herbaceous ground vegetation composed of: Canada Bluegrass (*Poa compressa*), Awnless Brome (*Bromus inermis ssp. inermis*), Canada Goldenrod (*Solidago canadensis*), Tall Goldenrod (*Solidago altissima*), Common Milkweed (*Asclepias syriaca*), Dog-Strangling Vine (*Cynanchum rossicum*), Common Dandelion (*Taraxacum officinale*), Queen Anne's Lace (*Daucus carota*), Evening Primrose *(Oenothera biennis*), New England Aster (*Symphyotrichum novae-angliae*), Panicled Aster (*Symphyotrichum lanceolatum*), Kentucky Bluegrass (*Poa pratensis ssp. pratensis*), Annual Ragweed (*Ambrosia artemisiifolia*), Garlic Mustard (*Alliaria petiolata*), Lesser Burdock (*Arctium minus*) and Chicory (*Cichorium intybus*). A few shrubs were present including honeysuckle (*Lonicera spp.*), Eastern Red Cedar and Chokecherry (*Prunus virginiana*).

Common Reed Mineral Marsh Type MAMM1-12 (Inclusion)

In the center of the large cleared area (described above), there was a small drainage ditch composed of Common Reed (*Phragmites australis*), Narrow-leaved Cattail (*Typha angustifolia*), Reed Canary Grass (*Phalaris arundinacea*), shrubby willows (*Salix sp.*) and Red-osier Dogwood (*Cornus sericea*).

CUW1 – Mineral Cultural Woodland Ecosite

Mineral Cultural Woodlands were located along the railway corridor and as small manicured clusters within Collingwood Park. They were typically characterized by a variety of both native and non-native canopy trees, including: Manitoba Maple (*Acer negundo*), Black Walnut (*Juglans nigra*), Basswood (*Tilia americana*), Siberian Elm (*Ulmus pumila*), Common Apple (*Malus pumila*), and White Ash (*Fraxinus americana*) exhibiting damage from Emerald Ash Borer (*Agrilus planipennis*). The understory was dominated by Common Buckthorn (*Rhamnus cathartica*) and honeysuckle, with infrequent Riverbank Grape (*Vitis riparia*). Mature Eastern Cottonwood (*Populus deltoides*) were also observed on the northwest side of the railway corridor and Kennedy Road. Garbage, dumping, and remnants of old transient shelters and fire pits were common in these communities.

CUW1 Park Cluster (Inclusion)

The park CUW1 clusters consisted of a dominant layer of Russian Olive (*Elaeagnus angustifolia*), honeysuckle, Chokecherry, Austrian Pine (*Pinus nigra*) and a few serviceberries (*Amelanchier spp.*). The groundcover consisted of Garlic Mustard, Dog-strangling Vine, and Virginia Strawberry (*Fragaria virginiana ssp virginiana*). These units are typically young to mid-aged, with low botanical quality, with canopy gaps and garbage/dumping found beneath the canopy.

CUW1 Wet Depression (Inclusion)

A small drainage swale at the bottom of the embankment on the south side of the railway corridor was observed to hold intermittent standing water. This area consisted of a middle-aged (~25 cm DBH) growth of Trembling Aspen (*Populus tremuloides*) and Manitoba Maple. The understory consisted of Common Reed and Field Horsetail (*Equisetum arvense*).

FOD7– Fresh – Lowland Deciduous Forest Type

This treed community is a large unit that forms the riparian cover along West Highland Creek. It is generally situated slightly upland above the creek's cement embankments/channel. The canopy cover

was a mix abundance of White Willow (Salix alba), Hybrid White-Weeping Willow (*Salix x fragilis*), Siberian Elm, Manitoba Maple, Green Ash (*Fraxinus pennsylvanica*) and Freemans Maple (*Acer x freemanii*). The understory was dominated by the thick growth of Common Buckthorn and honeysuckle. The groundcover consists of a patchy growth of shade-intolerant upland species, as well as water-tolerant species, including Canada Bluegrass, Garlic Mustard, Reed Cary Grass, Wild Mustard (*Sinapis arvensis*), Cleavers (*Galium aparine*), Canada Goldenrod, Tall Goldenrod and forget-me-not (*Myosotis spp.*). Trials, garbage and erosion were present throughout this community.

The vegetation ran adjacent to the channel throughout the study area, except for a small section north of Sheppard Avenue. Here the channel walls became vertical for 90 m with no supporting vegetation features. This vertical channel was followed by a natural stream bed and naturalized embankments consisting of a mixture of FOD7 and lawn.

Lawn (inclusion)

A thin (5 m wide) FOD7 community was present along the watercourse banks, followed by mowed lawns to the apartment complexes north of Sheppard Avenue. The addition of buffer plantings in this location may be beneficial to re-naturalize the mowed embankments.

MAS2-9 – Forb Mineral Shallow Marsh Type (Inclusion)

This community type was observed within the center of the water channel and periodically along the banks of West Highland Creek where deposition of soil/silt accumulated creating small vegetation islands. Vegetation consisted of a mix of water-tolerant species including Narrow-leaved Cattail, Broad-leaved Cattail (*Typha latifolia*), Reed Canary Grass, Spotted Jewelweed (*Impatiens capensis*), Square-stemmed Monkey Flower (*Mimulus ringens*), Soft-stem Bulrush (*Schoenoplectus tabernaemontani*), and Purple Loosestrife (*Lythrum salicaria*). The location and composition of these communities are expected to periodically change with heavy rainfall causing flooding and high-water flow through the artificial channel, thereby uprooting these islands.

Planted Area

A planted area was observed along the east and west embankments of Kennedy Road, north of the CP railway corridor. This area consisted of young, planted Trembling Aspen, White Pine (*Pinus strobus*), Staghorn Sumac (*Rhus typhina*), White Spruce (*Picea glauca*), White Ash, Black Walnut and a few older and introduced Siberian Elms. The understory consisted of CUM1-1 species.

Park Land

Collingwood Park is located in the center of the study area. The vegetation consisted of landscaped lawn, a few clusters of CUW1 and young planted trees. Planted cultivar trees including Common Hackberry, Kentucky Coffee Tree, Sycamore, Red Maple (*Acer rubrum*), Tulip Tree, Sweet Gum (*Liquidambar styraciflua*), Honey Locust, Norway Maple (*Acer platanoides*) and Austrian Pine. A few tree species are considered regionally rare; however, they do not warrant legislative protection as they do not occur in a natural setting (Refer to **Section 3.4.1**).

3.4.3 Invasive Species

There were six invasive species observed in abundance throughout the study area. These included Purple Loosestrife, Garlic Mustard, Dog-Strangling Vine, Common Reed and Common Buckthorn.

An invasive species is a species that is non-native/exotic to an ecosystem and results in the degradation of the environment, ecology and economy once established. Invasive species are known

to outcompete native biota for resources within an ecosystem and are difficult to remove once introduced.

3.5 Wildlife

Habitat features present within the study area included urban environments, semi-natural features (e.g., cultural meadows, planted trees and cultural woodlands) and natural vegetation features (e.g., riparian corridor). Habitats within the study area show varying levels of previous disturbance. Wildlife species observed were expected and typical of open-field habitats in an urban setting.

During the field investigations, a total of 19 avifauna, 5 mammals and 1 insect species (a total of 25 wildlife species) were recorded within the study area. A smaller number/low diversity of species was expected given the minimal amount of habitat available within the study area limits. A species list is presented in **Appendix D**.

No confirmed Significant Wildlife Habitat (SWH) features (e.g. bat habitat refer to **Section 3.6.2**) were identified in the field.

3.5.1 Birds

One locally rare species, the White-throated Sparrow (*Zonotrichia albicollis*) (TRCA, 2019: L3) was heard within the FOD7 community type and is discussed further in **Section 3.6**. No SAR or other regionally rare wildlife was observed within the study area.

Most of the bird species recorded in the study area are common throughout southern Ontario and expected given the types of habitat available (cultural woodland, cultural meadow and urban / semi-urban environments). Higher numbers of urban tolerant bird species were recorded throughout the study area, such as American Robin (*Turdus migratorius*), American Goldfinch (*Spinus tristis*), Killdeer (*Charadrius vociferous*) and Song Sparrow (*Melospiza melodia*). Riparian habitat-specific species included Red-winged Blackbird (*Agelaius phoeniceus*) Downy Woodpecker (*Picoides pubescens*) and Mallard (*Anas platyrhynchos*). A complete list is provided in **Appendix D.** The greatest avian diversity was found along the West Highland Creek riparian corridor.

There are several box culverts and bridge structures along West Highland Creek that have ledges / pipes / rough cement walls with unobstructed openings. These structures may have the potential to support nesting birds in the future. No nests were observed during the field investigation; however, it is recommended that an avian biologist re-confirms this before construction, should impacts or alteration of these structures be required.

3.5.2 Mammals

A total of 5 mammal species were recorded within the study area: Coyote (*Canis latrans*) including its den and 3 cubs, Raccoon (*Procyon lotor*), Eastern Cottontail (*Sylvilagus floridanus*), Meadow Vole (*Microtus pennsylvanicus*) and Eastern Gray Squirrel (*Sciurus carolinensis*).

Habitat conditions are unlikely to support a large number of other mammal species as the supportive vegetative areas were contained within small sections along the watercourse and railway corridor. These areas were fragmented by dense residential and arterial roadways. The vegetation islands (MAS2-9 inclusion refer to **Section 3.4.2)** and sediment deposits in the culverts and under bridges were observed to contain a number of the tracks, suggesting that, when dry, the West Highland Creek and riparian habitat is used as the main eco-corridor for this area. Green space that is

connected to West Highland Creek and the study area includes Tam O'Shanter Golf Course and Stephen Leacock Park 1 km to the north, and Thomson Memorial Park 2 km to the south.

None of the recorded mammal species are SAR or SCC and all have a provincial S-Rank of 5 (Secure) and TRCA rarity of L5 (Not of Concern).

3.5.3 Herptiles

Habitats within the study area and broader landscape could support a travel corridor for Snapping Turtle (*Chelydra serpentina*), a Special Concern species under the ESA, which is discussed further in **Section 3.6**.

There is potential for three common reptile species including Eastern Gartersnake (*Thamnophis sirtalis sirtalis*), Dekay's Brownsnake (*Storeria dekayi*), and Red-bellied Snake (*Storeria occipitomaculata*) to occur in the study area. These species could be found foraging in all vegetative areas within the NHS. These species are prevalent in the Greater Toronto Area and impacts on their population as a whole will not be affected by activities within the study area.

No suitable amphibian breeding habitat was observed within the study area. Within the riparian corridor of West Highland Creek, cement channels with steep banks limit the formation of breeding habitats for anuran species and their movement to connective wetland communities.

American Toad (*Bufo americanus*) and Green Frog (*Lithobates clamitans*) have the potential to use the watercourse as a foraging/refuge area, however, the impacts of poor water quality, such as from siltation, garbage and road run-off, are likely to limit this habitat use. As well, the rapid flows that would occur during a storm event would further reduce the amphibian use of the area.

No amphibian species were identified during the field investigation or through background review (ORAA data and iNaturalist data).

3.6 Species of Conservation Concern

For this report, the term SAR refers to those species listed as Endangered, Threatened, and Special Concern on the Species At Risk in Ontario (SARO) List (Ontario Regulation 230/08) and protected under ESA. The term SCC encompasses both SAR and additional species designated by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and/or species designated by the Committee on the Status of Species at Risk in Ontario (COSSARO), as well as provincially rare species (MNRF S-Rank of S1 to S3), MNRF "Area Sensitive" species (SWH Criteria Schedules; MNRF 2015) and locally / regionally significant species (TRCA rank of L1 to L3) and MNRF R-ranked species (Varga, 2000 & 2002). Specific targeted surveys for SCC were not undertaken as part of the project scope.

3.6.1 Regionally Rare

Several SCC tree species were identified within Collingwood Park, in cultural areas and along the berm north of Kennedy Road and the railway corridor (refer to **Section 3.4.1**). These trees consisted of planted individuals or were considered an escape landscape species from residential areas; therefore, are not taken into consideration for habitat preservation. Removal and replacement of these tree species are detailed in the Arborist Report (WSP 2022).

One locally rare (TRCA, 2019: L3) White-throated Sparrow was heard within the FOD7 community type.

No other regionally rare wildlife was observed within the study area.

3.6.2 Species at Risk

Eleven SAR with the potential to be present within the study area were identified based on background resources and field investigations. These SAR were then screened in relation to the habitats present in the study area to exclude those species with no potential to be present (**Appendix E**).

Of the eleven species screened, Black Ash was observed on the site, with Barn Swallow and Snapping Turtles identified to have a moderate likelihood to be present within the limits of the study area. The following is a description of these species and their habitat's location within the study area.

- **Black Ash** (Endangered). A few trees were observed in the naturalized area of West Highland Creek (**Appendix A; Figure 3: FOD7**) well outside the proposed works. This species may be found in the general vicinity of the study area, and potentially suitable ravine habitat areas are present.
- **Barn Swallow** (Special Concern) may nest on bridge and culvert structures within the study area specificity at the Sheppard Ave E bridge, West Highland Creek pedestrian bridge and the CP rail overpass. There was no evidence of the species being present, either in old/active nests or flying in and out beneath the bridge at the time of the survey.
- **Snapping Turtle** (Special Concern) has a moderate potential to 'reside' or use the West Highland Creek as there is a record (June 2018; ORAA and iNaturalist) of this species in the vicinity of the site. This species is known to use stream/watercourse features in semi-urban areas. Snapping Turtles may travel along the West Highland Creek to access connective wetland habitat; however, they are unlikely to use habitat within the study area due to insufficient water depths, low sun exposure (shaded by trees/vegetation) and lack of suitable basking or foraging opportunities. The steep banks of West Highland Creek, the cement embankments and channel, and adjacent mowed vegetation are not suitable for nesting or overwintering habitat.

The other eight species were determined to have a minimal or no likelihood and magnitude of impacts on the species or habitat.

SAR Bat Maternity Habitat

Under the ESA, three (3) tree roosting species are protected as Endangered, including, Little brown bat (*Myotis lucifugus*), Northern Long-eared Bat (also known as Northern Myotis; *Myotis septentrionalis*) and Tri-coloured Bat (*Perimytois subflavus*).

No roosting features including cavity trees were observed within the NHS limits of the study area. There is low potential for bat habitat within the treed areas of NHS. The preferred tree species (i.e. mature, > 25 cm DBH Acer sp. and Quercus sp.) were not observed during field investigation. The majority of the treed areas contained young pioneer species, which would not support the creation of roosting structures such as cavities and loose bark. The largest trees in the NHS were willow found in the south section of Collingwood Park. These trees, although mature, did not contain cavities for roosting. No other structure or features were observed within the NHS that are suspected to support bat maternity habitat.

4 Proposed Works

The proposed works for the Agincourt EA study area are anticipated to include:

- An extension of Gordon Avenue to connect to Cowdray Court and Village Green Square;
- A multi-use path through Collingwood Park from Sheppard Avenue East, connecting to Collingwood Street and ending at Village Green Square.
- Road widening and repaving to integrate bike lanes along Cardwell Avenue, Reidmount Avenue, Sheppard Avenue East, Gordon Avenue, and Cowdray Court.

The preferred alternative for the street alignment (Option C1) and multi-use trail (MUT) (Option D1) is shown in **Appendix F**. Option C1 was selected because it avoids the need to cross West Highland Creek, has no impact on Collingwood Park, and has the least amount of impact to lands regulated under TRCA's Regulations of Development, Interference with Wetlands and Alterations to Shoreline and Watercourses (O. Reg. 166/06).

The MUT Option D1 was designed with the intent to be set back from the top-of-bank as far as possible, except for the CP Rail and West Highland Creek crossing. Generally, TRCA requires a 10 m buffer from top-of-bank, however, this is unachievable for the MUT in this area due to physical constraints such as buildings, roads and private property limits. The TRCA has been consulted and has approved the MUT alignment as shown in **Appendix F** (TRCA, Technical Advisory Meeting #3, November 24, 2020).

5 Impacts

An assessment to identify potential impacts associated with the street alignment of Option C1 and MUT Option D1 has been undertaken as part of this Agincourt EA. The preferred route is shown in **Appendix F**.

Potential impacts are discussed in two categories:

- Direct Impacts – associated with the permanent removal of natural features/habitats, caused by the actual "footprint" of the undertaking (e.g., clearing and grading of subject lands, direct alteration of surface water/groundwater)
- Indirect Impacts – associated with; 1) adjacent or off-site effects to habitat (e.g., alterations to surface water and groundwater quality/quantity), and 2) temporary disruption of features/habitats or displacement of species with active construction activities (e.g., impact to water quantity / quality, temporary physical disturbance, erosion, etc.). The impacted area is to be restored at the completion of the project.

A description of potential impacts is provided below. An overview of key recommended mitigation measures is provided in **Section 6.0**.

5.1 Aquatic

Option C1 street alignment has the potential for impacts to the water quality of runoff due to increase road surface area, which could in turn impact fish and fish habitat in West Highland Creek if not properly managed. These impacts can be managed effectively with proper drainage and stormwater management design. For the preferred street alignment, all runoff will be collected and conveyed to treatment and control via stormwater management systems. No direct discharge into West Highland Creek is anticipated, therefore there are no anticipated impacts to fish and fish habitat.

The preferred street alignment does not directly impact West Highland Creek. However, various other indirect construction-related impacts, typical of any construction project near water, could occur, as discussed below. Potential indirect impacts can be managed effectively with proper management of construction activities and associated implementation of mitigation measures.

The preferred option for the Multi-use Trail (MUT) allows for the trail to be set back from the top-of-bank of West Highland Creek as far as possible. The preferred alternative has no new footprint impacts on fish and fish habitat, as the MUT uses the existing pedestrian crossing over West Highland Creek, and does not require any other new watercourse crossings. The preferred MUT alignment is adjacent to the creek bank (4 m from the top-of-bank) for approximately 50 m on the north side of the pedestrian bridge. Although there will be no direct impacts to the creek resulting from the MUT, indirect construction-related impacts could occur typical of any construction project near water, as discussed below. Potential indirect impacts can be managed effectively with proper management of construction activities and associated implementation of mitigation measures.

A review of the proposed works for compliance with The Fisheries Act was undertaken for the street alignment and MUT. There are no potential direct impacts on fish and fish habitat from either alignment. The temporary construction-related impacts on fish and fish habitat associated with the works generally consist of the following:

— Addition of deleterious substances to the watercourses such as sediment, fuel, oil, and lubricants associated with the use of heavy machinery;

— Potential removal of riparian vegetation (for MUT works) if vegetation clearing / damage occurs beyond the working limits;

— Temporary disturbance of creek banks associated with the use of machinery (for MUT works).

These potential indirect impacts can be avoided or minimized by the implementation of DFO's measures to protect fish and fish habitat, and the recommended mitigation measures included in Section 6. Therefore, the potential impacts are anticipated to be limited to temporary disturbances, with no permanent impacts. As no death of fish or harmful alteration or destruction to the bed and banks of the watercourse is expected to result from the proposed road or MUT, the proposed works will not cause a HADD to fish habitat, and a review by DFO is not required.

5.2 Vegetation

Option C1 street alignment is not expected to impact natural vegetation types as the works are contained within the footprint of neighbourhood streets and residential properties with a small section going through culturally disturbed vegetation including Mineral Cultural Meadow (CUM1-1), and Collingwood Park parkland (**Appendix A; Figure 3**). Vegetation located within the ROW surrounding the work zone consisted of planted street trees and landscaped areas. The impacts of removing street trees and their replacement are described in the Arborist Report (WSP 2022).

The MUT Option D1 predominantly travels through and removes culturally disturbed vegetation including Mineral Cultural Meadow (CUM1-1), and Collingwood Park parkland (**Appendix A; Figure 3**). The MUT also travels through naturalized areas including Cultural Woodland (CUW), when it crosses over the CP Rail, and a CUW and Fresh-lowland Deciduous Forest (FOD7), when it crosses over West Highland Creek.

Vegetation expected to be impacted contained a high abundance of invasive and exotic species. These areas are generally considered lower-quality vegetation types, which require minimal mitigation when they are impacted. All vegetation communities were observed to be young / successional, except for a few mature willow trees (> 50 cm DBH) within Collingwood Park parkland; outside the work zone.

No direct impacts on rare or sensitive flora species or vegetation communities are expected.

Indirect impacts may occur if machinery and workers travel outside the proposed work zone. Works can also indirectly impact vegetation by the release of unwanted substances (e.g. construction-generated sediment) into the watercourse and through vegetation clearing / damage beyond the work limits. The FOD7 vegetation community along West Highland Creek is the most susceptible to these indirect impacts as any damage to this area's natural cover reduces the natural cover within the NHS, which is presently limited in this area.

5.2.1 Invasive Species

Common Reed and Dog-Strangling Vine pose the highest likelihood to be spread as a result of the proposed works. Common ways of spread include having plant material attach to equipment, vehicles and footwear, then being translocated to a new site, or by being moved during excavation / grading activities and by disturbance to the community which can release the mature seeds to disperse to other habitats.

Creating an invasive species management plan during detailed design is recommended to control the spread of these species (refer to **Section 6.2**).

5.3 Wildlife

Habitat features present within the study area include urban environments showing varying levels of previous disturbance. Wildlife species observed were typical of those found in small urban habitats. These species are expected to withstand a higher level of disturbance compared to a more natural setting.

It is expected that the local wildlife populations have been habituated to passing through the creek culverts and under bridge structures. The riparian vegetation of West Highland Creek and CUW parallel to the north side of the CP Railway corridor is assumed to have a low abundance of wildlife movement for a variety of small mammals and herpetofauna. The creek corridor may provide greater wildlife movement opportunities due to the long linear corridor and the parallel strip adjacent to the CP Rail would be expected to provide wildlife movement at the site level only. Based on field observations, there is evidence of coyotes, urban birds and urban herptiles using the creek and green space areas (**Appendix A; Figure 3**) Parkland, fallow field (CUM1-1).

General impacts on wildlife may include:

— Permanent indirect effects associated with road use (road mortality, traffic noise, salt run-off);

— Permanent direct effects associated with the construction footprint (removal of vegetation used by wildlife and loss of habitat specifically for migratory birds); and

— Temporary indirect effects resulting from construction activities (e.g. noise, dust);

Direct impacts on wildlife may occur if they travel into the construction zone or construction staging. However, this is unlikely, as the work's noise / activity is likely to temporarily deter wildlife away from the site.

The removal of a narrow strip of vegetation made up of CUM1-1, CUW and FOD7 (**Appendix A; Figure 3**) is required for the MUT to allow machinery/workers and trail creation. Birds may also use the study area's bridge structure for nest sites, including SAR Barn Swallow (refer to **Section 5.4**).

Nesting migratory birds are protected under the *Migratory Birds Convention Act*, 1994 (MBCA). No work is permitted to proceed that would result in the destruction of active nests (nests with eggs or young birds), or the wounding or killing of birds protected under the MBCA and/or Regulations under that Act.

To limit impacts on migrating birds, the use of timing windows for vegetation removal is recommended and nest searches if work may impact structures and vegetation during migratory birds' nesting season (April 1 to August 31) (refer to **Section 6.3**).

5.4 Species at Risk

Subsection 9(1) of the ESA prohibits the killing, harming, or harassing of species identified as 'Endangered' or 'Threatened' in the various schedules of the Act. Subsection 10(1) (a) of the ESA states that "No person shall damage or destroy the habitat of a species that is listed on the SARO list as an Endangered or Threatened species". General habitat protection is also provided, by the ESA, to all Threatened and Endangered species. Species-specific habitat protection is only afforded to those

species for which a habitat regulation has been prepared and passed into law as a regulation of the ESA.

Species listed as Special Concern and or provincially/locally rare are not protected under the ESA, however, their habitat may be protected under the Provincial Policy Statement (OMMHA, 2020) concerning Significant Wildlife Habitat in municipal and regional policies. Species and their habitat designated as Special Concern are encouraged to be protected to preserve Ontario's biodiversity.

One SAR species was identified with a high likelihood to be present within the study area but outside the proposed work zone.

- **Black Ash** (Endangered) was observed in the naturalized area of West Highland Creek (**Appendix A; Figure 3: FOD7**). The MECP has issued a temporary suspension of individual and habitat protections for Black Ash until January 25, 2024 (Ontario 2022). Works are not expected to cross into the area where Black Ash was observed. No ESA requirements are needed at this time.
- Potential mitigation actions may be required after January 25, 2024, as per the Black Ash Ontario Recovery Strategy Series (Catling et al. 2022) (refer to Section 6.4).Two species of Special Concern were identified to have moderate potential to be present within the proposed work zone, including:
- **Barn Swallow** (Special Concern) there was no evidence of the species being present, either in old/active nests or flying in and out beneath the CP Rail bridge at the time of the survey. However, this species has future potential to nest beneath the bridge and culvert structures within the study area including the Sheppard Ave E bridge, West Highland Creek pedestrian bridge and the CP Rail overpass. Barn Swallow was down-listed to Special Concern in January 2023, which changes mitigation requirements if this species is found during active works. Active nests will be protected during the breeding season, under the MBCA. No permitting under the ESA will be required for Barn Swallow nests if found at the site.
- **Snapping Turtle** (Special Concern) may enter the work area opportunistically during the period of migration/travel, however, this is unlikely given the active nature of the site. Suitable habitat is not present for long-term/periodic use by turtles, thus specialized mitigation or permit are not warranted.

General mitigation measures for SAR are recommended in **Section 6.4**.

SAR Bat Maternity Habitat

No roosting features, protected under the ESA, were observed within the limits of the study area. However, it should be noted that many of the residential trees on private property were unable to be assessed. Trees may incidentally be used as rest sites on residential properties and within the FOD7, CUW and the Parkland mature willow trees, located on the north side of West Highland Creek (**Appendix A; Figure 3**). To limit the impact on bats, tree removal is recommended to take place outside the bat active period (active from April 1 to September 31).

6 Mitigation Measures

Mitigation of negative effects on the natural environmental features is applied throughout the Class EA process as design alternatives are developed, refined and evaluated.

The associated mitigation measures recommended herein, are designed for avoiding or minimizing intrusion as well as minimizing the potential for secondary and indirect effects. The mitigation measures developed during detailed design will be included in the Contract documents for implementation during construction.

Implementation of standard erosion and sediment control practices (silt fencing), scheduling of vegetation removal outside the bird breeding period, creating an invasive species management plan and having an awareness of SAR and general wildlife species are recommended below as mitigation measures for minimizing impacts on the aquatic and terrestrial ecosystems.

Removed street trees will be replaced based on the Arborist Report (WSP 2022). The Collingwood Park and greenlands within the NHS are not being recommended as a place for tree planting under the Arborist Report (WSP 2022).

The restoration of natural areas impacted by the MUT will take place following the completion of construction. Vegetation removed for the MUT will be replaced, and all areas disturbed through construction and access will be restored (refer to **Section 6.2**). It is recommended that the TRCA's Highland Creek Watershed Greening Strategy (TRCA 2020) guidelines be used once the restoration plan of the site is designed.

6.1 Fisheries and Aquatic Habitat

The following general mitigation measures are recommended to avoid or minimize impacts to the aquatic environment:

- Concrete washout and temporary construction staging areas if required must be designated outside the natural aquatic features within the study area.
- Environmental inspections shall be conducted during construction to ensure that protection measures are implemented, maintained and repaired and that remedial measures are initiated where warranted.
- Vehicle maintenance and refuelling shall be confined to designated areas a minimum of 30 m away from watercourses, and all activities shall be controlled to prevent the entry of petroleum products or other deleterious substances, such as debris, waste, rubble, or concrete, into the natural environment. In the case of accidental spills, the Contract Administrator should consult appropriate regulatory agencies.
- Standard construction practices for the control of dust will be implemented during the construction period to minimize the generation and spread of dust.
- Develop and implement an Erosion and Sediment Control Plan for the site that minimizes the risk of sedimentation of the watercourses and wetlands during all phases of the project. Erosion and sediment control measures should be maintained until all disturbed ground has been permanently stabilized. The plan should, where applicable, include:

- Installation of effective erosion and sediment control measures before starting work to prevent sediment from entering waterbodies and wetlands.
- Measures for managing water flowing onto the site, as well as water being pumped/diverted from the site such that sediment is filtered out prior to the water entering a waterbody.
- Measures for containing and stabilizing waste material (e.g., construction waste and materials, uprooted or cut aquatic plants, accumulated debris) above the high-water mark of nearby waterbodies to prevent re-entry.
- Silt fencing will be monitored and maintained throughout the construction period to ensure proper function.
- Areas, where temporary disturbance/removal of vegetation is required for construction, should be re-vegetated immediately following construction with a native seed mix and suitable for the adjacent habitat planting of native trees and shrubs to stabilize soils.

6.2 Vegetation

The following are general considerations to limit impacts or provide a net benefit for these features:

- Re-stabilize and re-vegetate exposed surfaces as soon as possible following construction, using native vegetation seed mix and plantings. The vegetation restoration and re-creation plans should consider the incorporating Highland Creek Watershed Green Strategy (TRCA 2020) guidelines.
  - To enhance the NHS and provide a net benefit to the current ecological systems it is recommended that when restoration of the greenspace occurs, vegetation buffers are extended, where possible, along the watercourse. Lawn adjacent to the watercourse north of Shepard Avenue (refer to **Section 3.4.2**) is likely to benefit from re-naturalization.
- Delineate any vegetation clearing zones and vegetation retention zones both on the construction drawings and in the field and review them directly with the contractor before clearing and grading. Limit removal and/or prevent encroachment into FOD7 vegetation (Appendix A; Figure 3), where possible. Equipment, materials and other construction activities will not be permitted in this zone.
- Any dredged, salvaged or stockpiled materials will be located 30 m away from the watercourse vegetation.
- Create an invasive species management plan to control the spread of Common Reed and Dog-Strangling Vine. Resources to control the spread of these species are available online through the Ontario Invasive Species Plant Council (https://www.ontarioinvasiveplants.ca/resources/best-management-practices/).

6.3 Wildlife

The following are general considerations to limit impacts or provide a net benefit to wildlife:

- Nesting migratory birds are protected under the MBCA. No work is permitted to proceed that would result in the destruction of active nests (nests with eggs or young birds), or the wounding or killing of birds protected under the MBCA and/or Regulations under that Act.

To protect nesting migratory birds, under the MBCA, the contractor will ensure that:

- Vegetation removal, grubbing and grading will be avoided during the migratory bird nesting season (April 1 to August 31). This measure will also serve to protect Monarch's that use vegetation during this period.
- If removal during this period cannot be avoided, a qualified individual (i.e. a professional with knowledge of and/or training in avian ecology) can complete a nest sweep within 48 hours before vegetation clearing works. If an active nest is discovered, an appropriate buffer shall be established and maintained until the nest is no longer active or August 31st, whichever comes first.
- If required, perform a nest search of the culvert/bridge structures of West Highland Creek before their alteration.
- No active nests (nests with eggs or young birds) will be removed or disturbed under the MBCA.
- If a nesting migratory bird is identified within or adjacent to the construction site and the construction activities are such that continuing construction in that area would result in a contravention of the MBCA, all activities will stop, and the Contract Administrator and Environment Canada and Climate Change will be contacted to discuss mitigation options.

For the protection of wildlife in general, the contractor will ensure that:

- Any wildlife incidentally encountered during construction will not be knowingly harmed and will be allowed to move away on its own. If an animal encountered during construction does not move from the construction zone and construction activities are such that continuing construction in the area would result in harm to the animal, all activities that could potentially harm the animal will cease immediately and the Contract Administrator will be notified.
- Any equipment parked overnight in the area will also be inspected to ensure wildlife has not climbed into or beneath it.

6.4 Species at Risk

The following are general considerations to limit impacts or provide a net benefit for SAR:

- If a SAR is found in the construction area, all activities that could potentially harm the animal will cease immediately and the animal will be allowed to move away on its own. If it does not move or is injured, the Contract Administrator will be notified. The Contract Administrator will then contact the MECP SAR Biologist for direction, as these animals are protected under the ESA (2007).
- To limit the impact on bats trees removal is recommended to take place outside the bat active period (active from April 1 to September 31)
- Potential mitigation actions required after January 25, 2024 (Catling et al. 2022) may include implementing a 28 m from individual Black Ash within wetland and less suitable dry or upland habitats (to protect seed dispersal and regeneration zones).

  Black Ash was observed approximately 50 m from the proposed work limit and thus encroachment into the 28 m buffer will not occur.

7 Conclusion

This document provides an impact assessment of the technically preferred design (Option C1 street alignment and Option D1 MUT) on the natural heritage features within the Agincourt EA study area.

Option C1 street alignment is not expected to impact natural vegetation types, as the works are contained within the footprint of neighbourhood streets and residential properties. The MUT Option D1 predominantly travels through and removes culturally disturbed vegetation. Vegetation communities that are expected to be impacted contained a high abundance of invasive and exotic species. Mitigation will include re-stabilizing and re-vegetating disturbed areas using native vegetation seed mix and plantings. The implementation of the recommended mitigations will limit impacts or provide a net benefit for these vegetation features.

Wildlife species within the study area observed were typical of open-field habitats in an urban setting. These species are expected to be tolerant of a higher level of disturbance compared to wildlife in more natural or remote habitats. Implementation of vegetation removal outside the bird breeding period, creating an invasive species management plan and having an awareness of SAR and general wildlife species are mitigation measures that will minimize impacts.

The preferred street alignment (Option C1) does not directly impact West Highland Creek. The MUT Option D1 alternative will not create new impacts on fish and fish habitats, as the MUT uses the existing trails and the pedestrian crossing over West Highland Creek. Indirect construction-related impacts that could occur typical of any construction project near water, can be avoided or minimized with standard mitigation measures recommended here. Therefore, no death of fish or HADD to fish habitat is anticipated, and a review by DFO is not required.

It is WSP's conclusion that the results of this EA indicate that potential impacts to the terrestrial and aquatic ecosystem can be effectively avoided, minimized or mitigated with the implementation of mitigation measures provided in **Section 6.0**.

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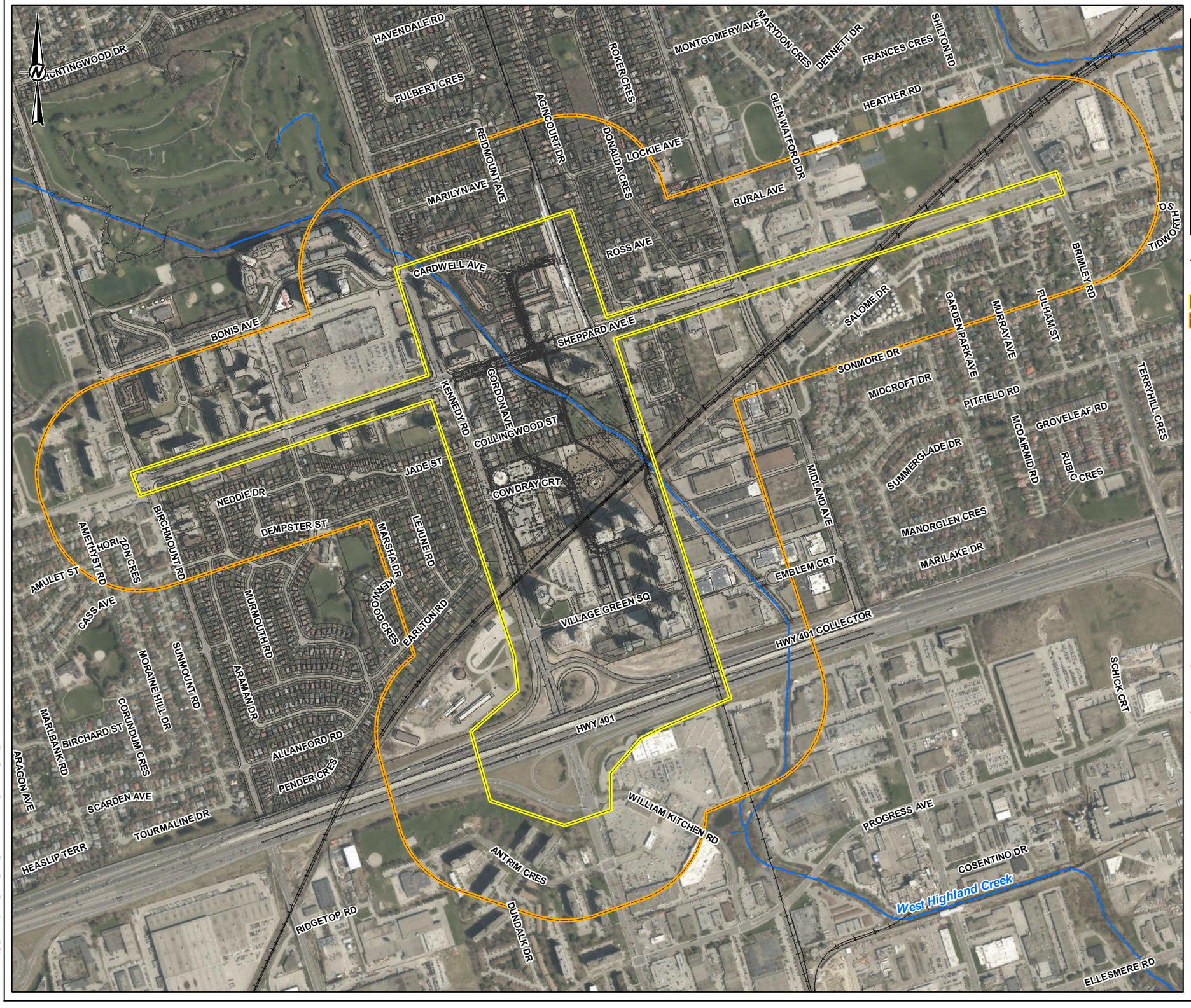
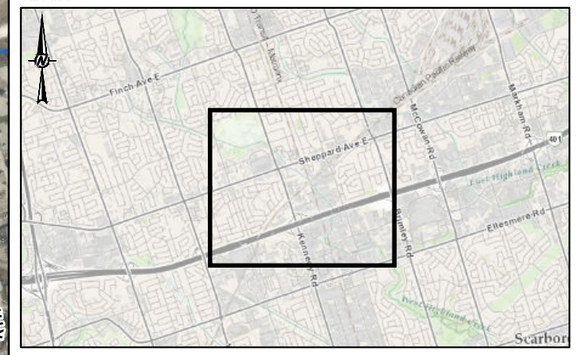
APPENDIX

A FIGURES



KEY MAP



SCALE 1:100,000

LEGEND

- AGINCOURT DEVELOPMENT DESIGN
- PROJECT STUDY AREA
- PHASE ONE ESA STUDY AREA (250m BUFFER)
- RAILWAY
- WATERCOURSE

0 100 200 400

SCALE 1:10,000 METRES

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. IMAGERY CREDITS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
CITY OF TORONTO

CLIENT
CITY OF TORONTO

PROJECT
PHASE ONE ENVIRONMENTAL SITE ASSESSMENT AGINCOURT CLASS ENVIRONMENTAL ASSESSMENT STUDY TORONTO, ON

TITLE
SITE LOCATION

CONSULTANT

YYYY-MM-DD	2023-03-14
DESIGNED	----
PREPARED	RSM
REVIEWED	----
APPROVED	----

PROJECT NO.	CONTROL	REV.	FIGURE
19M-01888-00	0001	A	1

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

0 25mm

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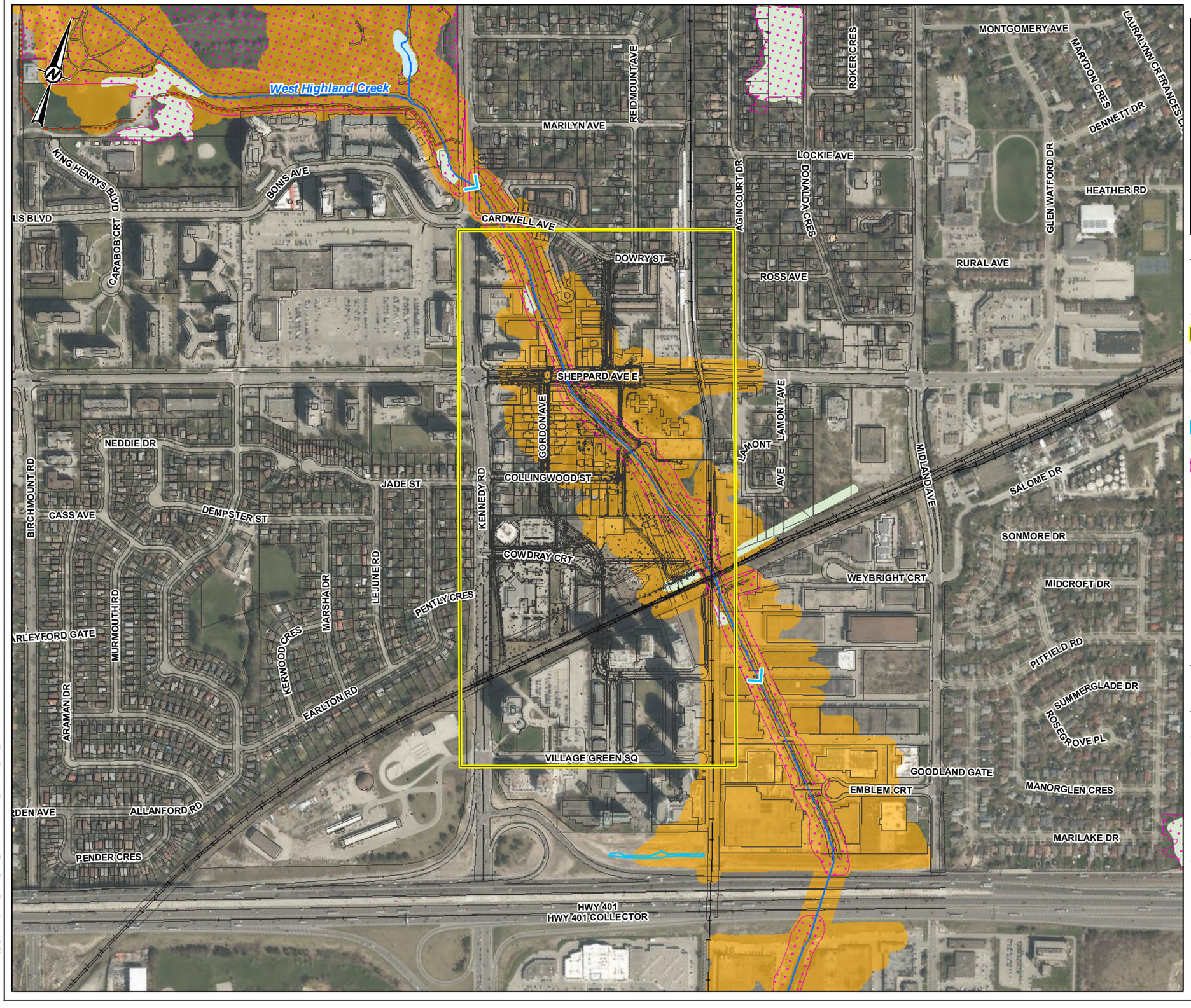
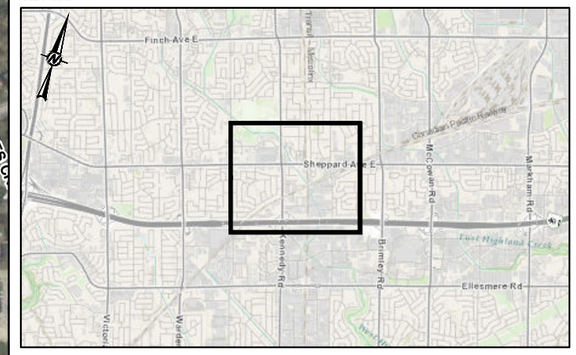


KEY MAP



SCALE 1:100,000

LEGEND

- FLOW DIRECTION
- AGINCOURT DEVELOPMENT DESIGN
- STUDY AREA (APPROXIMATE)
- TRAIL
- RAILWAY
- PERMANENT WATERCOURSE, WARM WATER (LIO 2023)
- WATERBODY
- UNEVALUATED WETLAND
- WOODED AREA
- RAVINE AND NATURAL FEATURE PROTECTION
- TRCA REGULATION LIMIT

0 70 140 280

SCALE 1:7,000 METRES

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. IMAGERY CREDITS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
CITY OF TORONTO

CLIENT
CITY OF TORONTO

PROJECT
SOUTHWEST AGINCOURT TRANSPORTATION CONNECTIONS STUDY, AGINCOURT, TORONTO, ONTARIO

TITLE
NATURAL ENVIRONMENT FEATURES

CONSULTANT

wsp

YYYY-MM-DD	2023-03-14
DESIGNED	----
PREPARED	RSM
REVIEWED	----
APPROVED	----

PROJECT NO.	CONTROL	REV.	FIGURE
19M-01888-00	0001	A	2

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

25mm

0

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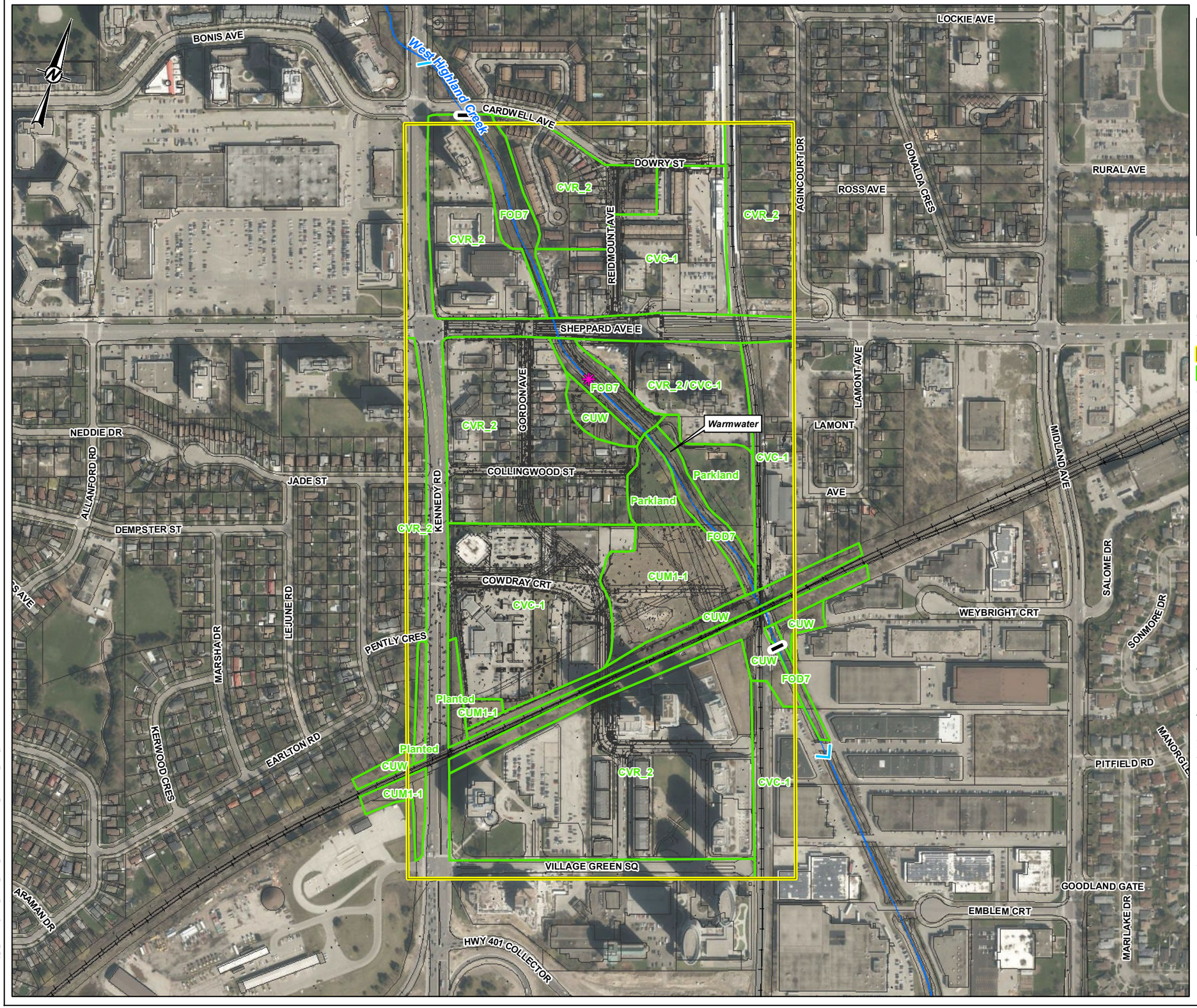

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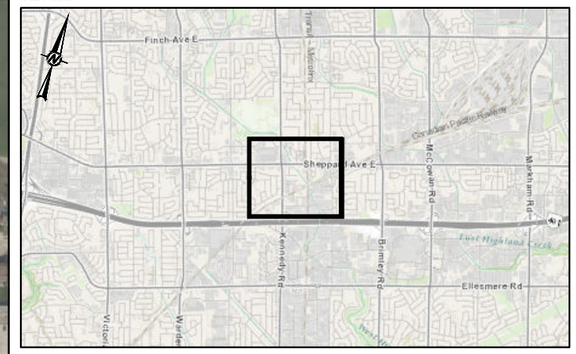

SCALE 1:100,000

LEGEND

- FLOW DIRECTION
- FISH BARRIER (0.4M)
- AGINCOURT DEVELOPMENT DESIGN
- STUDY AREA (APPROXIMATE)
- ECOLOGICAL LAND CLASSIFICATION (ELC)
- RAILWAY
- PERMANENT WATERCOURSE, WARM WATER (LIO 2023)

SPECIES AT RISK:

- BLACK ASH

ELC DESCRIPTION :

CUM1-1 - DRY-MOIST OLD FIELD MEADOW

CUW - CULTURAL WOODLAND

CVC-1 - BUSINESS SECTOR

CVR_2 / CVC-1 - HIGH DENSITY RESIDENTIAL / BUSINESS SECTOR

CVR_2 - HIGH DENSITY RESIDENTIAL

FOD7 - FRESH LOWLAND DECIDUOUS FOREST

0 50 100 200

SCALE 1:5,000 METRES

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - ONTARIO
2. IMAGERY CREDITS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
CITY OF TORONTO

CLIENT

CITY OF TORONTO

PROJECT

SOUTHWEST AGINCOURT TRANSPORTATION CONNECTIONS STUDY, AGINCOURT, TORONTO, ONTARIO

TITLE

EXISTING CONDITIONS

CONSULTANT

wsp

YYYY-MM-DD	2023-03-14
DESIGNED	----
PREPARED	RSM
REVIEWED	----
APPROVED	----

PROJECT NO.	CONTROL	REV.	FIGURE
19M-01888-00	0001	A	3

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

0 25mm

PATH: S:\Clients\City_of_Toronto\Agincourt_Toronto_ON\99_PRO\19M-01888-00\40_PRO\0001_Ecology\19M-01888-00-0001-RB-0003.mxd PRINTED ON: 2023-03-14 AT: 1:10:26 AM

Site: Agincourt North-South Road EA, Toronto, ON

Plate 1: Bridge crossing at Sheppard Avenue, facing south (downstream).

Plate 2: Bridge crossing at Sheppard Avenue, facing north (upstream). Drain outlet on the left upstream bank.

Plate 3: Soil and vegetation slumping over the concrete lined bank.

Plate 4: Pedestrian bridge crossing, facing south (downstream).

Plate 5: Upstream of twin box culvert, facing north (upstream).

Plate 6: Twin box culvert conveying flow under the train tracks, facing north (upstream). Flow primarily goes through the right cell.

Plate 7: Fish barrier located downstream of the train tracks.

Plate 8: Downstream of the fish barrier, facing south (downstream).

wsp	AGINCOURT NORTH-SOUTH ROAD EA PHOTO PLATE	Date: May 2020 Project No: 19M-01888-00 Figure No: 4

APPENDIX

B AGENCY CORRESPONDENCE

Ritchie, Shannon

From: Luka Medved <Luka.Medved@trca.ca>
Sent: January 22, 2020 8:51 AM
To: Perkin, Carlene
Subject: RE: Property Inquiry - Agincourt North-South Road EA

Hello Carlene,

I will place a request with our GIS for the information identified below. They will contact you directly and share whatever information we may have available for the identified study area.

Thanks,

Luka Medved, MEM
Planner
Infrastructure Planning and Permits I Development and Engineering Services Division

T: 416.661.6600 ext. 5766
E: Luka.Medved@trca.ca
A: 101 Exchange Avenue, Vaughan ON L4K 5R6

Toronto and Region Conservation Authority (TRCA) | trca.ca

From: Perkin, Carlene <carlene.perkin@wsp.com>
Sent: Wednesday, January 22, 2020 8:37 AM
To: Luka Medved <Luka.Medved@trca.ca>
Subject: RE: Property Inquiry - Agincourt North-South Road EA

Good morning Luka,

Thank you for your response. Does the TRCA have any information regarding natural heritage information – natural areas, vegetation communities, special wildlife habitat for this site?

We have also contacted the Ministry of Natural Resources and Forestry (MNRF) and Ministry of Environment, Conservation and Parks (MECP) for relevant natural heritage and SAR information.

Thank you,
Carlene

Carlene Perkin, B. Sc.
Terrestrial Ecologist – ISA Certified Arborist
Ecology and Environmental Impact Assessment

WSP Canada Group Limited
100 Commerce Valley Drive West
Thornhill, Ontario, L3T 0A1 Canada

Skype +1 289-982-4220

carlene.perkin@wsp.com

Please consider the environment before printing...

From: Luka Medved [mailto:Luka.Medved@trca.ca]
Sent: Wednesday, January 22, 2020 7:59 AM
To: Perkin, Carlene <carlene.perkin@wsp.com>
Subject: RE: Property Inquiry - Agincourt North-South Road EA

Hello Carlene,

Please note that MECP should be contacted for any SAR related data.

Thanks,

Luka Medved, MEM
Planner
Infrastructure Planning and Permits I Development and Engineering Services Division

T: 416.661.6600 ext. 5766
E: Luka.Medved@trca.ca
A: 101 Exchange Avenue, Vaughan ON L4K 5R6

Toronto and Region Conservation Authority (TRCA) | trca.ca

From: Perkin, Carlene <carlene.perkin@wsp.com>
Sent: Tuesday, January 21, 2020 1:44 PM
To: Daniel Brent <Daniel.Brent@trca.ca>
Subject: Property Inquiry - Agincourt North-South Road EA

Good afternoon Daniel,

WSP Canada Group Limited (WSP) has been retained by the City of Toronto to complete a Schedule C Municipal Class Environmental Assessment (EA) for an new north-south road in Agincourt, located southeast of the Sheppard Avenue East and Kennedy Road intersection. An image of the approximate study area limit (hatched blue area) is attached for your reference.

As such, we are formally contacting you to request any available natural heritage information pertinent to the study area.

We are currently aware of the following natural heritage information for the study area:

- A review of Natural Heritage Information Centre (NHIC) for four quadrats (17PJ3749, 17PJ3849, 17PJ3748 and 17PJ3848) revealed records for:
    - American Burying Beetle (EXP); last observed 1896; and,
    - Barn Swallow (THR); last observed 2015.

Additional information we are seeking includes any of the following information that is not publicly available through the above sources:

- Species at Risk (SAR):
    - List of SAR to be considered for the study area;

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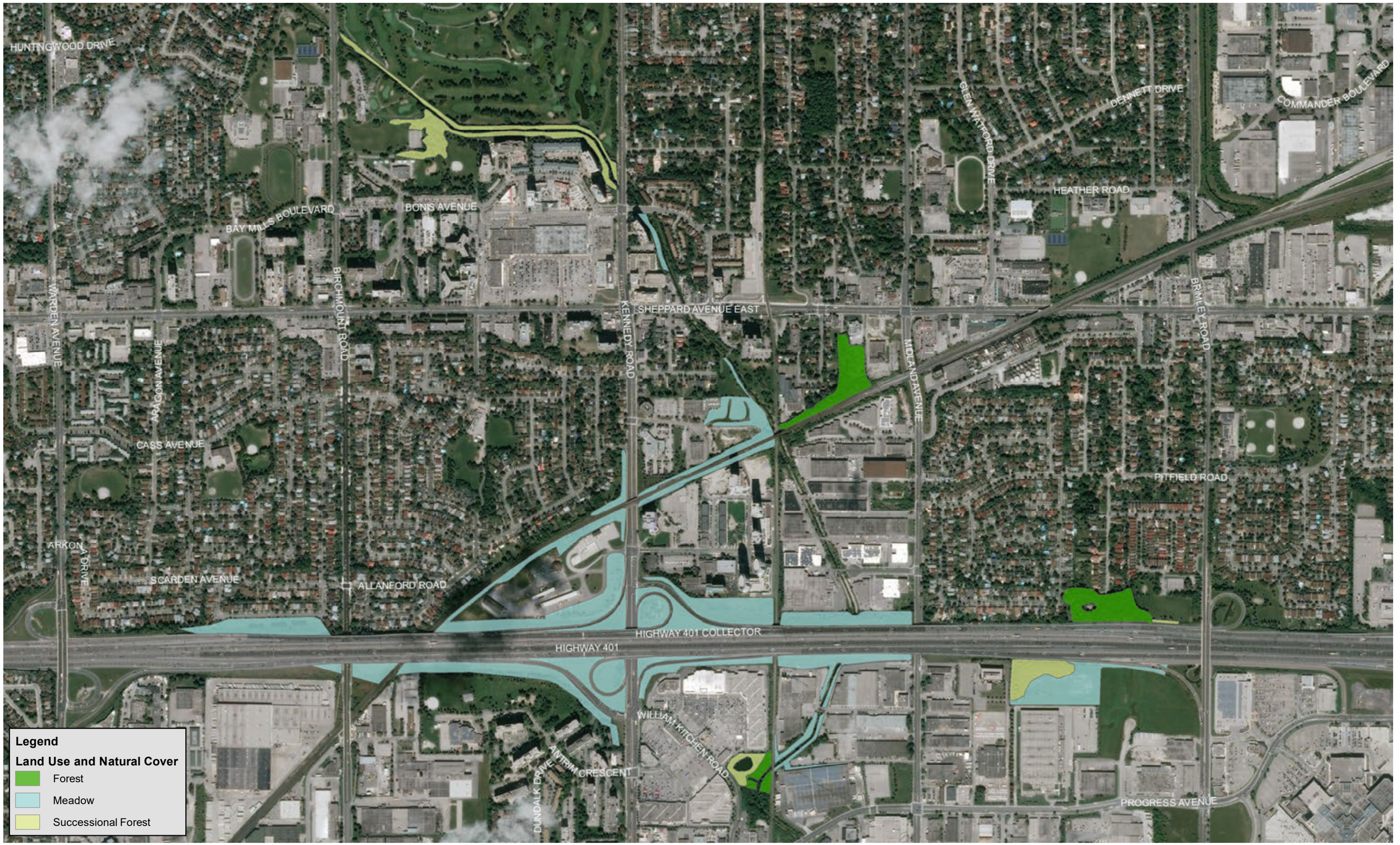

AGINCOURT NORTH SOUTH STREET

Land Use and Natural Cover

0 100 200
Meters
1:10,000

N

Date: February 2020

Project No: 19M-01888-00

Figure No:

- Locations, observation dates and any other relevant information about SAR – if possible, please provide the UTM's/accuracy codes; and,
- Locally rare species lists or records and/or rare vegetation communities known from the study area.

If further information is required, please feel free to contact the undersigned. Thank you for your assistance, it is greatly appreciated.

Thank you,
Carlene Perkin

Carlene Perkin, B. Sc.
Terrestrial Ecologist – ISA Certified Arborist
Ecology and Environmental Impact Assessment

WSP Canada Group Limited
100 Commerce Valley Drive West
Thornhill, Ontario, L3T 0A1 Canada
Skype +1 289-982-4220

carlene.perkin@wsp.com

Please consider the environment before printing...

-LAEmHhHzdJzBITWfa4Hgs7pbKl

Ritchie, Shannon

From: Species at Risk (MECP) <SAROntario@ontario.ca>
Sent: January 20, 2020 11:08 AM
To: Perkin, Carlene
Subject: RE: Property Inquiry - Agincourt North-South Road EA

Ms. Perkin;

If trees or buildings are to be removed, species at risk Bats should also be considered.

Kind Regards;

JJA

JEFF J. ANDERSEN

MANAGEMENT BIOLOGIST
PERMISSIONS AND COMPLIANCE SECTION, SPECIES AT RISK BRANCH
LAND AND WATER DIVISION
ONTARIO MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PARKS

50 Bloomington Road, Aurora ON L4G 0L8 | jeff.andersen@ontario.ca | 289-221-1705

Ontario

From: Perkin, Carlene <carlene.perkin@wsp.com>
Sent: January 20, 2020 8:55 AM
To: Species at Risk (MECP) <SAROntario@ontario.ca>
Subject: Property Inquiry - Agincourt North-South Road EA

To whom it may concern,

WSP Canada Group Limited (WSP) has been retained by the City of Toronto to complete a Schedule C Municipal Class Environmental Assessment (EA) for an new north-south road in Agincourt, located southeast of the Sheppard Avenue East and Kennedy Road intersection. An image of the approximate study area limit (hatched blue area) is attached for your reference.

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    - American Burying Beetle (EXP); last observed 1896; and,
    - Barn Swallow (THR); last observed 2015.

Additional information we are seeking includes any of the following information that is not publicly available through the above sources:

- Species at Risk (SAR):
    - List of SAR to be considered for the study area;
    - Locations, observation dates and any other relevant information about SAR – if possible, please provide the UTM's/accuracy codes; and,
    - Locally rare species lists or records and/or rare vegetation communities known from the study area.

If further information is required, please feel free to contact the undersigned. Thank you for your assistance, it is greatly appreciated.

Thank you,
Carlene Perkin

Carlene Perkin, B. Sc.
Terrestrial Ecologist – ISA Certified Arborist
Ecology and Environmental Impact Assessment

WSP Canada Group Limited
100 Commerce Valley Drive West
Thornhill, Ontario, L3T 0A1 Canada
Skype +1 289-982-4220

carlene.perkin@wsp.com

Please consider the environment before printing...

APPENDIX

C VASCULAR PLANT LIST

Appendix C: Vascular Plant List

COMMON NAME	SCIENTIFIC NAME	AUTHOR	CC	CW	G_RANK	N_RANK	S_RANK	COSEWIC	SARA	SARO	CITY OF TORONTO (Varga et al. 2000)	TRCA (2018)	NATIVE STATUS
Alfalfa	Medicago sativa	L.		5	GNR	NNA	SNA						I
Austrian Pine	Pinus nigra	Arnold		5	GNR	NNA	SNA					L+	I
Basswood	Tilia americana	L.	4	3	G5	N5	S5				X	L5	N
Bell's Honeysuckle	Lonicera x bella	Zabel		3	GNA	NNA	SNA				X	L+	I
Black Medick	Medicago lupulina	L.		3	GNR	NNA	SNA				X	L+	I
Black Walnut	Juglans nigra	L.	5	3	G5	N4	S4?				X	L5	N
Broad-leaved Cattail	Typha latifolia	L.	1	-5	G5	N5	S5				X	L4	N
Bull Thistle	Cirsium vulgare	(Savi) Ten.		3	GNR	NNA	SNA				X	L+	I
Bur Oak	Quercus macrocarpa	Michx.	5	3	G5	N5	S5				X	L4	N
Canada Bluegrass	Poa compressa	L.	0	3	GNR	NNA	SNA				X		I
Canada Goldenrod	Solidago canadensis var. canadensis	L.	1	3	G5T5	N5	S5				X	L5	N
Canada Thistle	Cirsium arvense	(L.) Scop.		3	G5	NNA	SNA				X		I
Chokecherry	Prunus virginiana	L.	2	3	G5	NNR	S5				X	L5	N
Cleavers Bedstraw	Galium aparine	L.	4	3	G5	N5	S5				XU	L5	N
Coltsfoot	Tussilago farfara	L.		3	GNR	NNA	SNA				X	L+	I
Common Buckthorn	Rhamnus cathartica	L.		0	GNR	NNA	SNA				X	L+	I
Common Burdock	Arctium minus	Bernh.		3	GNR	NNA	SNA				X		I
Common Buttercup	Ranunculus acris	L.		0	G5	NNA	SNA				X		I
Common Comfrey	Symphytum officinale	L.		5	GNR	NNA	SNA				X	L+	I
Common Dandelion	Taraxacum officinale	G.H. Weber ex Wiggers		3	G5	N5	SNA				X	L+	I

COMMON NAME	SCIENTIFIC NAME	AUTHOR	CC	CW	G_RANK	N_RANK	S_RANK	COSEWIC	SARA	SARO	CITY OF TORONTO (Varga et al. 2000)	TRCA (2018)	NATIVE STATUS
Common Evening Primrose	Oenothera biennis	L.	0	3	G5	N5	S5				U	L5	N
Common Hackberry	Celtis occidentalis	L.	8	0	G5	N4	S4					L+	N
Common Lilac	Syringa vulgaris	L.		5	GNR	NNA	SNA				X		I
Common Milkweed	Asclepias syriaca	L.	0	5	G5	N5	S5				X		N
Common Motherwort	Leonurus cardiaca	L.		5	GNR	NNA	SNA				X		I
Common Mullein	Verbascum thapsus	L.		5	GNR	NNA	SNA				X		I
Common Plantain	Plantago major	L.		3	G5	NNA	SNA				X	L+	I
Common Ragweed	Ambrosia artemisiifolia	L.	0	3	G5	N5	S5				X		N
Common Reed	Phragmites australis	(Cavan.) Trinius ex. Steudel	0	-3	G5	N5	S4?				X	L+	N
Common Self-heal	Prunella vulgaris	L.		0	G5	N5	S5						I
Common Viper's Bugloss	Echium vulgare	L.		5	GNR	NNA	SNA				X		I
Common Yarrow	Achillea millefolium	L.		3	G5	N5	SNA				X		I
Corn Mustard	Sinapis arvensis	L.		5	GNR	NNA	SNA				X	L+	I
Curly Dock	Rumex crispus	L.		0	GNR	NNA	SNA				X	L+	I
Dock sp.	Rumex sp.	L.											
Dog Strangling Vine	Vincetoxicum rossicum	(Kleopow) Barbaricz		5	GNR	NNA	SNA				X	L+	I
Eastern Cottonwood	Populus deltoides	Bartr. ex Marsh.	4	0	G5	N5	S5						N

COMMON NAME	SCIENTIFIC NAME	AUTHOR	CC	CW	G_RANK	N_RANK	S_RANK	COSEWIC	SARA	SARO	CITY OF TORONTO (Varga et al. 2000)	TRCA (2018)	NATIVE STATUS
Eastern Poison Ivy (Climbing)	Toxicodendron radicans var. radicans	(L.) Kuntze	2	0	G5T5	N4	S5				R5	L5	N
Eastern Prickly Gooseberry	Ribes cynosbati	L.	4	3	G5	N5	S5				X		N
Eastern Red Cedar	Juniperus virginiana	L.	4	3	G5	N5	S5				R1	L5	N
Eastern Tall Goldenrod	Solidago altissima var. altissima	L.	1	3	G--T5	N5	S5				X	L5	N
Eastern White Cedar	Thuja occidentalis	L.	4	-3	G5	N5	S5				X		N
Eastern White Pine	Pinus strobus	L.	4	3	G5	N5	S5				X	L4	N
Elderberry sp.	Sambucus sp.	L.											
Erect Hedge-parsley	Torilis japonica	(Houtt.) DC.		3	GNR	NNA	SNA				X		I
European Lily-of-the-valley	Convallaria majalis	L.		5	G5	NNA	SNA				X	L+	I
European Privet	Ligustrum vulgare	L.		3	GNR	NNA	SNA				X		I
Field Horsetail	Equisetum arvense	L.	0	0	G5	N5	S5				X	L5	N
Field Sow-thistle	Sonchus arvensis	L.		3	GNR	NNA	SNA						I
Forget-me-not	Myosotis sp.	Ehrh. ex Hoffmann		5	G5	NNA	SNA				X	L+	
Foxtail sp.	Setaria sp.	Palisot de Beauvois											
Freeman's Maple	Acer x freemanii	E. Murr.	6	-5	GNA	NNA	SNA				X	L4	N
Garden Asparagus	Asparagus officinalis	L.		3	G5?	NNA	SNA				X	L+	I
Garden Bird's-foot Trefoil	Lotus corniculatus	L.		3	GNR	NNA	SNA				X		I

COMMON NAME	SCIENTIFIC NAME	AUTHOR	CC	CW	G_RANK	N_RANK	S_RANK	COSEWIC	SARA	SARO	CITY OF TORONTO (Varga et al. 2000)	TRCA (2018)	NATIVE STATUS
Garlic Mustard	Alliaria petiolata	(Bieb.) Cavar.a & Grande		0	GNR	NNA	SNA				X	L+	I
Giant Goldenrod	Solidago gigantea	Ait.	4	-3	G5	N5	S5				X		N
Ginkgo	Ginkgo biloba	L.										L+	I
Green Ash	Fraxinus pennsylvanica	Marsh.	3	-3	G5	N5	S4				X	L5	N
Ground-ivy	Glechoma hederacea	L.		3	GNR	NNA	SNA				X	L+	I
Honey Locust	Gleditsia triacanthos	L.	8	0	G5	N2	S2?				X	L+	N
Honeysuckle sp.	Lonicera sp.	L.											
Horse Chestnut	Aesculus hippocastanum	L.		5	GNR	NNA	SNA				X	L+	I
Hybrid White Willow	Salix x fragilis	L.		0	GNA	NNA	SNA				X		I
Kentucky Bluegrass	Poa pratensis	L.		3	G5	N5	S5						I
Kentucky Coffee-tree	Gymnocladus dioicus	(L.) K. Koch	6	3	G5	N2	S2	THR	THR	THR		L+	N
Large False Solomon's-seal	Maianthemum racemosum	(L.) Link									X		N
Lesser Periwinkle	Vinca minor	L.		5	GNR	NNA	SNA				X		I
Manitoba Maple	Acer negundo	L.	0	0	G5	N5	S5				X	L+?	N
Morrow's Honeysuckle	Lonicera morrowii	Gray		3	GNR	NNA	SNA				X	L+	I
Mountain-ash sp.	Sorbus sp.	L.											
Nannyberry	Viburnum lentago	L.	4	0	G5	N5	S5				X		N
Narrow-leaved Cattail	Typha angustifolia	L.		-5	G5	N5	SNA				X	L+	I

COMMON NAME	SCIENTIFIC NAME	AUTHOR	CC	CW	G_RANK	N_RANK	S_RANK	COSEWIC	SARA	SARO	CITY OF TORONTO (Varga et al. 2000)	TRCA (2018)	NATIVE STATUS
New England Aster	Symphyotrichum novae-angliae	(L.) Nesom	2	-3	G5	N5	S5				X		N
Northern Catalpa	Catalpa speciosa	(Warder ex Barney) Warder ex Engelm.		3	G4?	NNA	SNA					L+	I
Northern Red Oak	Quercus rubra	L.	6	3	G5	N5	S5				X	L4	N
Norway Maple	Acer platanoides	L.		5	GNR	NNA	SNA				X	L+	I
Orange Daylily	Hemerocallis fulva	(L.) L.		5	GNA	NNA	SNA				X	L+	I
Oxeye Daisy	Leucanthemum vulgare	Lam.		5	GNR	NNA	SNA				X	L+	I
Panicgrass sp.	Panicum sp.	L.											
Panicled Aster	Symphyotrichum lanceolatum	(Willdenow) Nesom	3	-3	G5	N5	S5						N
Paper Birch	Betula papyrifera	Marsh.	2	3	G5	N5	S5				X	L4	N
Philadelphia Fleabane	Erigeron philadelphicus	L.	1	-3	G5	N5	S5				X		N
Pin Cherry	Prunus pensylvanica	L. f.	3	3	G5	NNR	S5				XU	L4	N
Prickly Sow-thistle	Sonchus asper	(L.) Hill		3	GNR	NNA	SNA				X		I
Purple Loosestrife	Lythrum salicaria	L.		-5	G5	NNA	SNA				X	L+	I
Pussy Willow	Salix discolor	Muhl.	3	-3	G5	N5	S5				X		N
Quackgrass	Elymus repens	(L.) Gould		3	GNR	NNA	SNA				X		I
Queen Anne's Lace	Daucus carota	L.		5	GNR	NNA	SNA				X	L+	I
Red Clover	Trifolium pratense	L.		3	GNR	NNA	SNA				X	L+	I
Red Maple	Acer rubrum	L.	4	0	G5	N5	S5				X	L4	N
Red Raspberry	Rubus idaeus	L.	2	3	G5	N5	S5						I
Red-osier Dogwood	Cornus sericea	L.	2	-3	G5	N5	S5				X	L5	N

COMMON NAME	SCIENTIFIC NAME	AUTHOR	CC	CW	G_RANK	N_RANK	S_RANK	COSEWIC	SARA	SARO	CITY OF TORONTO (Varga et al. 2000)	TRCA (2018)	NATIVE STATUS
Reed Canarygrass	Phalaris arundinacea var. arundinacea	L.	0	-3	G5TNR	NNR	S5				X	L+?	N
Riverbank Grape	Vitis riparia	Michx.	0	0	G5	N5	S5				X	L5	N
Russian Olive	Elaeagnus angustifolia	L.		3	GNR	NNA	SNA				X	L+	I
Serviceberry sp.	Amelanchier sp.	Medik.											
Siberian Elm	Ulmus pumila	L.		3	GNR	NNA	SNA				X	L+	I
Silver Maple	Acer saccharinum	L.	5	-3	G5	N5	S5				X		N
Smooth Brome	Bromus inermis	Leysser		5	G5	NNA	SNA				X	L+	I
Soft-stemmed Bulrush	Schoenoplectus tabernaemontani	(K. C. Gmelin) Palla	5	-5	G5	N5	S5				X	L4	N
Spikerush sp.	Eleocharis sp.	R. Br.											
Spotted Jewelweed	Impatiens capensis	Meerb.	4	-3	G5	N5	S5				X	L5	N
Spotted Knapweed	Centaurea stoebe	L.		5	GNR	NNA	SNA				X		I
Staghorn Sumac	Rhus typhina	L.	1	3	G5	N5	S5				X	L5	N
Sugar Maple	Acer saccharum	Marsh.	4	3	G5	N5	S5				X	L4	N
Sweet Gum	Liquidambar styraciflua	L.		5	G5	NNA	SNA						I
Sycamore	Platanus occidentalis	L.	8	-3	G5	N4	S4				R2	L2	N
Tall Goldenrod	Solidago altissima	L.	1	3	G5	N5	S5				X		N
Trembling Aspen	Populus tremuloides	Michx.	2	0	G5	N5	S5				X	L5	N
Tufted Vetch	Vicia cracca	L.		5	GNR	NNA	SNA				X	L+	I
Tulip Tree	Liriodendron tulipifera	L.	8	3	G5	N4	S4						N
Turkish Hazel	Corylus colurna												I
Virginia Creeper	Parthenocissus quinquefolia	(L.) Planch. ex DC.	6	3	G5	N4N5	S4?						N
White Ash	Fraxinus americana	L.	4	3	G5	N5	S4				X	L5	N

COMMON NAME	SCIENTIFIC NAME	AUTHOR	CC	CW	G_RANK	N_RANK	S_RANK	COSEWIC	SARA	SARO	CITY OF TORONTO (Varga et al. 2000)	TRCA (2018)	NATIVE STATUS
White Elm	Ulmus americana	L.	3	-3	G5	N5	S5				X		N
White Spruce	Picea glauca	(Moench) Voss	6	3	G5	N5	S5				X+	L3	N
White Willow	Salix alba	L.		-3	G5	NNA	SNA				X	L+	I
Wild Chicory	Cichorium intybus	L.		5	GNR	NNA	SNA				X	L+	I
Wild Cucumber	Echinocystis lobata	(Michx.) Torr. & Gray	3	-3	G5	N5	S5				X		N
Wild Lily-of-the-valley	Maianthemum canadense ssp. canadense	Desfountaines	5	3	G5T5	N5	S5						N
Wild Parsnip	Pastinaca sativa	L.		5	GNR	NNA	SNA				X		I
Wild Strawberry	Fragaria virginiana	Duchesne	2	3	G5	N5	S5						N
Willow sp.	Salix sp.	L.											
Woodland Sedge	Carex blanda	Dewey	3	0	G5	N5	S5				X	L5	N
Woodland Strawberry	Fragaria vesca	L.	4	3	G5	N5	S5						N
Yellow Avens	Geum aleppicum	Jacq.	2	0	G5	N5	S5				X		N
Yellow Goatsbeard	Tragopogon dubius	Scop.		5	GNR	NNA	SNA				X		I
Zigzag Goldenrod	Solidago flexicaulis	L.	6	3	G5	N5	S5				X		N

PLANT LIST LEGEND

Scientific Name, Common Name, and Family
Based on Vascan (Dec. 2017) and NHIC (Apr. 18, 2017)

Vascan: http://data.canadensys.net/vascan/search
NHIC: http://www.sse.gov.on.ca/sites/MNR-PublicDocs/EN/ProvincialServices/Ontario_Vascular_Plants.xlsx

[1] Coefficient of Conservatism and Coefficient of Wetness
Oldham, M. J., W. D. Bakowsky and D. A. Sutherland. 1995. Floristic Quality Assessment System for Southern Ontario. Natural Heritage Information Centre, Ministry of Natural Resources. Peterborough, Ontario.

CC: Coefficient of Conservatism. Rank of 0 to 10 based on plants degree of fidelity to a range of synecological parameters: (0-3) Taxa found in a variety of plant communities; (4-6) Taxa typically associated with a specific plant community but tolerate moderate disturbance; (7-8) Taxa associated with a plant community in an advanced successional stage that has undergone minor disturbance; (9-10) Taxa with a high fidelity to a narrow range of synecological parameters.
CW: Coefficient of Wetness. Value between 5 and –5. A value of –5 is assigned to Obligate Wetland (OBL) and 5 to Obligate Upland (UPL), with intermediate values assigned to the remaining categories.

[3] G-Rank (Global)
Global Status from Nature Serve (via NHIC, 2017)
Nature Serve: http://explorer.natureserve.org/
NHIC: http://www.sse.gov.on.ca/sites/MNR-PublicDocs/EN/ProvincialServices/Ontario_Vascular_Plants.xlsx

Global ranks are assigned by a consensus of the network of Conservation Data Centres (CDCs), scientific experts, and the Nature Conservancy to designate a rarity rank based on the range-wide status of a species, subspecies, or variety.

Global (G) Conservation Status Ranks
G1: Extremely rare – usually 5 or fewer occurrences in the overall range or very few remaining individuals; or because of some factor(s) making it especially vulnerable to extinction.
G2: Very rare – usually between 5 and 20 occurrences in the overall range or with many individuals in fewer occurrences; or because of some factor(s) making it vulnerable to extinction.
G3: Rare to uncommon – usually between 20 and 100 occurrences; may have fewer occurrences, but with a large number of individuals in some populations; may be susceptible to large-scale disturbances.
G4: Common – usually more than 100 occurrences; usually not susceptible to immediate threats.
G5: Very common – demonstrably secure under present conditions.
G#G#: Range Rank – A numeric range rank (e.g., G2G3, G1G3) is used to indicate the range of uncertainty about the exact status of a taxon or ecosystem type. Ranges cannot skip more than two ranks (e.g., GU should be used rather than G1G4).
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?: Inexact Numeric Rank – Denotes inexact numeric rank; this should not be used with any of the Variant Global Conservation Status Ranks or GX or GH.

S-Ranks (Provincial)
Provincial Status from the NHIC (2017)
NHIC: http://www.sse.gov.on.ca/sites/MNR-PublicDocs/EN/ProvincialServices/Ontario_Vascular_Plants.xlsx

Provincial (or Subnational) ranks are used by the Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities. These ranks are not legal designations. Provincial ranks are assigned in a manner similar to that described for global ranks, but consider only those factors within the political boundaries of Ontario.

Provincial/Sub-national (S) Conservation Status Ranks
S1: Critically Imperiled – Critically imperiled in the nation or state/province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state/province.
S2: Imperiled – Imperiled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.
S3: Vulnerable – Vulnerable in the nation or state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
S4: Apparently Secure – Uncommon but not rare; some cause for long-term concern due to declines or other factors.
S5: Secure – Common, widespread, and abundant in the nation or state/province.
S#S#: Range Rank – A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).
SNR: Unranked – Nation of state/province conservation status not yet assessed.
SNA: Not Applicable – A conservation status rank is not applicable because the species is not a suitable target for conservation activities.
?: Inexact or Uncertain - Denotes inexact or uncertain numericrank.

COSEWIC (Committee on the Status of Endangered Wildlife in Canada)
The federal review process is implemented by COSEWIC (Status as of Feb. 2018)

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) is an independent advisory panel to the Minister of Environment and Climate Change Canada that meets twice a year to assess the status of wildlife species at risk of extinction.
https://www.canada.ca/en/environment-climate-change/services/committee-status-endangered-wildlife.html

COSEWIC Conservation Status Ranks
END: Endangered – A species facing imminent extirpation or extinction.
THR: Threatened – A species likely to become endangered if limiting factors are not reversed.
SC: Special Concern (formerly vulnerable) – A species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.
NAR: Not At Risk – A species that has been evaluated and found to be not at risk of extinction given the current circumstances.

[6] SARA (Species at Risk Act) Status and Schedule
Federal status from the Government of Canada's Species at Risk Public Registry (Status as ofFeb. 2018)
http://www.registrelep-sararegistry.gc.ca/

The Act establishes Schedule 1, as the official list of species at risk in Canada. It classifies those species as being either Extirpated, Endangered, Threatened, or a Special Concern. Once listed, the measures to protect and recover a listed species are implemented.
SARA Conservation Status Ranks
END: Endangered – A species that is facing imminent extirpation or extinction.

THR: Threatened – A species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.
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Schedule 1: is the official list of species that are classified as extirpated, endangered, threatened, and of special concern.
Schedule 2: species listed in Schedule 2 are species that had been designated as endangered or threatened, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.
Schedule 3: species listed in Schedule 3 are species that had been designated as special concern, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.
The Act establishes Schedule 1 as the official list of species at risk. However, please note that while Schedule 1 lists species that are extirpated, endangered, threatened and of special concern, the prohibitions do not apply to species of special concern. Species that were designated at risk by COSEWIC prior to October 1999 (Schedule 2 & 3) must be reassessed using revised criteria before they can be considered for addition to Schedule 1 of SARA. After they have been assessed, the Governor in Council may on the recommendation of the Minister, decide on whether or not they should be added to the List of Species at Risk.

SARO (Species at Risk in Ontario)
Provincial status from MNRF (Status as of Feb. 2018)
https://www.ontario.ca/environment-and-energy/species-risk-ontario-list

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MNRF Conservation Status Ranks
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SC: Special Concern (formerly Vulnerable) – A species with characteristics that make it sensitive to human activities or natural events.
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Regional Status

Toronto and Region Conservation Authority (TRCA).
Toronto and Region Conservation Authority (TRCA). 2018. Annual Local Occurrence Score and Local Rank Update: Terrestrial Species and Vegetation Communities. L rank (Local Rank) – A rank assigned by TRCA to a species, vegetation community, or habitat patch which describes its rank and level of conservation concern in the TRCA Region. Species of concern, according to the TRCA methodology are any species with a local rank of L1 to L3, and some particularly sensitive species with a rank of L4. They are generally species which are disappearing in the landscape, primarily as a result of land use changes.

L1: Of concern regionally; almost certainly rare in TRCA jurisdiction; generally occur in high-quality natural areas, in natural matrix; unable to withstand disturbance.
L2: Of concern regionally; probably rare in TRCA jurisdiction; generally occur in high-quality natural areas, in natural matrix; unable to withstand disturbance.
L3: Of concern regionally; generally secure in natural matrix; able to withstand minor disturbance.
L4: Of concern in urban matrix; generally secure in rural matrix; able to withstand some disturbance.
L5: Not of concern; generally secure throughout jurisdiction, including urban matrix; able to withstand high levels of disturbance.
LX: Extirpated from the TRCA region with remote chance of rediscovery. Presumably highly sensitive. Not scored.
LH: Hybrid between two native species. Usually not scored unless highly stable and behaves like a species.
L+: Exotic. Not native to TRCA jurisdiction. Includes hybrids between a native species and an exotic. Not scored.
L+?: Origin uncertain or disputed (i.e., may or may not be native). Not scored.

Halton , Peel, Toronto, York, York Region, Durham, GTA, 6E7, 7E4
Varga, S., et. al. 2000. The Distribution and Status of the Vascular Plants of the Greater Toronto Area. Ontario Ministry of Natural Resources, Aurora, ON. 103 pp.

"Plant rarity is based on the number of locations for a native plant species" and also takes into account native species restricted to specialized rare habitats. For the Greater Toronto Area column, "A species is considered rare in the Greater Toronto Area if it is rare or uncommon in a least four of... Halton, Peel, Toronto, York, and Durham".

Codes are defined as follows:
X: Present
U: Uncommon native species
R: Rare native species
R#: Number of stations for a rare native species
E: Extirpated native species
+ or I: Introduced species
X+: Introduced in municipality
SR: Sight record
LR: Literature record

APPENDIX

D WILDLIFE LIST

Appendix D: Wildlife List

Scientific Name	Common Name	Grank	Srank	COSEWIC	SARO	TRCA (2019)
Sylvilagus floridanus	Eastern Cottontail	G5	S5	-	-	L4
Procyon lotor	Raccoon	G5	S5	-	-	L5
Sciurus carolinensis	Eastern Gray Squirrel	G5	S5	-	-	L5
Canis latrans	Coyote	G5	S5	-	-	L5
Microtus pennsylvanicus	Meadow Vole	G5	S5	-	-	L4
Charadrius vociferus	Killdeer	G5	S5B, S5N	-	-	L4
Icterus galbula	Baltimore Oriole	G5	S4B	-	-	L5
Agelaius phoeniceus	Red-winged Blackbird	G5	S4	-	-	L5
Turdus migratorius	American Robin	G5	S5B	-	-	L5
Melospiza melodia	Song Sparrow	G5	S5B	-	-	L5
Carduelis tristis	American Goldfinch	G5	S5B	-	-	L5
Cardinalis cardinalis	Northern Cardinal	G5	S5	-	-	L5
Spizella passerina	Chipping Sparrow	G5	S5B	-	-	L5
Zenaida macroura	Mourning Dove	G5	S5	-	-	L5
Passer domesticus	House Sparrow	G5	SNA	-	-	L5
Pheucticus ludovicianus	Rose-breasted Grosbeak	G5	S4B	-	-	L4
Contopus virens	Eastern Phoebe	G5	S5	-	-	L5
Dumetella carolinensis	Gray Cat Bird	G5	S5	-	-	L4
Anas platyrhynchos)	Mallard			-	-	L5
Picoides pubescens	Downy Woodpecker	G5	S5	-	-	L5
Cyanocitta cristata	Blue Jay	G5	S5	-	-	L5
Sitta carolinensis	White-breasted Nuthatch	G5	S5	-	-	L4
Columba livia	Rock Pigeon	G5	SNA	-	-	L+
Zonotrichia albicollis	White-throated Sparrow	G5	S5B	-	-	L3
Pieris rapae	Cabbage White	G5	SNA	-	-	n/a

FAUNA LIST LEGEND

[3] G-Rank (Global)

Global Status from Nature Serve (via NHIC, 2017)

Nature Serve: http://explorer.natureserve.org/

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SARO (Species at Risk in Ontario)

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SC: Special Concern (formerly Vulnerable) – A species with characteristics that make it sensitive to human activities or natural events.

NAR: Not at Risk – A species that has been evaluated and found to be not at risk.

Regional Status

Toronto and Region Conservation Authority (TRCA).
Toronto and Region Conservation Authority (TRCA). 2019. Fauna Ranks and Scores for the TRCA Jurisdiction, 2019.
L rank (Local Rank) – A rank assigned by TRCA to a species, vegetation community, or habitat patch which describes its rank and level of conservation concern in the TRCA Region. Species of concern, according to the TRCA methodology are any species with a local rank of L1 to L3, and some particularly sensitive species with a rank of L4. They are generally species which are disappearing in the landscape, primarily as a result of land use changes.

L1:	Of concern regionally; almost certainly rare in TRCA jurisdiction; generally occur in high-quality natural areas, in natural matrix; unable to withstand disturbance.
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L4:	Of concern in urban matrix; generally secure in rural matrix; able to withstand some disturbance.
L5:	Not of concern; generally secure throughout jurisdiction, including urban matrix; able to withstand high levels of disturbance.
LX:	Extirpated from the TRCA region with remote chance of rediscovery. Presumably highly sensitive. Not scored.
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L+:	Exotic. Not native to TRCA jurisdiction. Includes hybrids between a native species and an exotic. Not scored.
L+?:	Origin uncertain or disputed (i.e., may or may not be native). Not scored.

APPENDIX

E SAR SCREENING TABLE

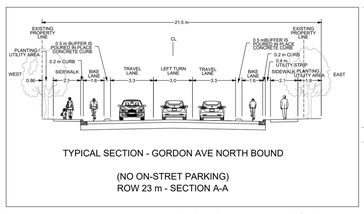
Appendix E: Species at Risk Screening Table

Species	ESA Status[1] and Regional Occurrence	ESA Protection[2]	Source of Record (Date)	Key Habitats Used by Species in Ontario	Reasonable Likelihood of Presence in Study Area	Surveys Undertaken	Results of Field Surveys	Likelihood and Magnitude of Impacts to Species or Habitat
Birds								
Barn Swallow (Hirundo rustica)	SC	N/A	OBBA	prefers farmland; lake/river shorelines; wooded clearings; urban populated areas; rocky cliffs; and wetlands. They nest inside or outside buildings; under bridges and in road culverts; on rock faces and in caves etc. (MNRF Guelph - Waterloo List, 2014)	**Moderate** - suitable urban breeding habitats may be present in box culverts and bridges and / or the species may migrate through the study area.	General Wildlife Surveys / SAR Habitat Assessment	No observations	**Moderate** – suitable nesting structures along West Highland Creek. Foraging habitat minimal.
Chimney Swift (Chaetura pelagica)	THR	Species and General Habitat Protection	OBBA	Historically found in deciduous and coniferous, usually wet forest types, all with a well-developed, dense shrub layer; now most are found in urban areas in large uncapped chimneys (MNRF Guelph - Waterloo List, 2014)	**Moderate** - suitable urban breeding habitat may be present in uncapped chimneys and / or the species may migrate through the study area.	General Wildlife Surveys / SAR Habitat Assessment	No observations	**None** - no suitable breeding habitat on study area .
Common Nighthawk (Chordeiles minor)	SC	N/A	OBBA	Generally prefer open, vegetation-free habitats, including dunes, beaches, recently harvested forests, burnt-over areas, logged areas, rocky outcrops, rocky barrens, grasslands, pastures, peat bogs, marshes, lakeshores, and river banks. This species also inhabits mixed and coniferous forests. Can also be found in urban areas (nest on flat roof-tops) (MNRF Guelph - Waterloo List, 2014)	**Moderate** - suitable urban breeding habitat may be present on flat roof-tops and / or the species may migrate through the study area.	General Wildlife Surveys / SAR Habitat Assessment	No observations	**None** - no suitable breeding habitat on the study area.
Insects								
Monarch (Danaus plexippus)	SC	N/A	Thorold MNRF Regional List (2018)	Exist primarily wherever milkweed and wildflowers exist; abandoned farmland, along roadsides, and other open spaces (MNRF Guelph - Waterloo List, 2014)	**Minimal** - this is a common species in southern Ontario and likely migrates and / or breeds on or adjacent to the study area. Open habitats are limited on the study area. Common Milkweed was observed in low abundance in the study area.	General Wildlife Surveys / SAR Habitat Assessment	No observations	**Minimal** - impacts on breeding habitat will be temporary and the Contract documents will specify that disturbed areas shall be reseeded with a native wildflower mix including Milkweed species for breeding. Sightings of this species occurred north of the stud area (iNaturalist 2018)
Mammals								
Eastern Small-footed Bat (Myotis leibii)	END	Species and General Habitat Protection	Thorold MNRF Regional List (2018)	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius. Maternal Roosts: primarily under loose rocks on exposed rock outcrops, crevices and cliffs, and occasionally in buildings, under bridges and highway overpasses and under tree bark (MNRF Guelph - Waterloo List, 2014)	**Minimal** - this species may be found in the general vicinity of the study area. Rock outcrops for roosting were not observed.	General Wildlife Surveys / SAR Habitat Assessment	No observations	**None -** no suitable breeding habitat on study area .
Little Brown Bat (Little Brown Myotis) (Myotis lucifugus)	END	Species and General Habitat Protection	Thorold MNRF Regional List (2018)	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius. Maternal Roosts: Often associated with buildings (attics, barns etc.). Occasionally found in trees (25-44 cm dbh) (MNRF Guelph - Waterloo List, 2014)	**Moderate** - this species may be found in the general vicinity of the study area , and potentially suitable wooded and forested habitats are present.	General Wildlife Surveys / SAR Habitat Assessment	No observations	**Minimal** - tree removal may be required within the site; however, suitable cavity trees were not observed on the study area and similar forested habitat is found in the area.
Northern Long-eared Bat (Northern Myotis) (Myotis septentrionalis)	END	Species and General Habitat Protection	Thorold MNRF Regional List (2018)	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius. Maternal Roosts: Often associated with cavities of large diameter trees (25-44 cm dbh). Occasionally found in structures (attics, barns etc.)(MNRF Guelph - Waterloo List, 2014)	**Moderate** - this species may be found in the general vicinity of the study area , and potentially suitable wooded and forested habitats are present.	General Wildlife Surveys / SAR Habitat Assessment	No observations	**Minimal** - tree removal may be required within the site; however, suitable cavity trees were not observed on the study area and similar forested habitat is found in the area.

Species	ESA Status[1] and Regional Occurrence	ESA Protection[2]	Source of Record (Date)	Key Habitats Used by Species in Ontario	Reasonable Likelihood of Presence in Study Area	Surveys Undertaken	Results of Field Surveys	Likelihood and Magnitude of Impacts to Species or Habitat
Tri-colored Bat (Perimyotis subflavus)	END	Species and General Habitat Protection	Thorold MNRF Regional List (2018)	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius. Maternal Roosts: Manmade structures or tree cavities. Foraging over still water, rivers, or in forest gaps (COSEWIC 2013f)	**Moderate** - this species may be found in the general vicinity of the study area , and potentially suitable wooded and forested habitats are present.	General Wildlife Surveys / SAR Habitat Assessment	No observations	**Minimal** - tree removal may be required within the site; however, suitable cavity trees were not observed on the study area and similar forested habitat is found in the area.
Plants								
Butternut (Juglans cinerea)	END	Species and General Habitat Protection	Thorold MNRF Regional List (2018); NHIC (last observed in 2007)	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 (MNRF Guelph - Waterloo List, 2014).	**Moderate** - this species may be found in the general vicinity of the study area , and potentially suitable wooded and forested habitats are present.	ELC / botanical inventory site visit / Arborist tree survey	No observations	**None** - species was not identified on study area.
Black Aah (Fraxinus nigra)	END	Species and General Habitat Protection	Aborist Report 2022	These trees grow in moist soils and are commonly found in swampy woodlands, fens, and the edges of marsh wetlands. This species is also commonly found in ravine bottomlands and/or within flooded areas along streams and rivers.	**High** – Observed in the naturalized area of West Highland Creek. This species may be found in the general vicinity of the study area, and potentially suitable ravine areas are present.	ELC / botanical inventory site visit / Arborist tree survey	Observations	**None** -. Works are not expected to cross into the area wear Black Ash was observed. Black Ash will not be removed as demonstrated by the Arborist Report (WSP 2022).
Reptiles								
Snapping Turtle (Chelydra serpentina)	SC	N/A	Thorold MNRF Regional List (2018)	Generally inhabit shallow waters where they can hide under the soft mud and leaf litter. Nesting sites usually occur on gravely or sandy areas along streams. Snapping Turtles often take advantage of man-made structures for nest sites, including roads (especially gravel shoulders), dams and aggregate pits (MNRF Guelph - Waterloo List, 2014)	**Moderate** - Snapping Turtles are found in the surrounding areas and the watercourse habitat within the study area may provide suitable habitat.	General Wildlife Surveys / SAR Habitat Assessment	No observations	**Moderate** - West Highland Creek may be used as a travel corridor as a sighting of this species occurs north of the study area along the watercourse (iNaturalist 2018). The majority of the site's watercourse banks are steep, composed of cement and have adjacent vegetation that is mowed. This area is not suitable for nesting or overwintering habitat. Turtle travelling into the work zone is expected to be low and opportunistic if occurs

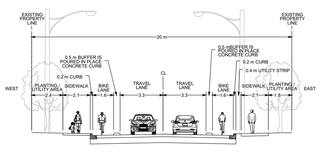
APPENDIX

F PREFERRED ALIGNMENTS



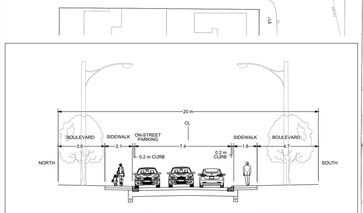
TYPICAL SECTION - GORDON AVE NORTH BOUND

(NO ON-STRET PARKING)
ROW 23 m - SECTION A-A



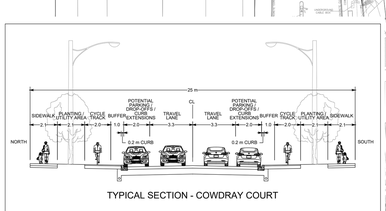
TYPICAL SECTION - GORDON AVENUE

(NO ON-STREET PARKING)
ROW 20 m - SECTION B-B



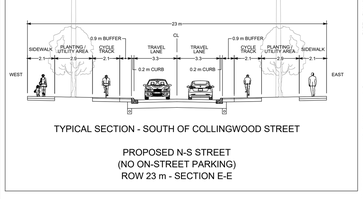
TYPICAL SECTION - COLLINGWOOD STREET

ROW 20 m - SECTION C-C



TYPICAL SECTION - COWDRAY COURT

ROW 25 m - SECTION D-D

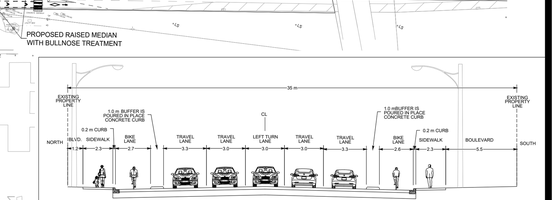


TYPICAL SECTION - SOUTH OF COLLINGWOOD STREET

PROPOSED N-S STREET
(NO ON-STREET PARKING)
ROW 23 m - SECTION E-E

TYPICAL SECTION - GRADE SEPARATION

PROPOSED N-S STREET
UNDER RAIL BRIDGE - SECTION F-F



TYPICAL SECTION - SHEPPARD AVENUE EAST

ROW 35 m - SECTION G-G

TORONTO

wsp
100 Commerce Valley Drive West
Thornhill, Ontario, L3T 0A1
Tel. 905-882-1100 Fax 905-882-0055

AGINCOURT EA

FROM VILLAGE GREEN SQUARE TO DOWRY STREET

DESIGN	G.B.	DRAWN	G.B.	CHECKED	P.Y.	CONTRACT No.
SCALE	N.T.S.			DRAWING NUMBER		SHEET PLAN
DATE						