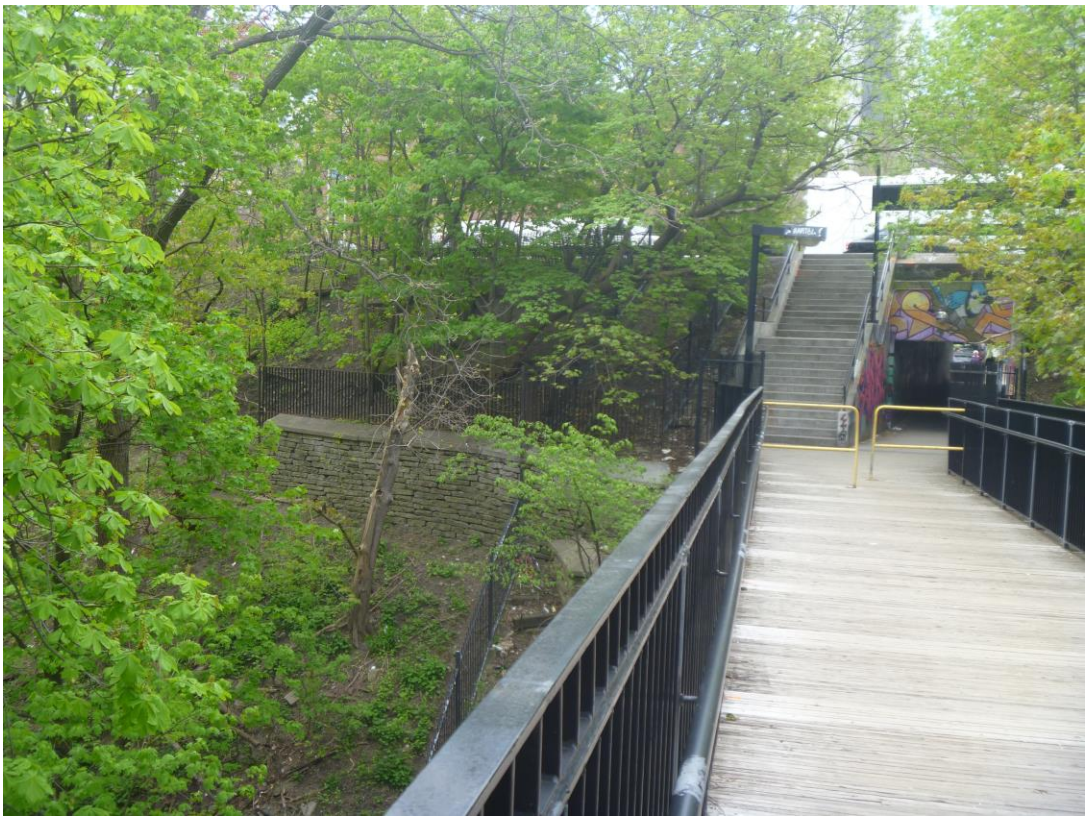
CITY OF TORONTO

GLEN ROAD PEDESTRIAN BRIDGE IMPROVEMENTS CLASS ENVIRONMENTAL ASSESSMENT (EA)

NATURAL ENVIRONMENT REPORT - DRAFT

NOVEMBER 2017



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NATURAL ENVIRONMENT REPORT - DRAFT

CITY OF TORONTO

PROJECT NO.: 16M-01410-01
DATE: NOVEMBER 2017

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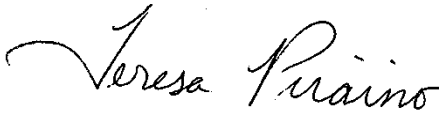

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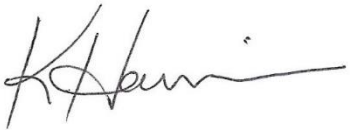

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1.0 INTRODUCTION

1.1 Study and Site Overview

The City of Toronto, herein referred to as the 'City', is currently undertaking a Municipal Class Environment Assessment (EA), Schedule C, to identify a preferred alternative that would address the need for anticipated improvements to the Glen Road Pedestrian Bridge, herein referred to as the 'bridge'. Scenarios considered for improvements to the bridge included rehabilitation of the existing bridge and replacement at the same location. The preferred alternative that has been identified involves the complete replacement of the bridge at the same location as the existing bridge. As part of the EA process, the preferred alternative has been carried forward into the preliminary design stage and preliminary design plans have been prepared.

In support of the EA process, WSP Canada Group Limited (WSP; formerly MMM Group) has been retained by the City to conduct the Natural Heritage assessment component of the study. As part of this assessment, existing conditions (background review and field studies) information was acquired in the spring and summer of 2016 to characterize existing natural heritage features and functions. This included documenting and delineating existing vegetation communities and vascular plant species, breeding bird surveys, and identification and evaluation of potential wildlife habitat along with documentation of all incidental wildlife observations. Existing conditions were documented in a report prepared and submitted in July 2016. This report is an update to the July 2016 report and examines existing conditions information collected in 2016 in conjunction with the preliminary design plans to conduct a preliminary impact assessment of the preferred alternative on the natural heritage features in the vicinity of the bridge.

The study area is presented in Appendix A-1 and is focused on the area within the vicinity of the existing bridge. A larger area (approximately 1 km) was also investigated for the presence of occurrence records of sensitive species that are not limited in spatial range.

The study area is situated within the Rosedale Extension Environmentally Significant Area (ESA) 62A. The natural feature is 5.1 ha in size and is characterized as a steep sloped ravine valley dominated by deciduous forest with Rosedale Valley Road running along the valley floor. The feature is significantly impacted by anthropogenic influences including those from Rosedale Valley Road, large accumulations of litter, homeless inhabitants, informal trail creation, highly invasive plant species, and physical disturbance such as dug holes and trampled vegetation (North-South Environmental Inc. et al. 2012). The feature met City of Toronto ESA criteria due to presence of two (2) locally significant flora species, Bladder Sedge (*Carex intumescens*) and Pennsylvania Bittercress (*Cardamine pensylvanica*), within the valley (Rosedale Extension Factsheet, North-South Environmental Inc. et al. 2012).

Several overlapping natural heritage designations pertain to the Rosedale Valley / Glen Road Pedestrian Bridge study area. These include:

- City of Toronto Natural Heritage System (Official Plan 2015);
- Toronto Region Conservation Authority (TRCA) Regulation 166/06 Lands; and
- TRCA Terrestrial Natural Heritage System (Terrestrial Natural Heritage System Strategy [TNHSS]).

Surrounding adjacent land uses are highly urbanized including high and low residential development and associated infrastructure (i.e. roads).

This natural environment report addresses the following:

- Summarizes the existing natural heritage features, functions and applicable policies within the study area;
- Evaluates the significance and sensitivity of identified features and species;
- Identifies constraints and opportunities associated with the preferred alternative;
- Provides a preliminary impact assessment based on preliminary design plans;
- Provides recommendations to mitigate the identified preliminary impacts and monitor the effectiveness of proposed mitigation measures; and
- Recommends future work to be conducted at the detail design phase of the project.

2.0 POLICY AND PLANNING FRAMEWORK

The Glen Road Pedestrian Bridge Improvements Class EA is being undertaken in accordance with the *Environmental Assessment Act R.S.O 1990,* following the *Municipal Engineers Class Environmental Assessment Document* (MCEA 2011). Additional relevant planning legislation and policy pertinent to this study are listed below and are discussed in further detail in Section 5.0 Policy & Planning Review and Assessment.

- Federal:
    - Migratory Birds Convention Act (1994)
- Provincial:
    - Endangered Species Act (2007)
    - Provincial Policy Statement (2014)

- Regional/Municipal
    - City of Toronto Official Plan (2015)
    - City of Toronto Ravine and Natural Feature Protection Bylaw
    - TRCA Regulation 166/06 (2006) and associated policies
    - TRCA's Terrestrial Natural Heritage System

3.0 STUDY APPROACH

Ecological surveys were carried out with consideration of the need to provide input into the assessment and selection of a preferred bridge improvement alternative. The assessment focused on identifying Natural Heritage constraints within the study area and providing a preliminary impact assessment based on the chosen preferred alternative. Existing background information for the study area was also incorporated where appropriate.

WSP undertook a review of all available relevant background materials (discussed in Section 3.1) and conducted a scoped field program in 2016 (discussed in Section 3.2) to assess existing natural heritage conditions within the study area.

3.1 Background Desktop Review

All relevant background material for the study area was collected and reviewed. This information was used to inform and supplement the field program and ensure compliance with applicable policies, regulations, and guidelines. A review of applicable policy and guidelines was also undertaken to ensure study compliance and to provide focus to the field investigations. A summary of applicable regulations and polices is provided in Section 6.0.

As part of the background data collection, requests for data/information were submitted to York Region, as well as TRCA and Aurora District Ontario Ministry of Natural Resources and Forestry (MNRF) on May 17 2016.

The following key sources of information were reviewed to supplement and provide context for field investigations:

- TRCA existing natural heritage data (provided July 7 2016);
- MNRF Aurora District Office Species at Risk data (provided July 18 2016);
- MNRF Natural Heritage Information Centre (NHIC) Land Information Ontario Mapping (2016);
- MNRF Natural Heritage Information Centre (NHIC) Natural Heritage Mapping Tool (2017);
- MNRF Species at Risk website - Regional Species at Risk list (2017);
- Ontario Nature's Reptile and Amphibian Atlas website (2016);

- Bird Studies Canada's Breeding Bird Atlas website (2016);
- Ebird Species Maps website (2016);
- *Environmentally Significant Areas (ESAs) in the City of Toronto* (North-South Environmental Inc. et al. 2012);
- City of Toronto Official Plan (2015);
- Digital air photos (2002, 2005, 2009, 2012, and 2015).

Background and other data sources are also listed in the 'References' section of this report.

3.2 Field Surveys

Field investigations were completed to assess terrestrial resources within the study area in 2016. These surveys were carried out to confirm and enhance information available from existing documentation. Field surveys were focused with the limits of the study area as shown in Appendix A-1.

Field surveys and methodology are summarized in Table 1 and are discussed further in this section. Representative site photographs were taken during field visits and are provided in Appendix B, with additional photographs on file at WSP. Existing conditions are summarized in Section 4.0.

Table 1. Summary of Field Surveys

SURVEY	METHODOLOGY	SURVEY DATES	WSP STAFF
Vegetation Assessment	Classification, mapping and evaluation of vegetation communities within the study area using a modified version of the Ecological Land Classification (ELC) for Southern Ontario (Lee et al. 1998; Lee 2008). A botanical inventory was undertaken within the study area. This was deemed appropriate to survey for any plant Species at Risk that may occur in the area and to inventory the majority of flora that occurs on the site. The adjacent areas within 120 m of the study area were delineated by data provided by TRCA and/or air photo interpretation.	May 19, July 15	K. Domsic
Breeding Birds Survey	An avifaunal inventory, breeding and habitat assessment was undertaken. The level of breeding bird evidence observed was recorded following standard criteria established by the Ontario Breeding Bird Atlas (OBBA).	May 25, June 10, July 4	T. Piraino

SURVEY	METHODOLOGY	SURVEY DATES	WSP STAFF
General Wildlife Surveys	Supplemental observations of herpetofauna, mammals, and insects were recorded during all field visits. All observations made during the field surveys were recorded, including sightings of species, as well as evidence of use (e.g. browse, tracks / trails, scat, burrows, and vocalizations). Wildlife habitat potential (SWH and SAR) was also evaluated during field surveys	May 25, June 10, July 4	T. Piraino

3.2.1 Vegetation Survey Approach

A vegetation community assessment and botanical inventory was undertaken on May 19 and July 15 2016 within the study area.

The scope of vegetation surveys and analyses included the following:

- Classification, mapping and evaluation of vegetation communities within the study area using the Ecological Land Classification (ELC) for Southern Ontario (Lee et al. 1998) and the Southern Ontario Ecological Land Classification: Vegetation Type List (Lee 2008);
- Vegetation communities are described in Section 4.5.1;
- Vegetation community significance was evaluated using Natural Heritage Resources of Ontario: Vegetation Communities of Southern Ontario (Bakowsky 1996) and vegetation community significance listed on the NHIC website at the time of report preparation.
- A vascular plant species list was prepared based on the botanical inventory work (Appendix C) and is discussed in Section 4.5.2; and
- Plant species status was was evaluated using the rankings for the City of Toronto provided in *The Distribution and Status of the Vascular Plants of the Greater Toronto Area* (Varga et. al. 2000) and in the *Toronto and Region Natural Heritage System Strategy – Final Draft* (TRCA 2007) for local significance; the *Rare Vascular Plants of Ontario, Fourth Edition* (Oldham and Brinker 2009) for provincial significance; the current *Species At Risk in Ontario List* (MNRF, May 2016) for Ontario species at risk; and, the Species At Risk Act (Schedules 1 and 3), for species at risk in Canada.

3.2.2 Wildlife Survey Approach

Wildlife surveys were conducted within the study area on May 25, June 10 and July 4 2016 and included: breeding avifauna surveys, wildlife habitat assessment for Species at Risk (SAR)[1] and potential Significant Wildlife Habitat (SWH), and collection of general wildlife and habitat information.

Additional detail on these surveys is provided in sections 3.2.3.1 and 3.2.3.2.

[1] Includes those species listed as provincially Threatened or Endangered and afforded protection under the Endangered Species Act (2007).

3.2.2.1 Avifauna

Avian surveys were conducted to gather breeding bird data and to evaluate the study area for avian habitat potential. Breeding bird surveys were undertaken on May 25, June 10 and July 4 2016 and were conducted during appropriate weather conditions (low wind, no precipitation) and timing (surveys completed within 5 hours after dawn during the breeding bird season). The surveys included visiting the project site three times (at least 10 days apart) and recording all visual and audible observations as well as the level of breeding bird evidence following standard criteria and protocols established by the Ontario Breeding Bird Atlas (OBBA). Bird species observed during surveys are listed in Appendix D and discussed in Section 4.6.1.

3.2.2.2 Wildlife Habitat Assessment and General Observations

An assessment of existing habitats was undertaken to consider potential use for Species at Risk (SAR) and Species of Conservation Concern (SCC)[2] known to occur within the vicinity of the study area. This included searches for cavity / snag trees that may provide suitable roosting/maternity habitat for SAR bats. Existing habitats were also screened for potential as Significant Wildlife Habitat (SWH) as defined in Ecoregion 7E SWH Criterion Schedule (MNRF 2015). The existing bridge structure and surrounding habitat was also investigated to document any bird nesting or other wildlife use (e.g. use of the valley below the bridge as a movement corridor).

Supplemental observations of birds, herpetofauna, mammals, and insects were recorded during all field visits. These observations were recorded, including sightings of species, as well as evidence of use (e.g. browse, tracks / trails, scat, burrows, and vocalizations). Other wildlife observations are listed in Appendix D.

3.3 Agency Liaison

Key agencies engaged for this study include; York Region, TRCA, and MNRF-Aurora District. These agencies were first engaged through a Notice of Project Commencement sent out in May of 2016. Agencies were then sent background information request letters on May 17 2016. These letters requested that any available natural heritage background information for the study area be provided.

3.4 Technical Review

A review of supporting technical information was completed which included review of engineering design plans of the proposed bridge improvement alternatives. Ecology staff reviewed and provided input into design plans and layouts in an iterative process to minimize impacts to the form and function of the existing natural heritage features. A preliminary impact assessment was then conducted based on the preferred alternative.

[2] Includes those species listed as federally Threatened, Endangered or Special Concern as well as provincially Special Concern (those species not afforded protection under the ESA, 2007).

4.0 EXISTING CONDITIONS

4.1 Surface Drainage and Watershed Characteristics

The study area lies within the Lower Don River subwatershed. No surface water drainage features or aquatic habit is present in the study area. The study area is entirely located within the Rosedale Valley, formed by a former watercourse that flowed through the valley which was piped in the early 1900's.

4.2 Environmentally Designated Areas

Several overlapping natural heritage features and designated policy areas are present within the study area. These include:

- **Natural Heritage System under the City of Toronto Official Plan (2015)** – The Rosedale Valley is designated as part of the City's Natural Heritage System, specifically as an ESA:
    - Rosedale Valley Extension Environmentally Significant Area (ESA) [Site 62A] **–** this natural feature is 5.1 ha in size and is contiguous with the main Rosedale Valley ESA to the east (13.2 ha). It is characterized as a steep sloped ravine valley dominated by deciduous forest with Rosedale Valley Road running along the valley floor. The feature is significantly impacted by anthropogenic influences including those from Rosedale Valley Road, large accumulations of litter, homeless inhabitants, informal trail creation, highly invasive plant species, and physical disturbance such as dug holes and trampled vegetation (North-South 2012). The feature met City of Toronto ESA criteria due to presence of two (2) significant flora species, Bladder Sedge (*Carex intumescens*) and Pennsylvania Bittercress (*Cardamine pensylvanica*), within the valley.
- **TRCA Regulation 166/06 Lands -** natural and hazardous areas (i.e., steep slopes associated with the Rosedale Valley.
- **TRCA Terrestrial Natural Heritage System –**The Rosedale Valley is designated as part of the Terrestrial Natural Heritage System as part of TRCA's Terrestrial Natural Heritage System Strategy (TNHSS).

4.3 Vegetation

The majority of the study area consists of steep forested slopes on either side of Rosedale Valley Road, which runs along the bottom of the Rosedale Valley ravine. Several deciduous forest types are present on the valley slopes, characterized by a mix of common native and exotic tree species. The study area also includes the Glen Road Community Wildflower Garden south of Bloor Street, which provides cultural woodland habitat for several native species. Within the footprint of the existing bridge, vegetation is limited to patchy cover by common vines and exotic invasive flora. Manicured lawn and residential /

landscape plantings are also present, associated with condominiums near the north end of the pedestrian bridge and along the east side of Glen Road south of Bloor Street East.

4.3.1 Vegetation Communities

Rosedale Valley within the study area is characterized by four Deciduous Forest types and one Cultural Woodland. Due to a number of cultural influences on the area, the forest types present are not well classified in the original ELC (1998). Hence, community codes from the 2008 iteration of ELC types have been used. Generally, the forests present in this portion of Rosedale valley are on steep slopes with well-drained soils, dense canopy / sub-canopy cover and limited understory and ground flora.

Vegetation communities are mapped on in Appendix A-2 and described below.

Dry-Fresh Sugar Maple – Hardwood Deciduous Forest Type (FODM5-9)

Unit: 1

Located in the northwest quadrant of the existing bridge, this unit exhibits the only portion of the study area with a strong native Sugar Maple (*Acer saccharum var. saccharum*) component. Previously, TRCA has classified this area as FOD5-8 (Sugar Maple-White Ash Deciduous Forest Type). However, due to the influx of Emerald Ash Borer in recent years, White Ash (*Fraxinus americana*) that once provided canopy cover are now dead or in very poor condition, though many are still standing. Other canopy / sub-canopy species include occasional American Elm, Norway Maple (*Acer platanoides*), Black Walnut (*Juglans nigra*), and Horse Chestnut (*Aesculus hippocastanum*). Due to dense tree cover, the understory is limited to shade tolerant vines such as Riverbank Grape (*Vitis riparia*), Thicket Creeper (*Parthenocissus vitacea*), and Western Poison Ivy (*Toxicodendron rydbergii*), as well as some Alternate-leaved Dogwood (*Cornus alternifolia*) and Choke Cherry (*Prunus virginiana var. virginiana*). The ground layer includes occasional maple and ash regeneration as well as frequent Zig-zag Goldenrod (*Solidago flexicaulis*) and Garlic Mustard with occasional Canada Goldenrod (*Solidago canadensis*) and Japanese Knotweed (*Polygonum cuspidatum*). English Ivy (*Hedera helix*) is present at the top of the valley slope, near a garden edge associated with the adjacent condominium building.

Dry-Fresh Norway Maple Deciduous Forest Type (FODM4-6)

Units: 2 & 3

Unit 2, in the northeast quadrant of the existing bridge was classified previously by TRCA as a Sugar Maple dominated area. However, surveys by WSP in 2016 found that while some Sugar Maple is present, the area is dominated by exotic Norway Maple (note that when young, these species can be difficult to distinguish from a distance). Unit 3, in the southwest quadrant has a similar composition, but is younger and generally more disturbed (e.g., more litter, signs of recreational use, canopy gaps, slope slumping / erosion issues). Like in Unit 1, both of these areas have also suffered the loss of some mature canopy ash in recent years. Other trees present include Black Walnut, Northern Red Oak (*Quercus rubra*),

American Elm, and Horse Chestnut. The understory and ground layers are largely limited to tree regeneration, with abundant Garlic Mustard and a low diversity mix of common native woodland and exotic species. At the top of the north valley slope, several planted species – Freeman's Maple (*Acer x freemanii*), White Spruce (*Picea glauca*), and Tartarian Honeysuckle (*Lonicera tatarica*) – are present, associated with the adjacent condominium building.

Dry-Fresh Norway Maple – Red Oak Deciduous Forest Type (FODM4-A)

Unit: 4

Located in the southeast quadrant of the existing bridge, this area is characterized by a mix of mature super-canopy Red Oak (some over 50 cm dbh) and mid-aged Norway Maple. This area was incorrectly classified previously as being Sugar Maple-Ash dominated (though some ash were previously found in the canopy, surveys in 2016 confirmed that no Sugar Maple are present). Other trees include American Basswood (*Tilia americana*) and Black Walnut (*Juglans nigra*). Some young Horse Chestnut are also present. The understory includes Alternate-leaved Dogwood, Choke Cherry and Wild Red Raspberry (*Rubus idaeus ssp. strigosus*). The ground layer is fairly sparse, with frequent Garlic Mustard and occasional Greater Celandine (*Chelidonium majus*), Upright Yellow Wood Sorrel (*Oxalis stricta*), Enchanter's Nightshade (*Circaea lutetiana ssp. canadensis*) and Zig-zag Goldenrod. Japanese Knotweed, an aggressive invasive species, is abundant in the immediate vicinity of the existing bridge.

Dry-Fresh Black Walnut – Maple Forest Type (FODM4-B)

Unit: 5

This community is located towards the top of the south Rosedale Valley slope in the vicinity of the existing bridge, and extends north to Rosedale Valley Road farther east. Previously classified as dominated by Manitoba Maple, few were found to reach the canopy in 2016, though they were prevalent in the sub-canopy and understory layers. This community is characterized by frequent Black Walnut and Norway Maple, with occasional Manitoba Maple and scattered American Elm, ash, Horse Chestnut and Black Locust. Along the edge nearest Bloor Street East, younger trees are generally present. The understory is limited to tree species regeneration with vines such as Riverbank Grape, Thicket Creeper, and Western Poison Ivy. The ground layer is comprised of abundant Garlic Mustard, frequent Enchanter's Nightshade and Wood Avens (*Geum urbanum*) as well as occasional Canada Goldenrod, Greater Celandine and White Avens (*Geum canadense*).

Mineral Cultural Woodland Type (CUW1)

Unit: 6

The Glen Road Community Wildflower Garden, on the east side of Glen Road south of Bloor Street East, provides has been created to provide woodland habitat for a number of native species. The canopy / sub-canopy is limited to one mature Black Locust (likely a landscape planting pre-dating the community garden), with White Mulberry (*Morus alba*), Common Apple (*Malus pumila*), and American Elm (*Ulmus*

americana). The understory consists of frequent Snowberry (*Symphoricarpos albus*) with some Rose (*Rosa sp.*) and Tartarian Honeysuckle (*Lonicera tatarica*). Some of the native wildflowers planted in this garden are Wild Crane's-bill (*Geranium maculatum*), Bloodroot (*Sanguinara canadensis*), Woolly Blue Violet (*Viola sororia*), Solomon's Seal (*Polygonatum sp.*) and Woodland Sunflower (*Helianthus divaricatus*). Invasive Garlic Mustard (*Alliaria petiolata*) is also present. Two of the species recorded – Snowberry and Woodland Sunflower – are locally rare, and are discussed further below.

4.3.2 Floristic Inventory

In total 52 plant species were recorded from within the study area during the 2016 field surveys (a Vascular Plant List is provided in Appendix C). Of these species, three could not be identified beyond genus due to an absence of identifying characteristics (i.e., seasonal characteristics). Of the identified species, 34 (65%) are native, and 18 (35%) are non-native. Key findings include:

- No plant SAR or SCC are present within the study area.
- One (1) species listed as locally rare in the City of Toronto (Varga et al. 2000) were recorded within the vicinity of the bridge, Northern Red Oak (TRCA: L4). This species is naturally occurring on the south valley slope in the vicinity of the bridge.
- Four (4) additional locally rare species were identified within the study area within planted areas. White Spruce (TRCA: L3) was planted at the top of the north valley slope, in a landscaped area associated with an adjacent condominium building. The other three species – Wild Crane's-bill (TRCA: L4), Woodland Sunflower (City of Toronto: XU; TRCA: L3), and Snowberry (City of Toronto: XU; TRCA: L2) – are planted in the Glen Road Community Wildflower Garden.
- Coefficient of Conservatism (CC)[3] values for species recorded within the study area range from 0 to 7 with the majority (48%) ranging between 0 and 3 (low habitat sensitivity) and 4 to 6 (moderate habitat sensitivity). The two species that have a CC value of 7 – Woodland Sunflower and Snowberry – were planted within the Glen Road Community Wildflower Garden.

4.4 Wildlife

4.4.1 Avifauna

Breeding bird surveys were conducted within the study area on May 25, June 10 and July 4 2016. Through the completion of these surveys as well as documentation of supplemental observations made during additional field visits, a total of 21 bird species were observed within the study area. A full species

[3] Value 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).

list is provided in Appendix D. A summary of key results, including level of breeding evidence, is highlighted below:

- Bird species observed were predominantly common, generalist, and urban-adapted; including species associated with the following habitats:
    - Forest edge (e.g. American Robin [*Turdus migratorius*], Cedar Waxwing [*Bombycilla cedrorum*] and Chipping Sparrow [*Spizella passerina*]);
    - Forest interior (e.g. Hairy Woodpecker [*Picoides villosus*] and Magnolia Warbler [*Setophaga magnolia*]);
- Of the 21 bird species observed, 17 species were recorded as having some `breeding`[4] evidence in features located adjacent to the ROW.
- One (1) SAR bird species listed as Threatened provincially and afforded protection under the ESA (2007) was observed within the study area: Chimney Swift (*Chaetura pelagica).* This species was observed foraging above the study area on all three visits. Nesting habitat of the species is not present within the study area.
- Six (6) of the 21 species are considered locally significant by the TRCA. This includes one species ranked L3 (Regional Concern) and five species ranked L4 (Urban Concern). These species were all observed within the study area.

4.4.2 Herpetofauna

No herpetofauna (amphibian and reptile) species were observed during the 2016 field surveys. There is no suitable breeding habitat for amphibians (e.g., vernal pools, wetlands) in the study area or immediately surrounding lands. The Fact Sheets for the Rosedale Valley ESA and Rosedale Valley Extension also state that there were no amphibians or reptiles observed in the ESA and confirm that there is no amphibian breeding habitat present in the vicinity (City of Toronto 2012a, City of Toronto 2012b).

The study area and vicinity could support urban-adapted species such as, American Toad (*Anaxyrus a. americanus*), Dekay's Brownsnake (*Storeria dekayi*), Eastern Gartersnake (*Thamnophis s. sirtalis*), Eastern Red-backed Salamander (*Plethodon cinereus*) and Milksnake (*Lampropeltis t. triangulum*). No reptile hibernacula or potential hibernacula sites were noted on the subject property or vicinity.

[4] Breeding birds include species for which any level of breeding evidence was recorded (i.e. possible, probable, confirmed; or `observed` where some potential for local breeding exists)

4.4.3 Mammals

Mammal observations, including sightings and evidence of use (e.g. browse, tracks / trails, scat and burrows) were recorded during all field surveys. Observations of potential suitable bat maternity roosting habitat (cavity / snag trees, structures) within the study area were also noted.

In total, two common and expected mammal species were recorded in the study area by WSP during the 2016 site visits: Eastern Chipmunk (*Tamias striatus*) and Grey Squirrel (*Sciurus carolinensis*). Furthermore, one additional common mammal species, Eastern Cottontail (*Sylvilagus floridanus*), was confirmed in the study area during 2015 surveys by MMM along Dale Avenue for a proposed development project being undertaken.

The study area likely also supports other urban-adapted species such as Coyote (*Canis latrans*), Raccoon (*Procyon lotor*), Red Fox (*Vulpes vulpes*), White-tailed Deer (*Odocoileus virginianus*), Striped Skunk (*Mephitis memphitis*) and Virginia Opossum (*Didelphis virginiana*) and a number of small mammals that often go undetected (for example shrews, voles, mice and bats). All of these species are relatively common throughout southern Ontario and expected to occur in the study area. A complete list of species found in the study area is provided in Appendix D. No SAR or SCC mammals were found in the study area and all species have a provincial S-Rank of S4 or S5 (secure).

Four bat species including Little Brown Bat (*Myotis lucifugus*), Northern Long-eared Bat (*Myotis septentrionalis*), Tri-Coloured Bat (*Perimyotis subflavus*) and Eastern Small-Footed bat (*Myotis leibii*) have potential to occur within the study area. These species are provincially listed as Endangered and are afforded protection under the *ESA* (2007). Observations of several cavity/snag trees were observed within the ROW adjacent to the bridge and may provide suitable roosting/maternity habitat for SAR bats. Bat exit surveys conducted by MMM in 2015 at buildings along Dale Avenue (as part of an adjacent development project), confirmed the presence of bats flying overhead and within the vicinity of the Glen Rd. Pedestrian Bridge study area. Additional bat surveys would be required at detailed design should the proposed works result in tree removal.

4.4.4 Lepidoptera and Odonates

No Lepidoptera (butterflies and moths) or Odonates (dragonflies and damselflies) were recorded by WSP during the 2016 field surveys. One (1) Odonata species was recorded by MMM during 2015 field surveys in the vicinity of the study area along Dale Avenue: Common Green Darner (*Anax junius*). This species is common in Ontario (S-Rank of S5). NHIC data reported an uncommon Odonata species (S-Rank of S2S3), Unicorn Clubtail (*Arigomphus villosipes*), in the vicinity of the study area; however, no habitat for this species occurs in the study area (i.e. ponds, lakes or slow-flowing streams). No insect species were reported through the TRCA data.

Monarch (*Danaus plexippus*), which is provincially and federally listed as Special Concern, was not found in the study area during field surveys and there is no potential breeding habitat (i.e. Common Milkweed) for this SAR species within the study area.

4.4.5 Wildlife Movement Corridors

Rosedale Valley Ravine provides a natural wildlife movement corridor stretching east-west across a very developed part of the City. A range of common wildlife, including small mammals and birds likely use this ravine to travel between larger natural areas. The Rosedale Ravine is the first forested ravine system north of the Lake Ontario Shoreline and may function as a natural migratory stopover. The Rosedale Valley ESA is documented as a notable area for migrant songbirds with 3.1 % of migrant songbird records from the City of Toronto recorded in Rosedale Valley (North-South Environmental Inc. et al. 2012). This natural wildlife movement corridor provides a linkage between shelter, foraging, breeding and/or wintering habitats and provides a natural route for juvenile dispersal as well as the dispersal of plant seeds that may be carried by wildlife to new habitats. This is important for maintaining biodiversity and sustaining long-term ecological integrity of the natural heritage system as a whole.

5.0 POLICY & PLANNNIG REVIEW AND ASSESSMENT

Relevant planning legislation, policy, and land use strategies pertinent to this study are summarized briefly in the sections following. The summaries provide an overview of key policies and implications is provided along with an assessment of the policy as it relates to natural heritage features within the study area.

5.1 Federal

5.1.1 Migratory Birds Convention Act (1994)

5.1.1.1 Overview of Key Policies

The Migratory Birds Convention Act, MBCA (1994) and Migratory Birds Regulations, MBR (2014) protect most species of migratory birds and their nests and eggs anywhere they are found in Canada, including surrounding ocean waters, regardless of ownership. General prohibitions under the MBCA and MBR protect migratory birds, their nests and eggs and prohibit the deposit of harmful substances in waters / areas frequented by them.

The MBR includes an additional prohibition against incidental take, defined by Environmental Canada as:

> *"The inadvertent harming, killing, disturbance or destruction of migratory birds, nests and eggs."*

Environment Canada implements policies and guidelines to protect migratory birds, their eggs and their nests. There is guidance on the Environment Canada website to minimize the risk of incidental take effects to migratory birds, to achieve compliance with the law and to maintain sustainable populations of migratory birds.

Compliance with the MBCA and MBR is best achieved through a due diligence approach, which identifies potential risk, based on a site specific analysis in consideration of the Avoidance Guidelines and Best Management Practices information on the Environment Canada website.

5.1.1.2 Study Assessment

Implications of the MBCA have potential to occur during the construction phase of the project when areas are cleared and grubbed of vegetation, potentially removing nests of migratory birds.

Seven-teen migratory bird species subject to the MBCA were recorded showing some evidence of breeding in the study area. None of these species is dependent on the habitat to be impacted by proposed pedestrian bridge works.

Compliance with the MBCA will be achieved using the following due diligence approach:

- Proponent awareness of the MBCA, potential for nesting in the area and potential for impacts to migratory birds, nests and eggs
  - The adjacent areas provide suitable habitat for nesting of woodland associated and generalist species.
- Implementation of the following avoidance and mitigation measures:
  - Avoiding works (i.e., vegetation / potential nesting habitat removal) within the “regional nesting period” for this area, where possible.
  - Recommended Best Management Practices (BMPs) during construction to minimize potential indirect impacts to vegetation / potential nesting habitat outside of the direct footprint.

5.2 Provincial

5.2.1 Endangered Species Act (2007)

5.2.1.1 Overview of Key Policies

Species designated as Threatened or Endangered by the Committee on the Status of Species at Risk in Ontario (COSSARO), otherwise known as Species at Risk in Ontario (SARO), and their habitats (e.g. areas essential for breeding, rearing, feeding, hibernation and migration) are automatically afforded legal protection under the Endangered Species Act (ESA) (Government of Ontario 2007).

The ESA (Subsection 9(1)) states that:

"No person shall,

(a) kill, harm, harass, capture or take a living member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species;

(b) possess, transport, collect, buy, sell, lease, trade or offer to buy, sell, lease or trade,

(i) a living or dead member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species,

(ii) any part of a living or dead member of a species referred to in subclause (i),

(iii) anything derived from a living or dead member of a species referred to in subclause (i); or

(c) sell, lease, trade or offer to sell, lease or trade anything that the person represents to be a thing described in subclause (b) (i), (ii) or (iii).

Clause 10(1)(a) of the ESA states that:

"No person shall damage or destroy the habitat of a species that is listed on the Species at Risk in Ontario list as an endangered or threatened species"

The ESA also calls for the development of species-specific Recovery Strategies and Habitat Regulations. Unlike the general habitat of a species, regulated habitat may include areas that are currently unoccupied by the species. These areas are commonly referred to as "recovery habitat."

In order to balance social and economic considerations with protection and recovery goals, the ESA also enables the MNRF to issue permits or enter into agreements with proponents in order to authorize activities that would otherwise be prohibited by subsections 9(1) or 10(1) of the Act provided the legal requirements of the Act are met.

5.2.1.2 Study Area Assessment

The ESA is of particular relevance to this project as several species afforded protection under the Act are known to occur within the vicinity of the study area.

Screening:

Direction from MNRF to assess the potential presence of SAR has been done by undertaking a comprehensive tabular screening to identify which SAR have reasonable potential to be present within the study area based on known occurrences of the species and the habitats present. The screening exercise involved developing a list of SAR known to occur within the vicinity of study area or region from review of various sources including: species indicated by MNRF and TRCA through correspondence, NHIC data extracted from the online Natural Heritage Mapping tool (accessed November 2017) and

MNRF Species at Risk website regional species list (accessed November 2017). Once the list of species was developed, each species' known preferred habitat was then cross-referenced against potential habitats identified within the study area or adjacent lands, with consideration of species distribution and range, to determine the reasonable likelihood of the species being present. The likelihood of potential impacts was also evaluated. SAR screening information is provided in Appendix E. A summary of species recorded within the study area is provided in Table 2, with additional commentary as follows.

Species and Habitats:

- One (1) SAR bird species listed as Threatened provincially and afforded protection under the ESA (2007) was observed within the study area: Chimney Swift (*Chaetura pelagica).* This species was observed foraging above the study area on all three visits. Nesting habitat of the species is not present within the study area.

- Four (4) bat species afforded protection under the ESA (2007) may occur within the general area; Little Brown Bat, Northern Long-eared Bat, Tri-Coloured Bat and Eastern Small-Footed Bat. Suitable habitat (cavity / snag trees) was identified within the vicinity of the bridge structure. Additional bat surveys would be required at detailed design should the proposed works result in tree removal.

5.2.2 Provincial Policy Statement (2014)

5.2.2.1 Overview of Key Policies

The Ontario Provincial Policy Statement (PPS) was issued under Section 3 of the Ontario Planning Act. Section 3 of the Planning Act requires that decisions affecting planning matters "shall be consistent with" policy statements issued under the Act (OMMAH 1990). The current PPS came into effect March 1, 2005, and applies to all applications submitted on or after this date. The PPS was then updated in 2014 (OMMAH 2014). The PPS provides policy direction on land use planning and development matters that are of provincial interest which protect the natural environment as well as public health and safety. The natural heritage provisions of the PPS (Section 2.1.) provide protection for the following features:

1. Habitats of Endangered and Threatened Species
2. Provincially Significant Wetlands (PSW)
3. Significant Woodlands
4. Significant Valleylands
5. Significant Wildlife Habitat (SWH)
6. Areas of Natural and Scientific Interest (ANSI)
7. Fish Habitat

Development and site alteration is not permitted within features 1 and 2, although may be permitted within the remaining features (3 through 7), and adjacent to all features if the ecological function has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions. The definition of development within the PPS excludes activities that create or maintain infrastructure authorized under an EA process.

The Natural Heritage Reference Manual (MNRF 2010) provides technical guidance for implementing the natural heritage policies of the PPS. The manual presents the Province's recommended technical criteria and approaches for being consistent with the PPS in protecting natural heritage features and areas and natural heritage systems in Ontario.

5.2.2.2 Study Assessment

A general assessment of PPS natural heritage policies was undertaken as part of the study. The assessment was completed using the definitions provided below in consideration of available provincial guidance documents: *Significant Wildlife Habitat Technical Guide* (SWHTG) (MNRF 2000) and Ecoregion 7E Criterion Schedule (MNRF 2015). Results are summarized below:

- Habitat of Endangered or Threatened Species. To date, one SAR bird species listed as Threatened provincially and afforded protection under the ESA (2007) was observed within the study area: Chimney Swift (*Chaetura pelagica).* This species was observed foraging above the study area on all three visits. Nesting habitat of the species is not present within the study area. No critical habitat of this species is present within the study area.

  Bat species afforded protection under the ESA (2007) may occur within the general area. Suitable habitat (cavity / snag trees) was identified within the vicinity of the bridge structure. Additional bat surveys would be required at detailed design should the proposed works result in tree removal. Tree removals should be avoided / minimized where feasible.

- Provincially Significant Wetlands. None present within the study area.

- Significant Woodlands. The ravine woodland within the Rosedale Valley is considered regionally significant woodlands. The woodlands do not likely meet criteria of provincially significant. The woodland form and function is not anticipated to be impacted by the proposed bridge works. Tree removals should be avoided / minimized where feasible.

- Significant Valleylands. None present within the study area.

- Significant Wildlife Habitat. None present within the study area.

- ANSI. None present within the study area.

- Fish Habitat. Not present within the study area.

5.3 Municipal

5.3.1 City of Toronto Official Plan (June 2015 Consolidation)

5.3.1.1 Overview of Key Policies

The City of Toronto Official Plan (June 2015) provides goals, objectives and policies to direct land use change and activity in the City. Of relevance to this study, the Official Plan identifies a Natural Heritage System as shown on Map 9 which is made up of; significant landforms and physical features, watercourses and hydrological features and functions, riparian zones, valley slopes and floodplains, terrestrial natural habitat (including forest, wetland, successional, meadow and beaches and bluffs), significant aquatic features and functions, vegetation communities and species of concern, and significant biological features that are directly addressed by provincial policy, including ANSIs. In November 2015, City of Toronto Council approved Official Plan Amendment (OPA) 262 to revise the environmental policies of the Official Plan. OPA 262 is now considered Council policy but approval by the Minister of Municipal Affairs and Housing is still required.

Areas of the Natural Heritage System identified as being an Environmentally Significant Area (ESA) are shown on Map 12 of the Official Plan. These areas require additional protection to preserve their environmentally significant qualities. With the approval of OPA 262 in November 2015, 68 new ESAs and 14 new ESA additions, including the Rosedale Valley Extension ESA were added.

Chapter 3 – Building a Successful City of the Official Plan, outlines the City's land use and development policies. Section 3.4 of the chapter outlines policies as they relate to the natural environment.

In general, development within the Natural Heritage System is prohibited although in the case of the Glen Road Pedestrian bridge study where existing infrastructure is preset, minor additions or alterations as well as replacement of structures within hazard lands (steep slopes) are accepted.

All proposed activities that occur in or near the natural heritage system, including works related to the bridge, requires that a study be undertaken to assess potential impacts from the activity on the natural environment. This study also includes recommendation of measures to reduce/minimize negative impacts as well as to improve upon the feature through restoration and enhancement opportunities.

5.3.1.2 Study Area Assessment

The study area is located entirely within portions of the City's Natural Heritage System, as such, any proposed works will be required to be undertaken within this feature.

5.3.2 Ravine and Natural Feature Protection Bylaw

The Ravine Protection By-law was originally passed by Toronto City Council on October 3, 2002. The purpose of the by-law is "to promote the management, protection and conservation of ravines and associated natural and woodland areas by regulating the destruction of trees and changes in grade" (City

of Toronto 2008b, p.3). Tableland forests and forested portions of the Lake Iroquois shoreline were not protected under the original by-law, however amendments passed on May 27, 2008 changed this. The amendments also changed the name of the by-law to reflect the more inclusive nature of the revised version. It is now known as the Ravine and Natural Feature Protection By-law. The area subject to the by-law includes the ravine landform plus a 10 m set back from the top-of-bank and any contiguous tree canopy (City of Toronto 2008b).

5.3.2.1 Study Area Assessment

The study area is located within the Ravine and Natural Features Protection By-law limits. This by-law, adopted in 2008, requires a permit for any work within the regulated area that: may injure or destroy a tree; involves the placement of fill or refuse; or any activities that may alter existing grades. A 'tree' is defined in the by-law as "a tree of any species and any size" (City of Toronto 2008).

5.3.3 Conservation Authority Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses

The *Regulation of Development, Interface with Wetlands and Alterations to Shorelines and Watercourses* (Ontario Regulation 166/06), are regulations issued under the Conservation Authorities Act, R.S.O. 1990. Through this regulation, the Toronto Region Conservation Authority (TRCA) has the responsibility to regulate activities in natural and hazardous areas (e.g., areas in and near rivers, streams, floodplains, wetlands, slopes and the Lake Huron shoreline).

5.3.3.1 Study Assessment

Portions of the study area are located within TRCA regulated lands (i.e., Rosedale Valley). A permit will be required from the TRCA under the Reg. 166/06 at the detailed design phase of this project to proceed with any site alteration within these areas.

5.3.4 TRCA's Terrestrial Natural Heritage System

The study area is mapped within the TRCA's Terrestrial Natural Heritage System. The Terrestrial Natural Heritage System Strategy (TNHSS) was developed to address the decline in biodiversity within the TRCA's jurisdiction. The TNHSS identified both existing natural features and areas within the landscape that would be suitable for restoration (i.e., the 'target' system) (TRCA 2014).

6.0 SUMMARY OF OPPORTUNITIES AND CONSTRAINTS

The study area is located entirely within portions of the City of Toronto and TRCA Natural Heritage System, Rosedale Valley Extension ESA, and regionally Significant Woodlands. As such, any encroachment or disturbance to the surrounding natural landscape should be avoided or minimized, where feasible.

Two key considerations with respect to natural heritage include:

- Bat species afforded protection under the ESA (2007) may occur within the general area. Suitable bat habitat (cavity / snag trees) was identified within the vicinity of the bridge structure. Additional bat surveys would be required at detailed design should the proposed works result in tree removal. Overall, tree removals should be avoided / minimized where feasible as to avoid potential impacts on habitat.

- One (1) locally rare tree species was recorded within the vicinity of the pedestrian bridge, Northern Red Oak (TRCA: L4). This species is naturally occurring on the south valley slope in the vicinity of the existing bridge. If feasible, this tree should be retained and protection measures implemented during any construction activities.

Overall, it is not anticipated that the proposed works will impact the form and function of the woodland valley feature.

Opportunities are identified as areas where site alteration is better focused as such areas have been previously disturbed, impacted, or contain no significant natural features or functions. An opportunity for this study includes keeping the pedestrian bridge generally within the existing footprint area as to limit new disturbances to the valley.

7.0 ENHANCEMENT OPPORTUNITIES

Several recommendations identified as ‘Management Needs’ for the Rosedale Valley ESA were identified within the Rosedale Valley Extension ESA Factsheet (North-South Environmental Inc. et al. 2012).

Some of these recommendations include:

- Standing dead trees and downed woody debris are important elements of wildlife habitat and should be retained wherever possible.

- People should be discouraged from tenting within this area.

- Trails should be managed with the construction of surfaced main trail and signage used (e.g. ‘naturalization area’) to discourage use of ad hoc trails.

- Non-native invasive species should be removed.

The valley is significantly impacted by anthropogenic influences including those from Rosedale Valley Road, large accumulations of litter, homeless inhabitants, informal trail creation, highly invasive plant species, and physical disturbance such as dug holes and trampled vegetation. Any enhancement measures like those mentioned above, would be of benefit to the overall health of the wooded valley.

8.0 PROPOSED WORKS

The proposed project works include the replacement of the existing Glen Road Pedestrian Bridge on the same alignment as the existing structure. The new structure will be approximately 1.8 m wider than the existing bridge with slight adjustments to the placement of bridge footings and abutments. The preliminary general arrangement is shown on Appendix A-3.

In addition, revegetation / landscaping will be required to address areas of temporary impact or mitigate for removals. The limits and requirements of these works will be determined through detailed design.

9.0 PRELIMINARY IMPACT ASSESSMENT

9.1 Anticipated Areas of Impact

The proposed works include the replacement of the existing bridge with a similarly sized and designed bridge. As such, the area of permanent impact is generally restricted to the area of the existing bridge. Specifically, they include:

- Bridge footings: New footings will be required for the proposed bridge design. Existing bridge footings will be removed.
- Abutments: Small adjustments to the existing abutments at the top of the Rosedale Valley at Bloor Street and Glen Road may be required. Any increases to abutment areas are permanent impacts.

Detailed areas of temporary impact are not known at this preliminary design stage. To provide a preliminary assessment of potential impacts associated with bridge construction two estimated areas of impact have been developed:

- Construction Impact Zone: An area around the footings and abutments will be impacted during construction to accommodate grading, excavation, etc. Some permanent grade changes may be required in these areas.
- Potential Impact Zone: This area has been identified within 10m of the estimated Construction Impact Zone and provides a preliminary indication of areas that could be impacted through construction. Portions of these areas may be impacted to accommodate equipment and material movement, valley access and staging.

These preliminary impact zones are shown on Appendix A-4.

9.2 Environmentally Designated Areas

The proposed works will affect areas contained within or contiguous to several overlapping natural heritage designations, including:

- TRCA Regulation 166/06 Lands – natural and hazardous areas (i.e. steep slopes associated with Rosedale Valley)
- TRCA Terrestrial Natural Heritage System – Rosedale Valley
- City of Toronto Natural Heritage System (Official Plan 2015) – Rosedale Valley Extension Environmentally Significant Area (ESA) [Site 62A]

As discussed above, areas of permanent impact are similar to the existing bridge and overall permanent impacts to these features associated with the proposed bridge are minor. It is not anticipated that proposed works on the bridge structure will impact the form and function of the woodland valley feature.

9.3 Vegetation and Flora

The proposed bridge will be slightly wider than the existing bridge (approximately 1.8 m), but will generally retain the same footprint; as such, permanent impacts associated with the bridge replacement will be minimal. Impacts to vegetation will generally be due to removals to accommodate construction. Tree pruning and removals will be required to accommodate equipment access, movement, storage and clearance requirements.

Vegetation communities impacted by the proposed bridge replacement will include: FODM5-9 (Unit 1), FODM4-6 (Units 2 & 3), FODM4-A (Unit 4), FODM4-B (Unit 5). As noted above, tree and ground vegetation removals / disturbance will occur to accommodate construction. Permanent impacts are anticipated to be minor. These vegetation communities extend beyond the limit of the current study through the Rosedale Valley and are well represented beyond the study limits.

No Species at Risk or provincially rare species were observed during field investigations through preliminary design. One locally significant species, Northern Red Oak (TRCA L4) may be impacted due to construction. Other locally significant species are not anticipated to be impacted as they are generally associated with planted / horticultural areas outside of the anticipated construction area.

9.4 Wildlife and Wildlife Habitat

Wildlife habitat impacts are generally similar to those described above for vegetation. Several forest vegetation communities, providing wildlife habitat elements and functions, will be impacted by the proposed works. However as outlined, the vegetation communities and associated habitats being impacted extend beyond the study area along the valley corridor. Minor permanent removals localized in

the bridge area will occur; the habitats will generally be retained and will remain intact in terms of function compared to existing conditions.

In general, most wildlife will move away from noise and disturbance to avoid harm. However, nesting migratory birds protected under the federal MBCA (1994) and SAR protected under the provincial ESA (2007) require specific consideration. In particular, vegetation adjacent to the existing and proposed alignment provides potential habitat for nesting of various migratory birds and the existing bridge is suitable for Barn Swallow (*Hirundo rustica*) nesting (Threatened under the ESA). Potential impacts to nesting migratory birds and their habitats include disturbance to nesting activity or possibly loss of nests and/or young during construction, depending on timing of vegetation removal. Impacts can generally be addressed by implementing proper vegetation clearing windows and standard Contractor Awareness mitigation. No nesting, for SAR (Barn Swallow) or other migratory bird species was observed on the bridge structure at the time of the 2016 field surveys.

Bat species afforded protection under the provincial ESA (2007) have potential to occur within the Rosedale Valley and suitable bat maternity habitat (cavity / snag trees) was identified within the vicinity of the bridge structure. Detailed surveys to assess presence / absence were not completed as part of the preliminary design study. Potential impacts to bats and suitable maternity roosting and / or other protected habitats at the time of future works will need to be considered and addressed, as appropriate, in consultation with the MNRF.

Chimney Swift (Threatened under the ESA) was observed during field investigations as fly-overs within the study area. Suitable nesting habitat was observed beyond the bridge (i.e. chimneys within the adjacent residential area) but will not be impacted as a result of the proposed bridge replacement or associated construction.

No permanent impact to wildlife movement is anticipated to occur as a result of the bridge replacement. The existing structure affords some wildlife movement opportunities through the Rosedale Valley and the proposed bridge will retain similar conditions after construction. Some impact to wildlife movement during construction has potential to occur and should be considered through mitigation to maintain connectivity.

10.0 STANDARD MITIGATION MEASURES

10.1 General Vegetation and Habitat Protection Measures

The mitigation measures outlined below provide a series of general measures to minimize impacts to the local vegetation communities, habitat functions and wildlife, as well as to restore and where possible, enhance the existing features and functions. The recommended vegetation mitigation measures address both shorter term, construction-related impacts as well as long term / permanent impacts.

The following mitigation measures are to be implemented in order to minimize impacts within and adjacent to the bridge during and following construction. A more detailed list of specific tree protection mitigation measures can be found in WSP's 2017 Arborist report (WSP, November 2017).

- Removal and disturbance of vegetation will be restricted to that required for construction.
- Retain vegetation under the existing bridge, including 'topping' of trees and retention of standing trunks of trees in order to maintain root mats and promote coppice growth, if feasible.
    - In areas requiring only temporary disturbance (e.g., areas of equipment movement, in temporary storage / work areas) vegetation will be retained wherever feasible or cleared only (i.e., no grubbing) to promote more rapid re-growth.
- Vegetation clearing and retention zones will be delineated clearly on the Contract documents and in the field (e.g., protective fencing) to minimize the risk of vegetation impacts beyond the construction limits.
- All appropriate vegetation clearing techniques (e.g., trimming of damaged branches and roots, felling away from retained vegetation communities) will be used to avoid impacts / damage to non-impacted.
- Erosion and sediment control measures (including any dewatering and related management measures, as required through detailed design) will be implemented rigorously, and inspected and maintained throughout construction per an approved ESC plan.
- All construction-related and generated materials (including equipment, sediment in dewatering discharge and runoff from exposed soils, stockpiled soils or other materials from clearing and grubbing) will be properly stored / contained, maintained, filtered and otherwise handled and managed throughout and following construction:
    - Temporary stockpiling, access and construction staging areas will be located in defined areas that avoid vegetated areas that would not otherwise be impacted wherever possible, and properly contained to prevent any migration of materials from the site.

- ‘Excess material’ from the construction activity will be removed off-site or re-used or placed only in those areas identified in the Contract documents.

- Equipment will be in good working order and ‘clean’ (i.e., free of leaks and soil transported to or from off-site).

- The Clean Equipment Protocol for Industry, as prepared by the Peterborough Stewardship Council and the Ontario Invasive Plant Council (May 2016) will be adhered to, as appropriate.

- Exposed temporarily disturbed surfaces will be re-stabilized and re-vegetated as soon as possible (within 30-45 days) following construction using seeding and native vegetation replacement techniques, as appropriate and as determined through detailed design.

- All unnecessary disturbance of the steep valley slopes will be avoided to maintain slope and vegetation integrity. Areas that don’t require disturbance will be fenced to prevent inadvertent construction access or disturbance. Vegetation will be retained under the new bridge except where removal is required to construct the abutments. Where tree removals are required, trees will be cut but not grubbed to retain the trunks to provide bank stability, if feasible.

- Specific post-construction restoration plans will be implemented, as appropriate and as determined through detailed design.

- Regular environmental monitoring / inspection will be undertaken throughout construction to ensure that protection measures are implemented, maintained and repaired properly and remedial measures are initiated and completed properly where warranted.

- The Construction Supervisor will be responsible for ensuring that these measures and any others that may be deemed appropriate to protect and restore natural features are implemented and that immediate action is taken to correct any deficiencies or other environmental concerns. Any changes to these measures will be reviewed with the Contract Administrator, who will determine the need for client and then agency review, prior to implementation. Specific issues will be drawn to the attention of the Contract Administrator who will notify agency staff directly if required. No permanent impact to wildlife movement is anticipated to occur as a result of the bridge replacement. The existing structure affords some wildlife movement opportunities through the Rosedale Valley and the proposed bridge will retain similar conditions after construction. Some impact to wildlife movement during construction has potential to occur and should be considered through mitigation to maintain connectivity.

10.2 Wildlife and Wildlife Habitat

The mitigation measures outlined above are designed to minimize effects to vegetation and protect adjacent vegetated areas, which in turn protect the associated wildlife habitat functions. In addition to these general habitat protection measures, it is also necessary to ensure the protection of breeding birds, as well as other wildlife that may nest, forage or otherwise use areas where construction is proposed. Nesting migratory birds, SAR and some other SCC are further protected by specific legislative requirements. Wildlife-specific mitigation measures are outlined below, as well as specific measures to address migratory birds and wildlife movement.

For the protection of wildlife generally, the Contractor will ensure that:

- Any wildlife (e.g., bird, snake, mammal) incidentally encountered during construction will not be knowingly harmed. Animals within the construction zone will be allowed to move away from the area on their own, if at all possible.
- In the event that an animal encountered during construction does not move from the construction zone, or is injured, the Contract Administrator will be notified immediately.

10.2.1 Migratory Birds

As noted previously, migratory birds and their nests, eggs and young are protected under the MBCA (1994) and Regulations (2014) under that Act. No work is permitted to proceed that would result in the destruction of active nests (i.e., nests with eggs or young birds), or the wounding or killing of bird species protected under the MBCA.

To ensure compliance with the MBCA, a due diligence approach is recommended, as follows:

- **Awareness** of the potential for nesting activity within the project limits during the Regional Nesting Period.
- **Avoidance** of activities that may disturb or harm nesting migratory birds.
    - It is anticipated that construction activities will overlap with the Regional Nesting Period. Vegetation clearing (including grubbing and removal of trees/shrubs/grass/plants) and any construction activities in areas where migratory birds might nest are recommended to occur outside of the Regional Nesting Period (approximately April 1 to August 31). The Contractor will be made aware that occasionally bird species will precede or exceed the approximate Regional Nesting Period timing window.
- **Prevention and Mitigation** of potential impacts on migratory birds:
    - No nests will be removed or birds or nests disturbed in accordance with the MBCA.
    - The Contractor will be advised that all temporary brush piles and loose soil piles should be tarped or otherwise inspected regularly to prevent nesting as they provide potentially suitable nesting sites for some species.

- 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 might result in a contravention of the MBCA (i.e., potential harm or stress to nests, birds, eggs or young), all activities will stop and the Contractor Administrator will be notified immediately. The Contract Administrator will then contact Environment Canada for direction.

10.2.2 Wildlife Movement

Wildlife within the project area is generally acclimated to the presence of the existing bridge and development along the base of the valley and adjacent table lands. Movement of these wildlife species is generally not hindered by the existing bridge and similarly, will not receive any increase in restrictions to movement or any permanent impacts associated with the proposed bridge replacement.

Temporary impacts to movement may occur during construction as a result of temporary exclusion or protection fencing. Consideration should be given to maintaining wildlife movement during construction through the following:

- Provide exclusion fencing along areas of construction to minimize ingress of animals.
- Utilize exclusion fencing or protection fencing to guide wildlife to areas of safe passage away from roads.
- Review temporary fencing overall design to ensure passage is still possible across the construction area (east-west) along the valley.

No permanent wildlife movement mitigation has been identified based on the proposed preliminary design.

10.3 Species of Conservation Concern

Generally, mitigation recommendations for vegetation and general wildlife will provide mitigation for SCC that may occur within the study area. Specific considerations are provided below:

- Chimney Swift (Threatened) was observed in the vicinity of the bridge; habitat is not present on the bridge or immediately adjacent areas. This species was observed foraging overhead of the study area and is likely nesting in adjacent area(s) where suitable nesting habitat is available beyond the study area (e.g. potential habitat associated with residential areas). No specific mitigation is recommended for this species.

- Barn Swallow nesting was not observed on the bridge at the time of this report. A field review of the bridge for nesting activity by Barn Swallow should be undertaken at detailed design and / or in advance of construction to confirm.

- Bat presence was not assessed through preliminary design. Specific consideration will be given to impact(s) to habitat suitable for bats and any requirements for detailed studies, mitigation, compensation or permitting, as appropriate at detailed design.

- If possible, construction activities should avoid locally rare species that occur within the project area (Northern Red Oak, TRCA: L4), species location will be confirmed through detailed design and considered for avoidance and protection (i.e. tree protection measures), if feasible.

Additional mitigation for SCC may be required pending any required updates for SAR current at the time of detailed design / construction.

11.0 COMMITMENTS TO FUTURE WORK

Existing conditions should be confirmed at detailed design to ensure consistency with those presented in this report. Specific consideration should be given to:

- Confirmation that no bird nesting is occurring on the bridge structure with specific consideration for Barn Swallow nesting.
- Location and use of potential cavity trees for Species at Risk bats.
- Impact to locally rare vegetation species (e.g. Northern Red Oak).
- Assess temporary and permanent areas of impact based on detailed design information and confirm impacts to habitats and species, with specific consideration for SAR and SCC species.
- Site-specific mitigation measures based on detailed design information, such as grading, access and staging area requirements.

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APPENDIX A – Study Figures

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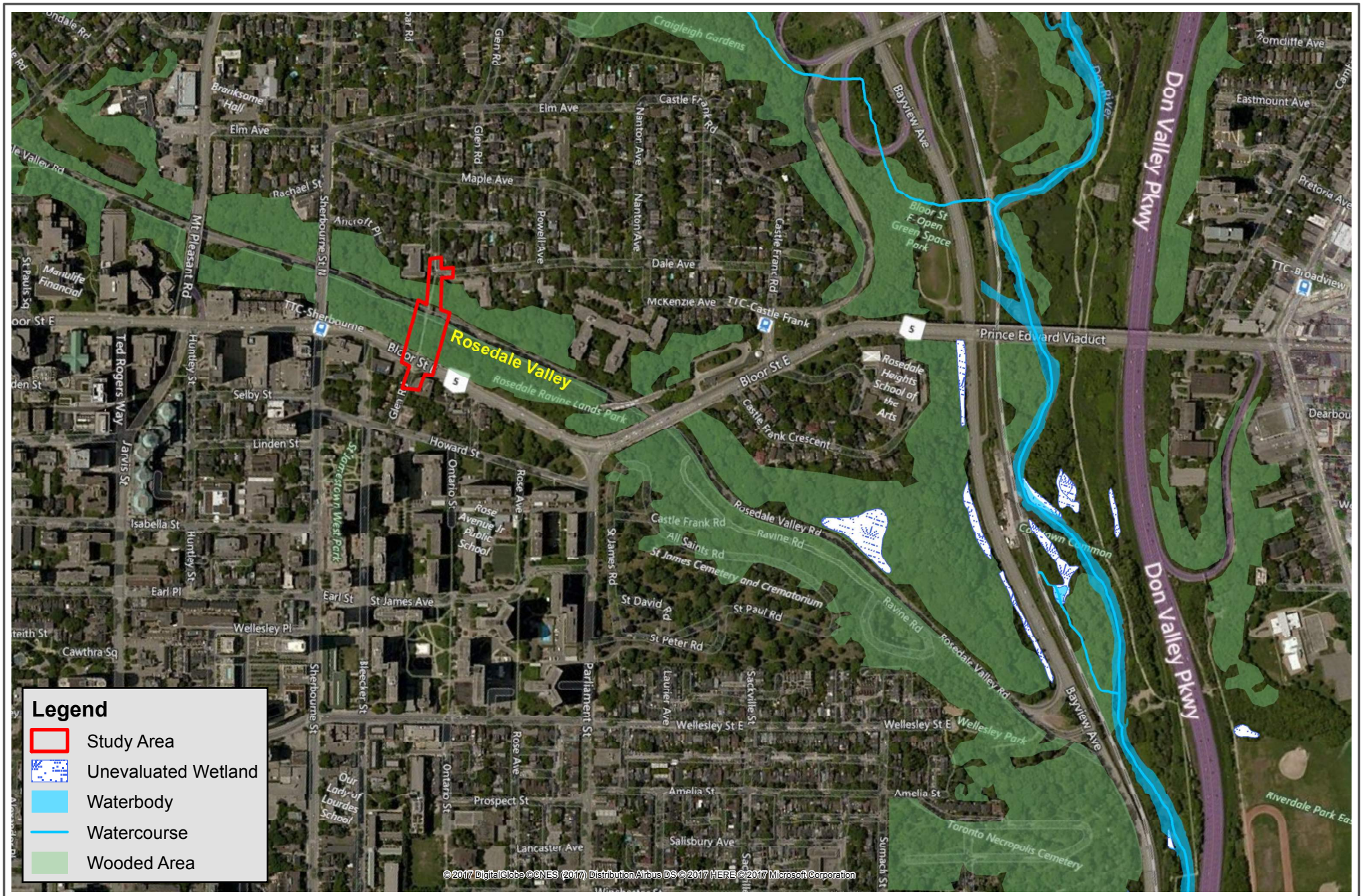

GLEN ROAD PEDESTRIAN BRIDGE - CLASS ENVIRONMENTAL ASSESSMENT
Study Area - Natural Heritage Assessment

0 50 100
Metres
1:8,000

N

Date: November 2017
Project No: 16M-01410-01
Appendix A-1

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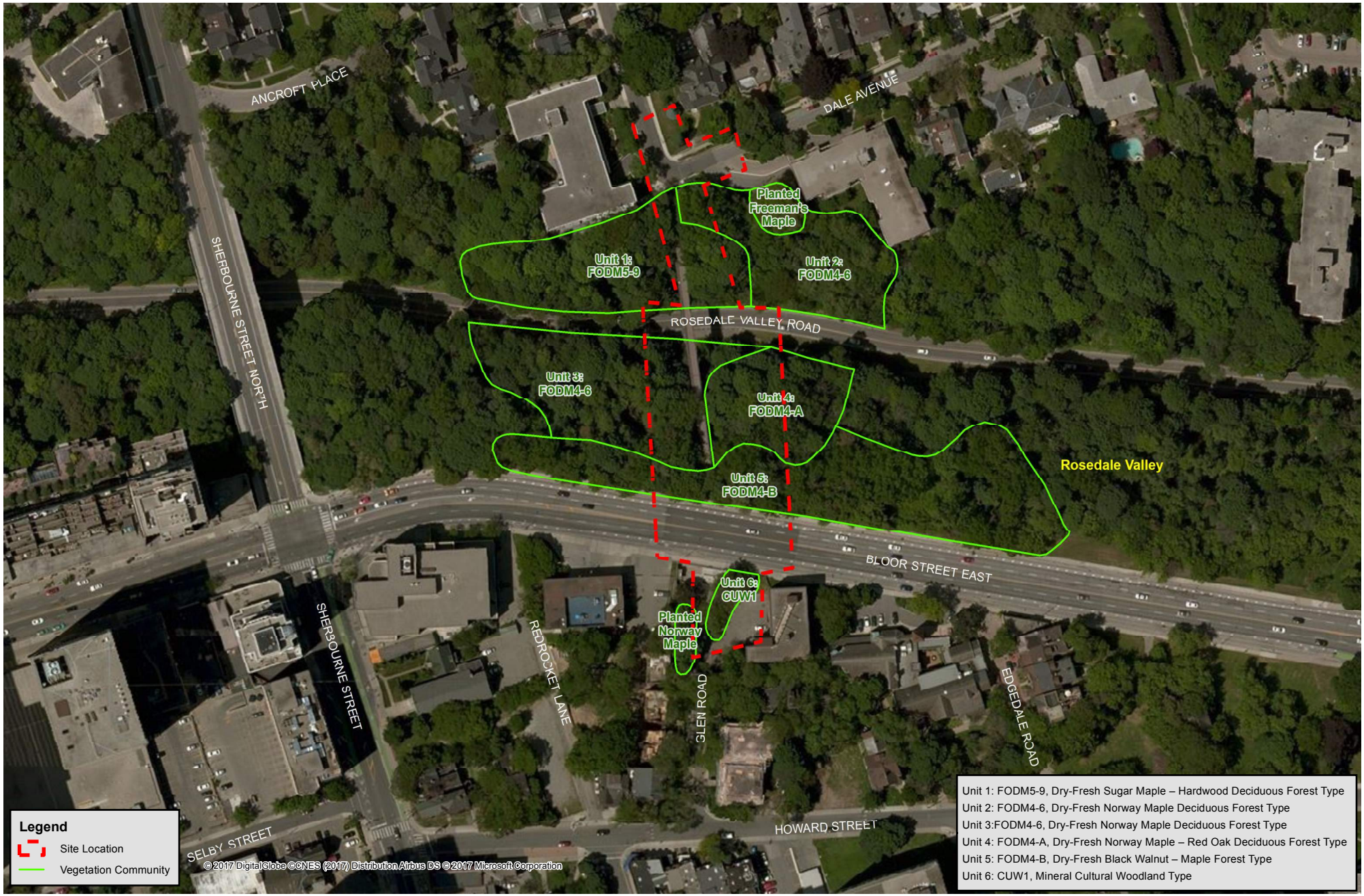
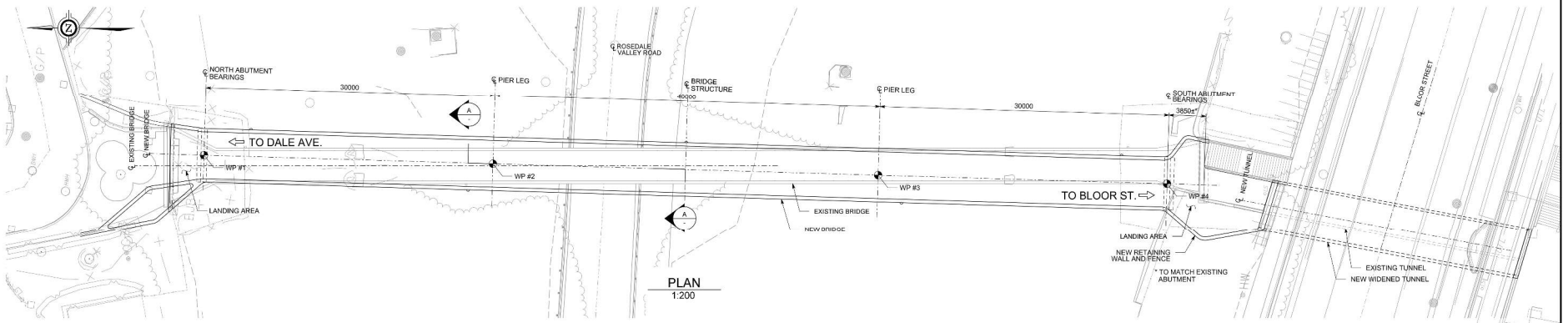


GLEN ROAD PEDESTRIAN BRIDGE - CLASS ENVIRONMENTAL ASSESSMENT
Vegetation Community - Ecological Land Classification

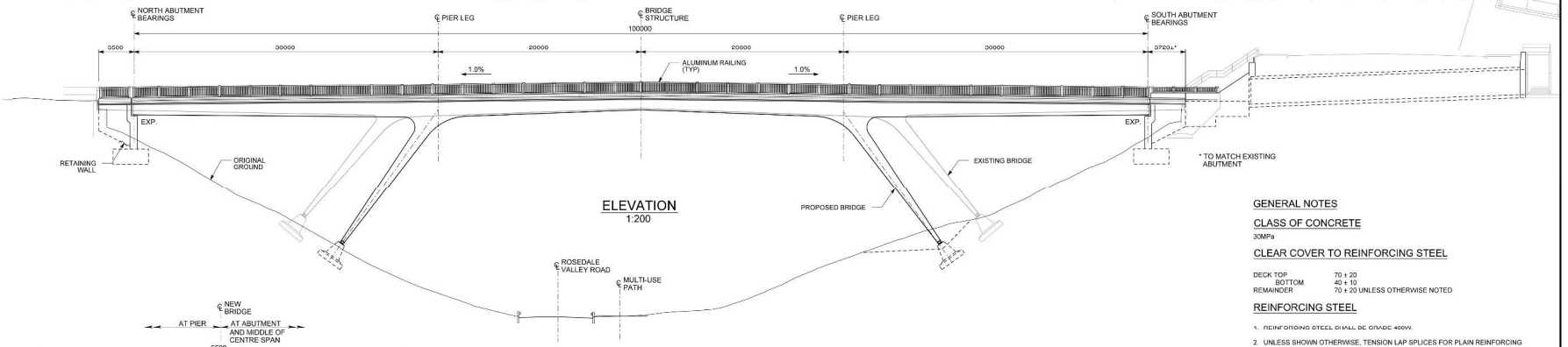
0 25 50 Metres
1:2,000

N

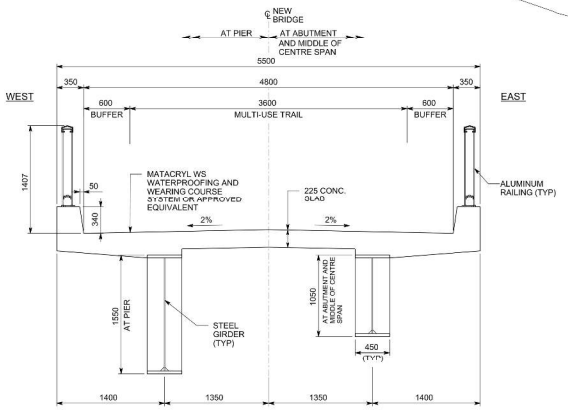
Date: November 2017
Project No: 16M-01410-01
Appendix A-2



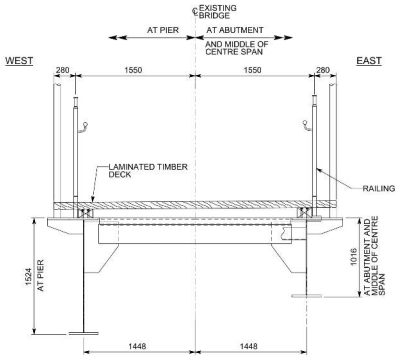
PLAN
1:200



ELEVATION
1:200



PROPOSED BRIDGE SECTION
1:30



EXISTING BRIDGE SECTION
1:30

GENERAL NOTES

CLASS OF CONCRETE

30MPa

CLEAR COVER TO REINFORCING STEEL

DECK TOP	70 ± 20
BOTTOM	40 ± 10
REMAINDER	70 ± 20 UNLESS OTHERWISE NOTED

REINFORCING STEEL

1. REINFORCING STEEL SHALL BE GRADE 400W.
2. UNLESS SHOWN OTHERWISE, TENSION LAP SPLICES FOR PLAIN REINFORCING STEEL BARS SHALL BE CLASS B.
4. STAINLESS REINFORCING STEEL SHALL BE TYPE 316LN OR DUPLEX 2205 AND HAVE A MINIMUM YIELD STRENGTH OF 500MPa, UNLESS SPECIFIED OTHERWISE.
4. BAR MARKS WITH PREFIX 'S' DENOTE STAINLESS STEEL BARS.
5. BAR HOOKS SHALL HAVE STANDARD HOOK DIMENSIONS USING MINIMUM BEND DIAMETERS, WHILE STIRRUPS AND TIES SHALL HAVE MINIMUM HOOK DIMENSIONS. ALL HOOKS SHALL BE IN ACCORDANCE WITH THE STRUCTURAL STANDARD DRAWING SS12-1 UNLESS INDICATED OTHERWISE.

CONSTRUCTION NOTES

THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, DETAILS AND ELEVATIONS OF EXISTING STRUCTURE THAT ARE RELEVANT TO THE WORK SHOWN ON THE DRAWINGS PRIOR TO COMMENCEMENT OF WORK. ANY DISCREPANCIES SHALL BE REPORTED TO THE CONTRACT ADMINISTRATOR AND THE PROPOSED ADJUSTMENT OF THE WORK REQUIRED TO MATCH THE EXISTING STRUCTURE SHALL BE SUBMITTED FOR APPROVAL.

DRAFT

MMM GROUP
CONSULTANTS

DESIGN	y2016det.dgn y2016pd.dgn y2016pd1.dgn
DIGITAL INFORMATION	

No.	DATE	REVISIONS	INITIAL	SIGNED

TORONTO Engineering & Construction Services

FRANK CLARIZIO, P.ENG.DIRECTOR, ENGINEERING & CONSTRUCTION SERVICES CAPITAL WORKS DELIVERY A

MICHAEL D'ANOREA, P.ENG EXECUTIVE DIRECTOR ENGINEERING & CONSTRUCTION SERVICES

EASTON GORDEN, P.ENG. ACTING MANAGER, ENGINEERING & CONSTRUCTION SERVICES LINEAR OF STRUCTURES

GLEN ROAD SOUTH PEDESTRIAN BRIDGE

ALTERNATIVE 1: STEEL GIRDER WITH TWO INCLINED STEEL LEGS

PRELIMINARY GENERAL ARRANGEMENT

DESIGN	K. YUSEK	DRAWN	G. LI	CHECKED	M. NIE	CONTRACT No.	
SCALE:	AS NOTED						
DATE:	JULY, 2017			DRAWING NUMBER	Appendix A-3	SHEET	S1

S:\2016\32321602\6\projects\STRUCTURES_EXPRESSWAYS\249_GLEN_R_PED\MASTER\249-S2019-01.dgn

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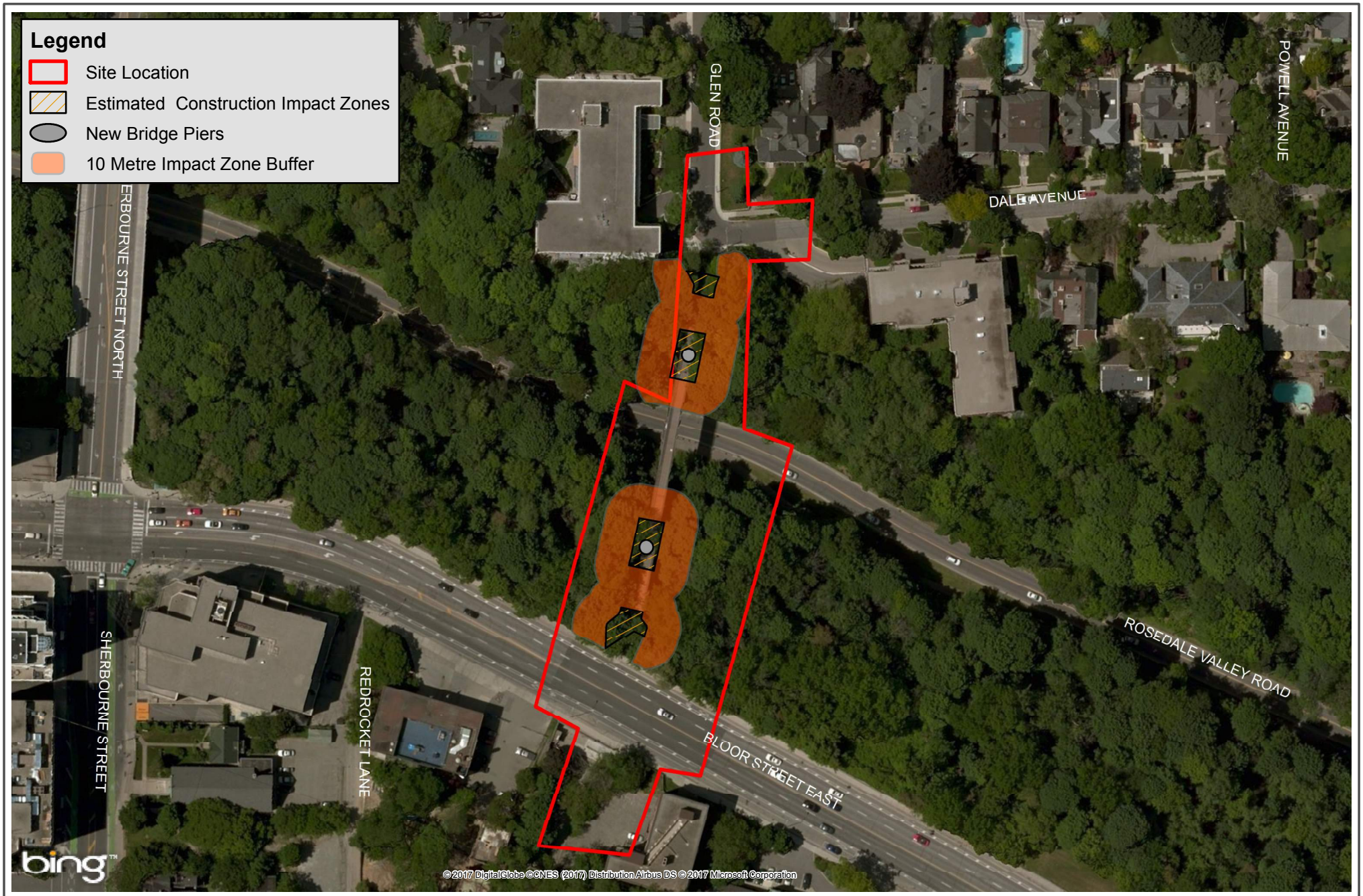

GLEN ROAD PEDESTRIAN BRIDGE - CLASS ENVIRONMENTAL ASSESSMENT
Preliminary Natural Environment Impacts

0 15 30
Metres
1:1,500

N

Date: November 2017
Project No: 16M-01410-01
Appendix A-4

APPENDIX B – Representative Site Photographs

Photograph 1: View of valley from bridge, facing easterly

Photograph 2: Deciduous woodland habitat on steep valley slopes

Photograph 3: Vegetation around south end of existing bridge (near Bloor Street East).

Photograph 4: Valley slope with bare soil and patchy ground cover.

Photograph 5: Glen Road Community Wildflower Garden south of Bloor Street hosts several native flora including three locally rare plants (Snowberry, Woodland Sunflower and Wild Crane's-bill).

APPENDIX C – Vascular Plant List

Appendix C: Summary of Vascular Plants Recorded within the Study Area

Common Name	Scientific Name	cc[1]	cw [1]	OWES Wetland Plant List	Grank[2]	Srank[3]	COSEWIC[4]	MNR[5]	SARA Status [6]	Schedule [6]	City of Toronto (Varga et al. 2000)[7]	Toronto Region Conservation Rank (2003)[7]	Unit 1 (FOD5-9)	Unit 2 (FODM4-6)	Unit 3 (FODM4-6)	Unit 4 (FODM4-A)	Unit 5 (FODM4-B)	Unit 6 (CUW1)
Box Elder	*Acer negundo*	0	-2	X	G5	S5					X	L+?		x	x		x	
Norway Maple	*Acer platanoides*	*	5		GNR	SNA					X	L+	x	x	x	x	x	
Sugar Maple	*Acer saccharum var. saccharum*	4	3		G5T5	S5					X	L5	x	x				
Freeman's Maple	*Acer X freemanii*			X	GNA	SNR					X	LH		x				
Horse Chestnut	*Aesculus hippocastanum*	*	5		GNR	SNA					X	L+	x	x		x	x	
Garlic Mustard	*Alliaria petiolata*	*	0		GNR	SNA					X	L+	x	x	x	x	x	x
Lesser Burdock	*Arctium minus*	*	5		GNR	SNA					X	L+				x		
Greater Celadine	*Chelidonium majus*	*	5		GNR	SNA					X	L+			x	x	x	
Enchanter's Nightshade	*Circaea lutetiana ssp canadensis*	3	3		G5T5	S5					X	L5		x	x	x	x	
Virginia Virgin-bower	*Clematis virginiana*	3	0	X	G5	S5					X	L5						x
Alternate-leaf Dogwood	*Cornus alternifolia*	6	5		G5	S5					X	L5	x			x		
Wild-rye Species	*Elymus sp.*																	x
White Ash	*Fraxinus americana*	4	3		G5	S5					X	L5	x	x	x			
Green Ash	*Fraxinus pennsylvanica*	3	-3	X	G5	S5					X	L5			x		x	
Wild Crane's-bill	*Geranium maculatum*	6	3		G5	S5					X	L4						x
White Avens	*Geum canadense*	3	0	X	G5	S5					X	L5			x		x	
Wood Avens	*Geum urbanum*	*	5		G5	SNA					X	L+					x	
English Ivy	*Hedera helix*	*				SNA							x					
Woodland Sunflower	*Helianthus divaricatus*	7	5		G5	S5					XU	L3						x
Black Walnut	*Juglans nigra*	5	3		G5	S4					X	L5	x	x			x	
Tartarian Honeysuckle	*Lonicera tatarica*	*	3		GNR	SNA					X	L+		x				x
Common Apple	*Malus pumila*	*	5		G5	SNA					X	L+			x			x
White Mulberry	*Morus alba*	*	0		GNR	SNA					X	L+						x
Eastern Hop-hornbeam	*Ostrya virginiana*	4	4		G5	S5					X	L5		x			x	
Upright Yellow Wood Sorrel	*Oxalis stricta*	0	3		G5	S5					X	L+?				x		
Thicket Creeper	*Parthenocissus vitacea*				G5	S5					X	L5	x	x			x	x
Reed Canary Grass	*Phalaris arundinacea*	0	-4	X	G5	S5					X	L+?				x		
White Spruce	*Picea glauca*	6	3	X	G5	S5					X+	L3		x				
Common Plantain	*Plantago major*	*	-1		G5	S5					X	L+				x		
Solomon's Seal Species	*Polygonatum sp.*																	x
Japanese Knotweed	*Polygonum cuspidatum*	*	3		GNR	SNA					X	L+	x		x	x		
Common Heal-all	*Prunella vulgaris ssp. vulgaris*	*	0		G5TU	SNA					X					x		
Wild Black Cherry	*Prunus serotina*	3	3		G5	S5					X	L5				x		
Choke Cherry	*Prunus virginiana var. virginiana*	2	1		G5T5	S5					X	L5	x			x		
Northern Red Oak	*Quercus rubra*	6	3		G5	S5					X	L4			x	x		
Tall Buttercup	*Ranunculus acris*	*	-2	X	G5	SNA					X	L+				x		
Black Locust	*Robinia pseudoacacia*	*	4		G5	SNA					X	L+			x		x	x
Rose Species	*Rosa sp.*																	x
Wild Red Raspberry	*Rubus idaeus ssp. strigosus*				G5T5	S5					X	L5				x	x	
Bloodroot	*Sanguinaria canadensis*	5	4		G5	S5					X	L5						x
Tall Tumble Mustard	*Sisymbrium altissimum*	*	3		GNR	SNA					X	L+				x		
Canada Goldenrod	*Solidago canadensis*	1	3		G5	SNR					X	L5	x				x	x
Zig-zag Goldenrod	*Solidago flexicaulis*	6	3		G5	S5					X	L5	x	x	x	x	x	
Field Sowthistle	*Sonchus arvensis ssp arvensis*	*			GNRTNR	SNA					X	L+				x		
Snowberry	*Symphoricarpos albus*	7	4		G5	S5					XU	L2						x
Common Dandelion	*Taraxacum officinale*	*	3		G5	SNA					X	L+	x	x			x	
American Basswood	*Tilia americana*	4	3		G5	S5					X	L5				x		
Western Poison Ivy	*Toxicodendron rydbergii*	0	0		G5	S5					X	L5	x	x			x	
American Elm	*Ulmus americana*	3	-2	X	G5?	S5					X	L5	x	x	x		x	x
Siberian Elm	*Ulmus pumila*	*	5		GNR	SNA					X	L+	x					
Woolly Blue Violet	*Viola sororia*	4	1	X	G5	S5					X	L5						x
Riverbank Grape	*Vitis riparia*	0	-2		G5	S5					X	L5	x			x	x	

[1]**Coefficient of Conservatism and Coefficient of Wetness**

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.

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.

[2]G-Rank (Global)

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 Status from MNR Biodiversity Explorer September 2012)

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.

Variant Ranks
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).
GU – Unrankable - Currently unrankable due to lack of information or due to substantially conflicting information about status or trends. NOTE: Whenever possible (when the range of uncertainty is three consecutive ranks or less), a range rank (e.g., G2G3) should be used to delineate the limits (range) of uncertainty.
GNR – Unranked – Global rank not yet assessed
GNA – Not Applicable – A conservation status rank is not applicable because the species is not a suitable target for conservation activities.

Rank Qualifiers
? - 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.

Q - Questionable taxonomy that may reduce conservation priority—Distinctiveness of this entity as a taxon or ecosystem type at the current level is questionable; resolution of this uncertainty may result in change from a species to a subspecies or hybrid, or inclusion of this taxon or type in another taxon or type, with the resulting taxon having a lower-priority (numerically higher) conservation status rank. The “Q” modifier is only used at a global level and not at a national or subnational level.

C - Captive or Cultivated Only—Taxon or ecosystem at present is presumed or possibly extinct or eliminated in the wild across their entire native range but is extant in cultivation, in captivity, as a naturalized population (or populations) outside their native range, or as a reintroduced population or ecosystem restoration, not yet established. The “C” modifier is only used at a global level and not at a national or subnational level. Possible ranks are GXC or GHC. This is equivalent to “Extinct” in the Wild (EW) in IUCN’s Red List terminology (IUCN 2001).

[3]S-Ranks (Provincial)

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 Status from MNR Biodiversity Explorer September 2012)

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).
SX - Presumed Extirpated - Species or community is believed to be extirpated from the nation or state/province. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.
SH - Possibly Extirpated (Historical) - Species or community occurred historically in the nation or state/province, and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20-40 years. A species or community could become NH or SH without such a 20-40 year delay if the only known occurrences in a nation or state/province were destroyed or if it had been extensively and unsuccessfully looked for. The NH or SH rank is reserved for species or communities for which some effort has been made to relocate occurrences, rather than simply using this status for all elements not known from verified extant occurrences.
SE – Species is considered exotic in Ontario
SNR - Unranked – Nation of state/province conservation status not yet assessed.
SU - Unrankable – Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
SNA - Not Applicable – A conservation status rank is not applicable because the species is not a suitable target for conservation activities.[1]

[4]COSEWIC (Committee on the Status of Endangered Wildlife in Canada)
(federal status from COSEWIC November 2012)

EXT - Extinct - A species that no longer exists.
EXP - Extirpated - A species no longer existing in the wild in Canada, but occurring elsewhere.
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.
DD - Data Deficient (formerly Indeterminate) - Available information is insufficient to resolve a species' eligibility for assessment or to permit an assessment of the species' risk of extinction.

Implied COSEWIC Status Notations (Status Due to Taxonomic Relationships)[2]
value (Flagged Value) – The taxon itself is not named in the Canadian Species at Risk list, however, it does have status as a result of its taxonomic relationship to a named entity. For example, if a species has a COSEWIC status of “threatened”, then by default, all of its recognized subspecies that occur in Canada also have a threatened status. The subspecies in this example would have the value “$T_{(2)}$” under COSEWIC. Likewise, if all of a species’ infraspecific taxa occurring in Canada have the same COSEWIC status, then that status appears in the entry for the “full” species as well. In this case, if the species name is not mentioned in the Canadian Species at Risk list, the status appears with a flag $_{(2)}$ in NatureServe Explorer.
value, value: (Combination values with flags) – The taxon itself is not named in the Canadian Species at Risk list, however, all of its infraspecific taxa occurring in Canada do have status but two or more of the taxa do not have the same status. In this case, a combination of statuses shown with a flag $_{(7)}$ indicates the statuses that apply to infraspecific taxa or populations within this taxon.

PS (partial status) – Indicates “partial status” – in only a portion of the species’ range in Canada. Typically indicated for a “full’ species where at least one but not all of a species’ infraspecific taxa or populations has COSEWIC status.

PS:*value* (partial status) – Indicates “partial status” – status in only a portion of the species’ range. The value of that status appears because the entity with status (usually a population defined by geopolitical boundaries within Canada) does not have an individual entry in NatureServe Explorer. Information about the entity with status can be found in reports for the associated species.

[5]MNR (Ministry of Natural Resources)

(*provincial status from MNR January 13, 2012)*
The provincial review process is implemented by the MNR's Committee on the Status of Species at Risk in Ontario (COSSARO).

EXT - Extinct—A species that no longer exists anywhere.
EXP - Extirpated—A species that no longer exists in the wild in Ontario but still occurs elsewhere.
END - Endangered - A species facing imminent extinction or extirpation in Ontario which is a candidate for regulation under Ontario's Endangered Species Act (ESA).
THR - Threatened—A species that is at risk of becoming endangered in Ontario if limiting factors are not reversed.
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.
DD - Data Deficient (formerly Indeterminate) —A species for which there is insufficient information for a provincial status recommendation.

[6] SARA (Species at Risk Act) Status and Schedule

The Act establishes Schedule 1, as the official list of species at risk. 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.

EXT: Extinct – A species that no longer exists.
EXP: Extirpated – A species that no longer exists in the wild in Canada, but exists elsewhere in the wild.
END: Endangered – A species that is facing imminent extirpation or extinction.

[1] Added on June 4, 2013 from http://nhic.mnr.gov.on.ca/glossary/srank.cfm
[2] Added on June 5, 2013 from http://www.natureserve.org/explorer/statusca.htm

THR: Threatened – A species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.
SC: Special Concern – A species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.

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.

Government of Canada. Species at Risk Public Registry. Website: [http://www.sararegistry.gc.ca/default_e.cfm September 27, 2012]

Glossary: http://www.sararegistry.gc.ca/about/glossary/default_e.cfm#e
Species Index A-Z: http://www.sararegistry.gc.ca/sar/index/default_e.cfm
Species Listing by Schedule: http://www.sararegistry.gc.ca/sar/listing/default_e.cfm

[7] Regional Status

City of Toronto Plant List
From: *Varga, S., D. Leadbeater, J Webber, J. Kaiser, B. Crins, J. Kamstra, D. Banville, E. Ashley, G. Miller, C. Kingsley, C. Jacobsen, K. Mewa, L. Tebby, E. Mosley and E. Zajc. 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

Toronto and Region Conservation Authority:
From: *Toronto and Region Conservation. 2007. Toronto and Region Natural Heritage System Strategy – Final Draft January 2007.*

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. For flora the ranks are defined as follows (TRCA 2007).

Codes are defined as follows:
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.

APPENDIX D – Wildlife Species List and Breeding Bird Data

Appendix D: Summary of Wildlife Recorded within the Study Area

Common Name	*Scientific Name*	GRANK[1]	SRANK[2]	COSEWIC[3]	MNRF[4]	SARA Status [5]	Schedule [5]	TRCA rank (2008)[6]	MNR Area Sensitive[7]	Habitat Use [8]	NHIC Tracked	Highest Breeding Code [9]	Highest Breeding Evidence [9]	Highest Abundance
American Goldfinch	*Spinus tristis*	G5	S5B					L5		E	N	T	Probable	5
American Robin	*Turdus migratorius*	G5	S5B					L5		E	N	T	Probable	4
Common Grackle	*Quiscalus quiscula*	G5	S5B					L5		E	N	S, H	Possible	1
Brown-headed Cowbird	*Molothrus ater*	G5	S4B					L5		E	N	H	Possible	2
European Starling	*Sturnus vulgaris*	G5	SNA					L+		E	N	T	Probable	4
Blue Jay	*Cyanocitta cristata*	G5	S5					L5		I/E	N	S, H	Possible	1
House Sparrow	*Passer domesticus*	G5	SNA					L+		E	N	T	Probable	12
Northern Cardinal	*Cardinalis cardinalis*	G5	S5					L5		I/E	N	T	Probable	1
Red-tailed Hawk	*Buteo jamaicensis*	G5	S5	NAR	NAR			L5		E	N	X	Observed	1
Black-capped Chickadee	*Poecile atricapillus*	G5	S5					L5		I/E	N	S, H	Possible	1
Chipping Sparrow	*Spizella passerina*	G5	S5B					L5		E	N	S, H	Possible	1
Downy Woodpecker	*Picoides pubescens*	G5	S5					L5		I/E	N	T	Probable	1
Turkey Vulture	*Cathartes aura*	G5	S5B					L4			N	H	Observed	2
Chimney Swift	*Chaetura pelagica*	G5	S4B,S4N	THR	THR	THR	1	L4			N	T	Probable	6
Hairy Woodpecker	*Picoides villosus*	G5	S5					L4	X	I	N	S, H	Possible	1
House Finch	*Carpodacus mexicanus*	G5	SNA					L+			N	T	Probable	1
Magnolia Warbler	*Setophaga magnolia*	G5	S5B					L3	X	I	N	X	Observed	1
Red-eyed Vireo	*Vireo olivaceus*	G5	S5B					L4		I/E	N	T	Probable	2
Ruby-throated Hummingbird	*Archilochus colubris*	G5	S5B					L4		E	N	S, H	Possible	1
Eastern Chipmunk	*Tamias striatus*	G5	S5					L4			N			
Grey Squirrel	*Sciurus carolinensis*	G5	S5					L5			N			
Flycatcher sp.	*Empidonax sp.*											H	Possible	1
Gull sp.												X	Observed	3

[1]G-Rank (global)
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.

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.

[2]S-Ranks (provincial)
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.

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).
SAN Non-breeding accidental.
SE Exotic - not believed to be a native component of Ontario's fauna.
SZN Non-breeding migrants/vagrants.
SZB Breeding migrants/vagrants.

[3]COSEWIC (Committee on the Status of Endangered Wildlife in Canada)
EXT Extinct - A species that no longer exists.
EXP Extirpated - A species no longer existing in the wild in Canada, but occurring elsewhere.
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.
DD Data Deficient (formerly Indeterminate) - Available information is insufficient to resolve a species' eligibility for assessment or to permit an assessment of the species' risk of extinction.

[4]OMNRF (Ontario Ministry of Natural Resources and Forestry)

EXT Extinct - A species that no longer exists anywhere in the world.
EXP Extirpated - A species that lives somewhere in the world, lived at one time in the wild in Ontario, but no longer lives in the wild in Ontario.
END Endangered - A species that is facing imminent extinction or extirpation.
THR Threatened - A species that is likely to become endangered if steps are not taken to address factors threatening to lead to its extinction or extirpation.
SC Special Concern – A species that may become threatened or endangered because of a combination of biological characteristics and identified threats.

[5]SARA (Species at Risk Act) Status and Schedule
The Act establishes Schedule 1, as the official list of wildlife species at risk. It classifies those species as being either Extirpated, Endangered, Threatened, or a Special Concern. Once listed, the measures to protect and recover a listed wildlife species are implemented.

EXT Extinct - A wildlife species that no longer exists.
EXP Extirpated **-** A wildlife species that no longer exists in the wild in Canada, but exists elsewhere in the wild.
END Endangered - A wildlife species that is facing imminent extirpation or extinction.
THR Threatened - A wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.
SC Special Concern - A wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.

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 wildlife 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 Wildlife Species at Risk.

[6] Regional Status
Toronto and Region Conservation Authority ranks
L-rank (Local Rank)-A rank assigned by TRCA to a species, vegetation community, or habitat patch which describes its status in the TRCA Region. Species of conservation concern, according to the TRCA methodology are any species with a local rank of L1 to L3, and those L4 species found within the Urban (built-up area). Generally species which are disappearing in the regional landscape, primarily as a result of land use changes. L1 – regional concern; L2 – regional concern; L3 – regional concern; L4 – urban concern
(from TRCA, August 2008)

[7] MNR Significant Wildlife Habitat Technical Guide Area Sensitive Species
Area Sensitivity is defined as species requiring large areas of suitable habitat in order to sustain population numbers
From: Ministry of Natural Resources. 2000. Significant Wildlife Habitat Technical Guide. Fish and Wildlife Branch, Wildlife Section. Science Development and Transfer Branch, Southcentral Science Section. 151pp. + appendices.

[8] Habitat Use
I=interior species, I/E=interior edge species, E=edge species (Freemark and Collins, 1989); M/F=Marsh/Fen, S/B=Treed Swamp/Bog. Interior bird species require habitat which is often found 100m from the forest edge while Interior/Edge species are found within both interior and edge habitat. Often Interior and Interior/Edge are more sensitive to urban encroachment as they require these large, relatively undisturbed forest habitats to support viable populations. The increasing urbanization of rural areas often results in increased parasitism and predation as well as disturbance from human recreational activities (e.g. illegal bike trails, dumping and pets.) (Freemark, K. and Collins, B. 1989. *Landscape ecology of birds breeding in temperate forest fragments*. – In: Hagan III, J. M. and Johnston, D. W. (eds), Ecology and conservation of neotropical migrant landbirds. Smithsonian Inst. Press, pp. 443–454)

[9] Ontario Breeding Bird Atlas - Breeding Evidence Codes

OBSERVED
X Species observed in its breeding season (no breeding evidence).

POSSIBLE
H Species observed in its breeding season in suitable nesting habitat.
S Singing male(s) present, or breeding calls heard, in suitable nesting habitat in breeding season.

PROBABLE
P Pair observed in suitable nesting habitat in nesting season.
T Permanent territory presumed through registration of territorial behaviour (song, etc.) on at least two days, a week or more apart, at the same place.

D Courtship or display, including interaction between a male and a female or two males, including courtship feeding or copulation.
V Visiting probable nest site
A Agitated behaviour or anxiety calls of an adult.
B Brood Patch on adult female or cloacal protuberance on adult male.
N Nest-building or excavation of nest hole.

CONFIRMED
DD Distraction display or injury feigning.
NU Used nest or egg shells found (occupied or laid within the period of the survey).
FY Recently fledged young (nidicolous species) or downy young (nidifugous species), including incapable of sustained flight.
AE Adult leaving or entering nest sites in circumstances indicating occupied nest.
FS Adult carrying fecal sac.
CF Adult carrying food for young.
NE Nest containing eggs.
NY Nest with young seen or heard.

APPENDIX E – Species at Risk Screening

Species At Risk Designations	
ENDANGERED	
THREATENED	
SPECIAL CONCERN	
EXTIRPATED	

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
Amphibians								
Western Chorus Frog (Great Lakes/St.Lawrence Population) (Pseudacris triseriata)	NAR	N/A	Ontario Nature Herp Atlas (1934-1989)	In marshes or wooded wetland areas it is found on the ground or in low shrubs, in close proximity to seasonally dry temporary ponds (SARA Species Profile Online 2015).	**None** - no potential breeding habitat (wetland) occurs within the study area.	3 rounds of auditory and visual surveys within habitats surrounding bridge.	Not found.	**None** - as no potential breeding habitat occurs within the study area, this species will not be impacted by the proposed works.
Birds								
Acadian Flycatcher (Empidonax virescens)	END	Species and General Habitat Protection	Ontario Breeding Bird Atlas (2001-2005)	Generally requires large areas of mature, undisturbed forest; avoids the forest edge; often found in well wooded swamps and ravines (MNRF Guelph - Waterloo List, 2014)	**Minimal** - this species is rare and no potential breeding habitat (large mature forest >40 ha) occurs within study area; however, this species may use the Rosedale Valley as a migration corridor.	3 rounds of auditory and visual surveys within habitats surrounding bridge during the Breeding Bird Survey timing window (May24-July10).	Not found.	**None** - as no potential breeding habitat occurs within the study area, this species will not be impacted by the proposed works.
Bank Swallow (Riparia riparia)	THR	Species and General Habitat Protection	MNRF Aurora District Office (2016)	It nests in a wide variety of naturally and anthropogenically created vertical banks, which often erode and change over time including aggregate pits and the shores of large lakes and rivers (MNRF Guelph - Waterloo List, 2014)	**Moderate** - no potential breeding habitat (vertical banks in open habitat) occurs within the study area; however, this species may forage overhead of the study area since the Don River occurs within close proximity.	3 rounds of auditory and visual surveys within habitats surrounding bridge during the Breeding Bird Survey timing window (May24-July10).	Not found.	**None** - as no potential breeding habitat occurs within the study area, this species will not be impacted by the proposed works.
Barn Swallow (Hirundo rustica)	THR	Species and General Habitat Protection	MNRF Regional List (2017); MNRF Aurora District Office (2016)	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** - the Glen Rd. pedestrian bridge may provide potential breeding habitat and this species may forage overhead of the study area.	3 rounds of auditory and visual surveys within habitats surrounding bridge during the Breeding Bird Survey timing window (May24-July10).	Not found.	**Minimal** - no Barn Swallow nests were observed on the structure at the time of the survey. There is moderate foragin habitat, but open water and wetland features are not present in close proximity. The structure is suitable for Barn Swallow nesting, so potential exists for nesting to occur on the bridge in subsequent years.

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
Black Tern (Chlidonias niger)	SC	N/A	MNRF Regional List (2017)	Generally prefer freshwater marshes and wetlands; nest either on floating material in a marsh or on the ground very close to water (MNRF Guelph - Waterloo List, 2014)	**None** - no potential breeding habitat (wetland) occurs within the study area.	3 rounds of auditory and visual surveys within habitats surrounding bridge during the Breeding Bird Survey timing window (May24-July10).	Not found.	**None** - as no potential breeding habitat occurs within the study area, this species will not be impacted by the proposed works.
Bobolink (Dolichonyx oryzivorus)	THR	Species and General Habitat Protection	MNRF Regional List (2017)	Generally prefers open grasslands and hay fields. In migration and in winter uses freshwater marshes and grasslands (MNRF Guelph - Waterloo List, 2014)	**None** - no potential breeding habitat (grassland) occurs within the study area.	3 rounds of auditory and visual surveys within habitats surrounding bridge during the Breeding Bird Survey timing window (May24-July10).	Not found.	**None** - as no potential breeding habitat occurs within the study area, this species will not be impacted by the proposed works.
Canada Warbler (Cardellina canadensis)	SC	N/A	Ontario Breeding Bird Atlas (2001-2005)	Generally prefers wet coniferous, deciduous and mixed forest types, with a dense shrub layer. Nests on the ground, on logs or hummocks, and uses dense shrub layer to conceal the nest (MNRF Guelph - Waterloo List, 2014)	**Minimal** - no potential breeding habitat (wet habitats with dense shrubs) occurs within study area; however, this species may use the Rosedale Valley as a migration corridor.	3 rounds of auditory and visual surveys within habitats surrounding bridge during the Breeding Bird Survey timing window (May24-July10).	Not found.	**None** - as no potential breeding habitat occurs within the study area, this species will not be impacted by the proposed works.
Cerulean Warbler (Setophaga cerulea)	THR	Species and General Habitat Protection	Ontario Breeding Bird Atlas (1981-1985)	Generally found in mature deciduous forests with an open understory; also nests in older, second-growth deciduous forests (MNRF Guelph - Waterloo List, 2014)	**Minimal** - this species is rare and no potential breeding habitat (large mature forest >10 ha) occurs within study area; however, this species may use the Rosedale Valley as a migration corridor.	3 rounds of auditory and visual surveys within habitats surrounding bridge during the Breeding Bird Survey timing window (May24-July10).	Not found.	**None** - as no potential breeding habitat occurs within the study area, this species will not be impacted by the proposed works.
Common Nighthawk (Chordeiles minor)	SC	N/A	MNRF Aurora District Office (2016)	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** - potential breeding habitat (flat roof-tops) occurs adjacent to the study area and this species may forage overhead of the study area.	3 rounds of auditory and visual surveys within habitats surrounding bridge during the Breeding Bird Survey timing window (May24-July10).	Not found.	**None** - potential breeding habitat occurs beyond the study area so this species will not be impacted by the proposed works.
Chimney Swift (Chaetura pelagica)	THR	Species and General Habitat Protection	MNRF Aurora District Office (2016)	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)	**High** - potential breeding habitat (chimneys) occurs adjacent to the study area and this species may forage overhead of the study area.	3 rounds of auditory and visual surveys within habitats surrounding bridge during the Breeding Bird Survey timing window (May24-July10).	Confirmed foraging overhead study area on all 3 visits.	**None** - potential breeding habitat occurs beyond the study area so this species will not be impacted by the proposed works.
Eastern Meadowlark (Sturnella magna)	THR	Species and General Habitat Protection	MNRF Regional List (2017)	Generally prefers grassy pastures, meadows and hay fields. Nests are always on the ground and usually hidden in or under grass clumps (MNRF Guelph - Waterloo List, 2014)	**None** - no potential breeding habitat (grassland) occurs within the study area.	3 rounds of auditory and visual surveys within habitats surrounding bridge during the Breeding Bird Survey timing window (May24-July10).	Not found.	**None** - as no potential breeding habitat occurs within the study area, this species will not be impacted by the proposed works.

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Eastern Wood-pewee (Contopus virens)	SC	N/A	MNRF Aurora District Office (2016)	Associated with deciduous and mixed forests. Within mature and intermediate age stands it prefers areas with little understory vegetation as well as forest clearings and edges (MNRF Guelph - Waterloo List, 2014)	**High** - potential breeding habitat (forest with limited understory) occurs within study area.	3 rounds of auditory and visual surveys within habitats surrounding bridge during the Breeding Bird Survey timing window (May24-July10).	Not found.	**Minimal** - Species was not observed. Potential breeding habitat occurs within the study area. Vegetation removal outside the breeding bird window will minimize potential for impact to the species.
Least Bittern (Ixobrychus exilis)	THR	Species and General Habitat Protection	MNRF Regional List (2017)	Generally located near pools of open water in relatively large marshes and swamps that are dominated by cattail and other robust emergent plants (MNRF Guelph - Waterloo List, 2014)	**None** - no potential breeding habitat (large wetlands) occurs within the study area.	3 rounds of auditory and visual surveys within habitats surrounding bridge during the Breeding Bird Survey timing window (May24-July10).	Not found.	**None** - as no potential breeding habitat occurs within the study area, this species will not be impacted by the proposed works.
Peregrine Falcon anatum/tundrius (Falco peregrinus anatum/tundrius)	SC	N/A	MNRF Regional List (2017)	Generally nest on tall, steep cliff ledges adjacent to large waterbodies; some birds adapt to urban environments and nest on ledges of tall buildings, even in densely populated downtown areas (MNRF Guelph - Waterloo List, 2014)	**Moderate** - potential breeding habitat (tall buildings) occurs adjacent to the study area.	3 rounds of auditory and visual surveys within habitats surrounding bridge during the Breeding Bird Survey timing window (May24-July10).	Not found.	**None** - potential breeding habitat occurs beyond the study area so this species will not be impacted by the proposed works.
Red-headed Woodpecker (Melanerpes erythrocephalus)	SC	N/A	Ontario Breeding Bird Atlas (2001-2005)	Generally prefer open oak and beech forests, grasslands, forest edges, orchards, pastures, riparian forests, roadsides, urban parks, golf courses, cemeteries, as well as along beaver ponds and brooks (MNRF Guelph - Waterloo List, 2014)	**Moderate** - potential habitat (large trees in open habitats) occurs within study area.	3 rounds of auditory and visual surveys within habitats surrounding bridge during the Breeding Bird Survey timing window (May24-July10).	Not found.	**Minimal** - Potential breeding habitat occurs within the study area. Vegetation removal outside the breeding bird window will minimize potential for impact to the species.
Wood Thrush (Hylocichla mustelina)	SC	N/A	Ontario Breeding Bird Atlas (2001-2005)	Nests mainly in second-growth and mature deciduous and mixed forests, with saplings and well-developed understory layers. Prefers large forest mosaics, but may also nest in small forest fragments (MNRF Guelph - Waterloo List, 2014)	**Moderate** - potential breeding habitat (forest with well-developed understory, moist soil and decaying leaf litter) is limited within study area; however, this species may use the Rosedale Valley as a migration corridor.	3 rounds of auditory and visual surveys within habitats surrounding bridge during the Breeding Bird Survey timing window (May24-July10).	Not found.	**Minimal** - Species was not observed. Potential breeding habitat occurs within the study area. Vegetation removal outside the breeding bird window will minimize potential for impact to the species.
Yellow-breasted Chat (Icteria virens)	END	Species and General Habitat Protection	MNRF Regional List (2017)	Generally prefer dense thickets around wood edges, riparian areas, and in overgrown clearings (MNRF Guelph - Waterloo List, 2014)	**None** - this species is very rare and no potential breeding habitat (dense shrubs) occurs within study area.	3 rounds of auditory and visual surveys within habitats surrounding bridge during the Breeding Bird Survey timing window (May24-July10).	Not found.	**None** - no potential breeding habitat occurs within study area so this species will not be impacted by the proposed works.
Insects								
Rusty-patched Bumble Bee (Bombus affinis)	END	Species and General Habitat Protection	MNRF Regional List (2017)	Generally inhabits a range of diverse habitats including mixed farmland, sand dunes, marshes, urban and wooded areas. It usually nests underground in abandoned rodent burrows (MNRF Guelph - Waterloo List, 2014)	**None** - this species is very rare (only sightings in Ontario since 2002 have been within Pinery Provincial Park) and foraging habitat (wildflowers) is limited.	3 rounds of visual surveys within habitats surrounding bridge	Not found.	**None** - this species is extremely rare and potential foraging habitat is limited within study area so this species will not be impacted by the proposed works.

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Monarch (Danaus plexippus)	SC	N/A	Ontario Butterfly Atlas (2011 or later)	Exist primarily wherever milkweed and wildflowers exist; abandoned farmland, along roadsides, and other open spaces (MNRF Guelph - Waterloo List, 2014)	**Minimal** - some limited foraging habitat (wildflowers) occurs within the study area; however, no breeding habitat (Milkweed) occurs within the study area.	3 rounds of visual surveys within habitats surrounding bridge	Not found.	**None** - no potential breeding habitat occurs within study area so this species will not be impacted by the proposed works.
Mammals								
Little Brown Bat (Little Brown Myotis) (Myotis lucifugus)	END	Species and General Habitat Protection	Ontario Mammal Atlas; Bat Conservation International Atlas	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** - potential breeding habitat (cavity trees and buildings) occur within and adjacent to the study area.	Noting presence/absence of potential cavity tree roosts within habitats surrounding bridge	Not found.	**Minimal** - tree removals outside of the breeding window will minimize potential for impact to the species. Potential impacts to suitable bat maternity habitat will be addressed at detailed design in consultation with MNRF.
Northern Long-eared Bat (Northern Myotis) (Myotis septentrionalis)	END	Species and General Habitat Protection	Ontario Mammal Atlas; Bat Conservation International Atlas	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** - potential breeding habitat (cavity trees and buildings) occur within and adjacent to the study area.	Noting presence/absence of potential cavity tree roosts within habitats surrounding bridge	Not found.	**Minimal** - tree removals outside of the breeding window will minimize potential for impact to the species. Potential impacts to suitable bat maternity habitat will be addressed at detailed design in consultation with MNRF.
Small-footed Bat (Myotis leibii)	END	Species and General Habitat Protection	Ontario Mammal Atlas; Bat Conservation International Atlas	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)	**None** - this species is rare and is associated with rocky landscapes.	Noting presence/absence of potential cavity tree roosts within habitats surrounding bridge	Not found.	**None** - no potential breeding habitat (rocky areas) occurs within the study area, so this species will not be impacted by the proposed works.
Tri-colored Bat (Perimyotis subflavus)	END	Species and General Habitat Protection	Ontario Mammal Atlas; Bat Conservation International Atlas	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)	**Minimal** - potential breeding habitat (cavity trees and buildings) occur within and adjacent to the study area; however, this species is very rare in Ontario.	Noting presence/absence of potential cavity tree roosts within habitats surrounding bridge	Not found.	**Minimal** - tree removals outside of the breeding window will minimize potential for impact to the species. Potential impacts to suitable bat maternity habitat will be addressed at detailed design in consultation with MNRF.
Plants								
Broad Beech Fern (Phegopteris hexagonoptera)	SC	N/A	MNRF Regional List (2017); NHIC (1890)	Generally inhabits shady areas of beech and maple forests where the soil is moist or wet (MNRF Guelph - Hamitlon List, 2013).	**None** - no suitable habitat present; no beech trees, well-drained soils, and high level of disturbance.	Two-season botanical inventory	Not found.	**None** - this species is not present within the study area.
Butternut (Juglans Cinerea)	END	Species and General Habitat Protection	MNRF Aurora District Office (2016); NHIC (2006)	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** - suitable forest slope habitat throughout Rosedale Valley (historically associated with a watercourse).	Two-season botanical inventory	Not found.	**None** - this species is not present within the study area.
Red Mulberry (morus rubra)	END	Species and General Habitat Protection	NHIC (1941)	Generally grows in moist forest habitats. In Ontario, these include slopes and ravines of the Niagara Escarpment, and sand spits and bottom lands; can grow in open areas such as hydro corridors (MNRF Guelph - Hamilton List, 2013).	**Minimal** - Suitable forest habitat present; however, this species is extremely rare and only known to a few isolated locations in Ontario well outside of the study area.	Two-season botanical inventory	Not found.	**None** - this species is not present within the study area.
White Wood Aster (eurybia divaricata)	THR	Species and General Habitat Protection	NHIC (1927)	Generally grows in open, dry, deciduous forests. It has been suggested that it may benefit from some disturbance, as it often grows along trails (MNRF Guelph - Hamilton List, 2013).	**Moderate** - suitable dry forest habitat throughout Rosedale Valley.	Two-season botanical inventory	Not found.	**None** - this species is not present within the study area.
Reptiles								

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Blanding's Turtle (Emydoidea blandingii)	THR	Species and General Habitat Protection	MNRF Regional List (2017); MNRF Aurora District Office (2016)	Generally occur in freshwater lakes, permanent or temporary pools, slow-flowing streams, marshes and swamps. They prefer shallow water that is rich in nutrients, organic soil and dense vegetation. Adults are generally found in open or partially vegetated sites, and juveniles prefer areas that contain thick aquatic vegetation including sphagnum, water lilies and algae. They dig their nest in a variety of loose substrates, including sand, organic soil, gravel and cobblestone. Overwintering occurs in permanent pools that average about one metre in depth, or in slow-flowing streams (MNRF Guelph - Waterloo List, 2014)	**None** - no potential habitat (wetlands) occurs within the study area.	3 rounds of visual surveys within habitats surrounding bridge	Not found.	**None** - no potential habitat occurs within the study area.
Eastern Ribbonsnake (aka. Northern Ribbonsnake) (Thamnophis sauritus septentrionalis)	SC	N/A	MNRF Regional List (2017); NHIC (1913)	Generally occur along the edges of shallow ponds, streams, marshes, swamps, or bogs bordered by dense vegetation that provides cover. Abundant exposure to sunlight is also required, and adjacent upland areas may be used for nesting (MNRF Guelph - Waterloo List, 2014)	**None** - no potential habitat (wetland/waterbody edges) occurs within the study area.	3 rounds of visual surveys within habitats surrounding bridge	Not found.	**None** - no potential habitat occurs within the study area.
Northern Map Turtle (Graptemys geographica)	SC	N/A	MNRF Regional List (2017)	Generally inhabits both lakes and rivers, showing a preference for slow moving currents, muddy bottoms, and abundant aquatic vegetation. These turtles need suitable basking sites (such as rocks and logs) and exposure to the sun for at least part of the day (MNRF Guelph - Waterloo List, 2014)	**None** - no potential habitat (lakes or watercourses) occurs within the study area.	3 rounds of visual surveys within habitats surrounding bridge	Not found.	**None** - no potential habitat occurs within the study area.
Queensnake (Regina septemvittata)	END	Species Protection and Habitat Regulation	NHIC (1858)	Generally require a permanent body of water, flowing or still, with a temperature remaining at or above 18.3°C throughout most of the active season; abundant cover, such as flat rocks submerged and/or on the bank; and an abundance of crayfish. Other important habitat features may include rocky, gravelly, or slate stream-bed substrates, swift to moderate current, and woodland surroundings (MNRF Guelph - Waterloo List, 2014)	**None** - no potential habitat (wetlands or watercourses) occurs within the study area.	3 rounds of visual surveys within habitats surrounding bridge	Not found.	**None** - no potential habitat occurs within the study area.
Snapping Turtle (Chelydra serpentina)	SC	N/A	MNRF Regional List (2017); NHIC (1913)	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)	**None** - no potential habitat (waterbodies) occurs within the study area.	3 rounds of visual surveys within habitats surrounding bridge	Not found.	**None** - no potential habitat occurs within the study area.
Spiny Softshell (Apalone spinifera)	END	Species and General Habitat Protection	MNRF Regional List (2017)	Generally prefer marshy creeks, swift-flowing rivers, lakes, impoundments, bays, marshy lagoons, ditches and ponds near rivers (MNRF Guelph - Hamilton List, 2013)	**None** - no potential habitat (lakes or watercourses) occurs within the study area.	3 rounds of visual surveys within habitats surrounding bridge	Not found.	**None** - no potential habitat occurs within the study area.
Stinkpot (Eastern Musk Turtle) (Sternotherus odoratus)	SC	N/A	MNRF Regional List (2017); NHIC (1982)	Found in ponds, lakes, marshes and rivers that are generally slow-moving, have abundant emergent vegetation, and muddy bottoms. Nesting is in soil, decaying vegetation and rotting wood close to the water and exposed to direct sunlight (MNRF Species Profile Online 2014).	**None** - no potential habitat (waterbodies) occurs within the study area.	3 rounds of visual surveys within habitats surrounding bridge	Not found.	**None** - no potential habitat occurs within the study area.