Updated Natural Environment Report: Individual Environmental Assessment for Teston Road Area (Y.R.49 between Highway 400 and Bathurst Street (Y.R.38))

Final Report

September 17, 2026

Prepared for:
Regional Municipality of York

Prepared by:
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Project/File:
135800052

Stantec

Limitations and Sign-off

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1 Introduction

1.1 Background

In December 2018, the Minister of the Environment, Conservation, and Parks (MECP) approved the Terms of Reference for the Teston Road Area Transportation Improvements Individual Environmental Assessment (IEA) study, within the City of Vaughan. York Region retained Morrison Hershfield (MH), now Stantec, to conduct the IEA in accordance with the approved Terms of Reference. The IEA study has examined solutions that will improve transportation throughout the area through a comprehensive IEA process. The purpose of the IEA is to generate a transportation solution that addresses a variety of transportation problems and opportunities in the area. The project considered improvements for the movement of vehicles, pedestrians, cyclists, and transit.

As part of the IEA studies, MH (now Stantec) undertook terrestrial and fisheries field investigations in 2020, 2021, and 2022, to help identify any environmental constraints or opportunities in the area, and to provide recommendations on transportation improvement alternatives. This *Natural Environment Report* provides detailed existing conditions information within the project limits, an impact assessment for the preferred transportation improvement alternatives, as well as next steps and preliminary avoidance and mitigation measures required for the proposed undertakings. A previous version of the *Natural Environment Report* was prepared in 2024. This updated report includes provision for additional comments received from First Nations groups, including discussion of cumulative effects, and addresses updates to natural heritage legislation and regulations released since this time. Specifically, the provincial *Species Conservation Act*, 2025 (SCA) came into effect on March 30, 2026 and replaced the former *Endangered Species Act*, 2007 (ESA). The SCA protects those species listed on the Protected Species in Ontario List (Ontario Regulation [O. Reg.] 60/26) as Extirpated (EXT), Endangered (END) or Threatened (THR) on provincial, crown, or private lands.

As the project moves forward through the detailed design process, permitting requirements should be completed in accordance with the provincial legislation and associated regulations in force at that time.

The overall IEA study area covers Highway 400 to Bathurst Street (Regional Road 38) and Kirby Road to Major MacKenzie Drive (Regional Road 25), within the City of Vaughan (see Figure 1). The project is located within the Ministry of Natural Resources (MNR) District of Aurora, and within the jurisdiction of the Toronto and Region Conservation Authority (TRCA).



Figure 1 Teston Road Overall IEA Study Area

1.2 Project Rationale and Proposed Scope of Work

By the year 2051, York Region is expected to reach 2.08 million residents (York Region 2023). Within York Region, the City of Vaughan increased from a population of 15,000 in 1970 to 330,000 in 2016. Following the closing of the Keele Valley Landfill in 2002, the Teston Road area now serves many new residential communities, growing commercial areas, new industrial facilities, and additional development applications are expected to continue in the future. To support this rapid and continued growth, the connectivity structure needs to be changed into a fully urbanized road network.

Teston Road is a key regional east/west arterial road, with an interchange at Highway 400, within the City of Vaughan. The Teston Road Area Improvements is an Urban Regional Designated Area as classified by York Region's 2022 Transportation Master Plan.

Improvements to Teston Road will include the continuation of Teston Road from Rodinea Road to Dufferin Street as well as widening of the existing section of Teston Road east of Dufferin Street to Bathurst Street. Discontinuity on Teston Road between Keele Street and Dufferin Street acts as a barrier to local and regional travel. Continuous regional transportation connectivity through the northern section of the City is deficient and the Teston Road area improvements will improve transportation connectivity and help to accommodate predicted growth.

The discontinuous roadway is also part of the regional cycling network. The current network requires out of way travel by cyclists and pedestrians, channeling additional cycling and pedestrian traffic on Keele Street and Dufferin Street. The continuation of Teston Road will improve the cycling network's connectivity and allow cyclists and other active transportation users to connect to the North Maple Regional Park.

The proposed Kirby GO station on the Barrie GO Transit rail line is in the southwest corner of the Kirby Road and Keele Street intersection within the project area. The York Region 2041 Transportation Master Plan aims to increase transit within the region, designating the Teston Road corridor between Keele Street and Bathurst Street, as a frequent transit network. The Teston Road improvements will allow for increased public transit travel, diversifying options for travelers and working to reduce vehicle emissions.

Without making improvements to Teston Road, preliminary analysis deemed parallel corridors, Kirby Road and Major Mackenzie Drive, as 'over-congested' when compared for predicted growth. The expected future condition in the absence of improvements to Teston Road would result in an unacceptable level of service for commuters and goods movement, and in higher levels of air pollution due to higher vehicle emissions. The

Teston Road area improvements aim to address congestion and out-of-way travel currently faced by commuters attempting to access Highway 400.

The Teston Road area transportation improvements are being undertaken to improve the efficiency, safety, and continuity of the transportation network within the project area.

When forming the alternative solutions to address the Teston Road area improvements, the following principles were considered; effective and efficient use of existing infrastructure, developing a network that focuses on economic growth, livability, health, and social wellbeing, reducing impacts to the natural environment, maintaining financial stability, accessibility, and transparency, and effective coordination with other local initiatives. The alternative solutions were then assessed by analyzing their ability to address these problems and opportunities.

The results of the design alternative evaluation were made available to the public and other stakeholders to provide feedback. After receiving feedback, the project team confirmed the preferred design alternative which includes widening Teston Road from a two-lane to four-lane arterial road throughout the entire project area. There will be an at-grade GO rail crossing with improved alignment and long-term property protection for the GO rail between Keele Street and Rodinea Road, a 40 m single span bridge will cross the East Don River to the west of Dufferin Street, and from Dufferin Street to Bathurst Street the existing roadway will widen equally on both sides to four lanes.

2 Background Data Collection

2.1 Background Screening

Prior to completion of field surveys, background data specific to the project area was collected and reviewed. Background data collection is important in determining environmental conditions and limitations within the project area, including designated natural areas and records of Species at Risk (SAR). For the purposes of this study, available online and print sources were accessed, and correspondence was completed with the MNR – Aurora District office. Background information regarding the Teston Road project area was collected and synthesized from the following sources:

- Natural History of Canadian Mammals (Naughton 2012)
- Ontario Breeding Bird Atlas (OBBA; Birds Canada 2021)
- Ontario Reptile and Amphibian Atlas (ORAA; Ontario Nature 2020)
- Ontario Butterfly Atlas (OBA; Macnaughton et al. 2021)
- Species at Risk in Ontario (SARO 2026) list
- Ontario GeoHub (GEO 2026)
- Natural Heritage Information Centre (NHIC) Database (MNR 2023)
- Fish ON-Line (MNR, 2023)
- Aquatic Species at Risk Mapping (DFO, 2022)
- Toporama (Natural Resources Canada; NRCAN 2021)
- The Ecosystems of Ontario, Part 1: Ecozones and Ecoregions (Crins et al. 2009)
- The Ecosystems of Ontario, Part 2: Ecodistricts (Wester et al. 2018)
- 2022 York Region Official Plan (York Region 2023)
- City of Vaughan Official Plan 2010 (City of Vaughan 2010)
- Proposed 2025 Vaughan Official Plan (currently approved, City of Vaughan 2025)
- Don River Watershed Plan, Beyond Forty Steps (TRCA 2009a)
- Don River Watershed Plan Implementation Guide (TRCA 2009b)

- Inventory of the Life Science Maple Uplands & Kettle Wetlands and Earth Science Oak Ridges Moraine Maple Spur Areas of Natural and Scientific Interest (MNR 2000a)
- Provincially Significant East Don River Headwater Wetland Complex Summary (GEM 2019)

2.2 Agency Consultation

Additional information regarding natural heritage features in the project area was requested directly from the MNR Aurora District office as required. Reports on relevant Areas of Natural and Scientific Interest (ANSI) and Provincially Significant Wetlands (PSW) were received from the MNR on November 23, 2021, and a record of this correspondence is included in Appendix A. Meetings with the MNR, MECP, and TRCA have also been attended by MH (now Stantec) since commencement of the project, shown in Table 1.

Table 1 Agency Meetings

TRCA	MECP	MNR
June 3, 2020 June 2, 2021 October 4, 2021 February 18, 2022 May 24, 2023	November 6, 2020 January 12, 2021 October 5, 2021 February 4, 2022 February 22, 2022 May 24, 2023	November 23, 2021 June 8, 2023

3 Biophysical Environment / Site Context

A landscape's ecology is primarily dictated by: (1) the existing abiotic environment (climate, landforms, soils and hydrology), (2) natural disturbances (fire, floods, drought, ice-storms), (3) the biotic interactions among species (including inter- and intra-specific competition factors) and (4) ongoing human land use factors, including anthropogenic disturbances (artificial light at night, increased noise levels, etc.). These core drivers interact across different spatial and temporal scales to shape the biophysical environment of a region.

3.1 Landforms, Soils and Regional Hydrology

The IEA Study Area encompasses approximately 3,200 hectares (ha) located within the Don River Watershed. This watershed is approximately 36,000 ha which covers portions of four municipalities (City of Toronto, City of Vaughan, City of Markham, and City of Richmond Hill). The watershed drains southward from the heights along the Oak Ridges Moraine (ORM) at the north end (some 315 metres above sea level) towards Lake Ontario to the south. Ordered from north to south in geographic location context, the watershed is comprised of the following four main physiographic regions: the ORM, the South Slope (Till), the Peel Plain and the Iroquois Sand Plain.

The IEA Study Area is predominantly situated on the South Slope and ORM main physiographic regions. A small portion of the Peel Plain is located at the southern limits and continuing to the south followed by the Iroquois Sand Plain at the Lake Ontario shoreline (Chapman and Putnam 1984).

The ORM forms a drainage divide of high sandy ground between Lake Ontario and Georgian Bay and extends from the Niagara Escarpment to beyond Rice Lake for a total lateral extent of approximately 160 km (Barnett et al. 1998). The ORM and older sediments rest on gently dipping Paleozoic strata situated along the margin of exposed Precambrian shield north of the moraine. The Niagara Escarpment, a prominent

bedrock-controlled cuesta, forms the western margin of the ORM and has been cited to have played a fundamental role in its formation (Chapman 1985). A channel system both across and along the escarpment provided corridors for icemarginal drainage that likely controlled regional water levels as the moraine formed (Barnett et al. 1998).

The South Slope, covering the mid-to lower portion of the watershed, is composed primarily of till deposited by glacial ice and is a mixture of materials ranging in size from clay particles to boulders. Former glacial lakes resulted in deposits of silt and clay such as those found in the Peel Plain, laying over the South Slope in the mid-region of the watershed, that retain water and may create suitable conditions for wetlands (most of which have been drained). The more permeable sediments of the Iroquois Plain, in the lower reaches of the watershed, allow for more groundwater recharge.

The Peel Plain physiographic region is characterized as an area of dense clay soils that were deposited when glacial meltwater ponded on top of the low permeability Halton Till plain (underlain by shale and some limestone). This area exhibits almost-flat topography (Chapman and Putman 1984). Historically, parts of the Peel Plain were poorly drained, and other parts were well-drained. Well-drained areas had high-quality hardwood forests (e.g., sugar maple [*Acer saccharum*], American beech [*Fagus grandifolia*], white oak [*Quercus alba*], hickories (*Carya* sp.), American basswood [*Tilia americana*], and some eastern white pine [*Pinus strobus*]). Poorly drained areas had forests of American elm (*Ulmus americana*), white ash (*Fraxinus americana*) and eastern white cedar (*Thuja occidentalis*) as well as wetlands (Chapman and Putman 1984; TRCA 2009a). Today, this physiographic region has been greatly altered by development and watercourse alteration (re-alignment and engineering).

The Iroquois Sand Plain is characterized by till plains which are formed when a sheet of ice detaches from a glacier and melts in place, depositing the sediments it carried. This physiographic region is delineated by the Lake Iroquois shoreline, a prominent ridge that represents the former edge of a lake that existed approximately 10,000 years ago. South of the shoreline, the topography slopes towards Lake Ontario. The soils in this

region are mostly sandy loam, with some loam close to Lake Ontario, where the underlying soils are finer grained (TRCA 2009a).

From its headwaters on the ORM and South Slope, the Don River's two principal tributaries flow south through the City of Vaughan and Cities of Markham and Richmond Hill. The East Don and West Don Rivers cross Steeles Avenue into Toronto and join together on the Iroquois Sand Plain south of Eglinton Avenue. German Mills Creek flows into the East Don River just south of Steeles while Taylor Massey Creek joins with the East Don River just north of the confluence with the West Don River. The Lower Don flows south to the outlet of the Keating Channel where it empties into Toronto Harbour and Lake Ontario (TRCA 2009a).

The Don River Watershed supports seven subwatersheds: the Upper West Don River, Upper East Don River, German Mills Creek, Lower West Don River, Lower East Don River, Taylor / Massey Creek and Lower Don River. Figure 2 shows the extent of the Don River Watershed, subwatersheds and main surface water hydraulic connections.

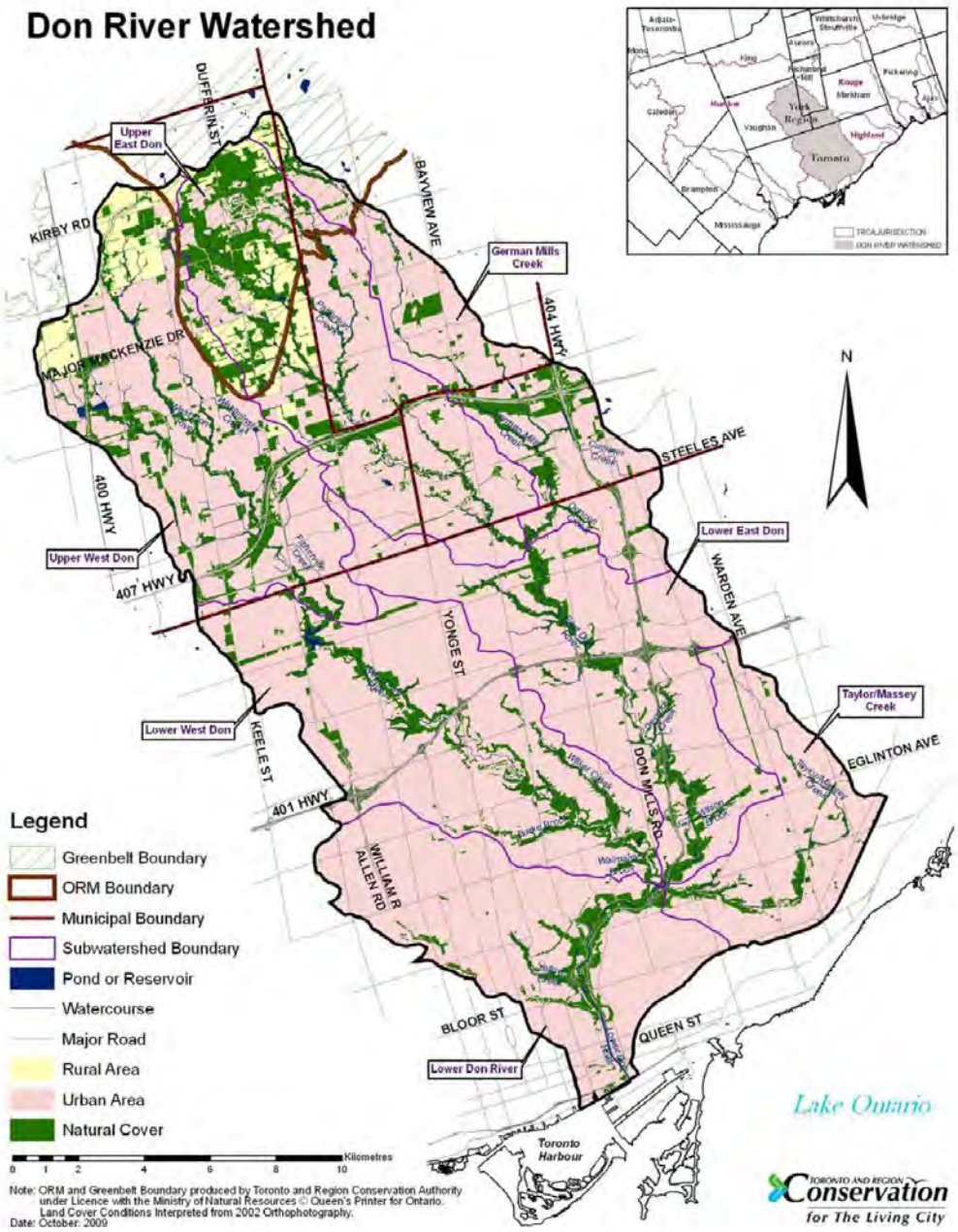
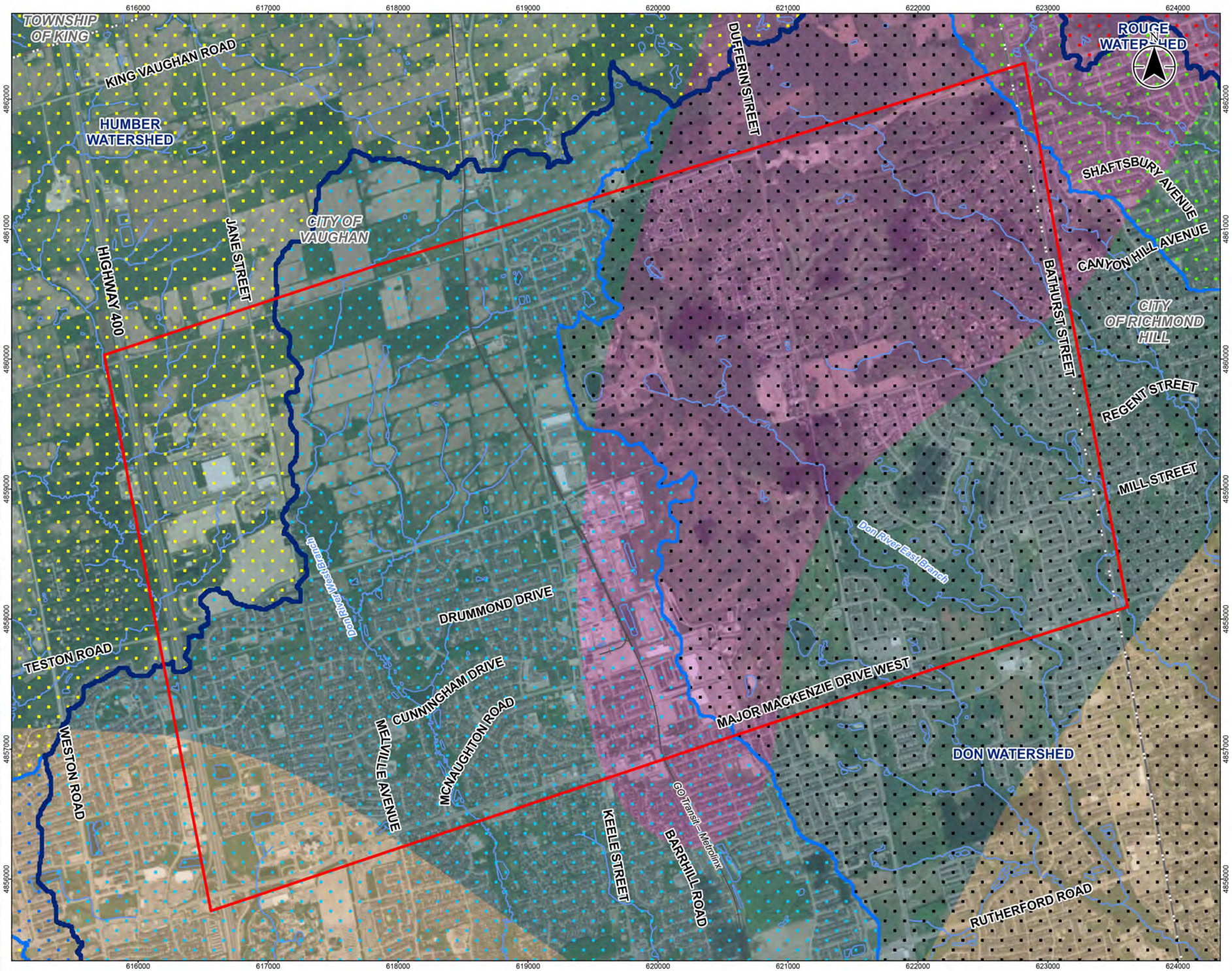


Figure 2 Don River Watershed Map (TRCA 2009a)

The IEA Study Area is situated at the north end of the Don River Watershed and includes lands predominantly within the Upper West Don and Upper East Don subwatersheds. The boundary of the East Humber subwatershed of the Humber Watershed bisects the IEA Study Area at the northwestern limit. The South Slope physiography continues westward in the portion of the IEA Study Area that is within the East Humber subwatershed. The watercourses that transect Teston Road in the IEA Study Area are tributaries of the Don River West Branch at the west end and tributaries of the Don River East Branch in the central portion and east ends of the IEA Study Area (Figure 3). The headwaters most relevant to the project support these watercourses, flowing in a southerly direction to eventually drain to Lake Ontario.



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Legend

- IEA Study Area
- Railway
- Watercourse (Intermittent)
- Watercourse (Permanent)
- Waterbody
- Watershed

Subwatershed

- Black Creek
- East Humber
- German Mills Creek
- Upper East Don River
- Upper West Don River
- Upper/Beaver

Physiography of Southern Ontario

- 30, Oak Ridges Moraine
- 32, South Slope
- 33, Peel Plain

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Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Contains information licensed under the Open Government Licence – Ontario, and the Open Government Licence - Canada, accessed 2026.
3. Orthoimagery provided by New York State, Vantor.



Project Location
Vaughan, ON

135800052
Prepared by jsegato on 2026-08-17
Technical Review by AW on 2026-08-12

Client/Project
REGIONAL MUNICIPALITY OF YORK
TESTON ROAD AREA INDIVIDUAL ENVIRONMENT ASSESSMENT
(BETWEEN HIGHWAY 400 AND BATHURST STREET)
NATURAL ENVIRONMENT REPORT

Figure No.
3

Title
Abiotic Site Context

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3.2 Regional Climate and Natural Disturbance Regimes

The IEA Study Area is located in York Region which is located in the Lake Simcoe-Rideau Ecoregion. The Lake Simcoe-Rideau Ecoregion (EcoRegion 6-E) is characterized by a mild and moist climate with a mean annual temperature range of 4.9ºC to 7.8ºC, a growing season of 205 to 230 days, mean annual precipitation of 759 to 1,087 mm, and mean summer rainfall of 198 to 281 mm (Crins et al 2009). In recent decades, York Region has experienced increases in average temperature and precipitation. From 1948 to 2016, there was an increase of approximately 1ºC and 2ºC in the mean daily temperature for summer months and winter months respectively. Total precipitation increased by approximately 10% between 1948 and 2012 (York Region 2026). York Region has also experienced climate extremes and adverse impacts from extreme weather events. This includes ice storms, record-breaking mild temperatures in winter, record-breaking snowfall, very hot summers and intense rainfall events leading to flooding and drought (York Region 2026).

3.3 Landscape-level Biotic Environment (Habitat)

Rivers are critical components of watershed systems, serving to convey water across the landscape. They also provide important ecological functions supporting critical habitat and biodiversity, as well as contributing to the integrity of natural heritage systems. Aquatic communities in the Don River system have adapted over generations to the watershed's historic flow patterns, channel morphology, water quality, and thermal regime. Over 20 species of fish have been documented in the Don River Watershed (TRCA 2009a, TRCA 2026). As a result of barrier mitigation initiatives that improved aquatic connectivity, Chinook Salmon (*Onchorynchus tshawytchsa*) were also observed spawning in the Upper East Don River for the first time in 2005. Fish communities within the Lower East Don River are primarily composed of warm-water species and exhibit limited diversity. Nevertheless, the river remains an important migratory pathway for salmonids originating from Lake Ontario. Salmonid fish

population levels have been increasing due to recent efforts by local municipalities and the TRCA, notably associated with the Don River Revitalization Project (TRCA 2026).

Wetlands are among the most ecologically valuable ecosystems in Ontario, supporting a high diversity of plant, animal, and microbial species while providing critical habitat for wildlife throughout their life cycles. They offer breeding, nesting, feeding, migration, staging, and overwintering habitat for fish, amphibians, reptiles, birds, mammals, and invertebrates, including many rare species and species at risk. Wetlands also sustain essential ecological processes such as water, nutrient, and carbon cycling, contribute to overall ecosystem productivity, and enhance landscape connectivity by acting as linkages that facilitate wildlife movement across terrestrial and aquatic habitats (MNR 2000, 2023; Turner et al. 2015).

Beyond their ecological importance, wetlands provide numerous benefits to human communities. They help reduce flood risks by storing and slowly releasing stormwater, improve water quality by trapping sediments and filtering pollutants, and support groundwater recharge and discharge processes that maintain hydrological stability. Wetlands also play an important role in climate regulation through carbon storage, particularly in peat-forming systems such as bogs and fens. In addition, they provide economic, recreational, educational, aesthetic, and cultural benefits through opportunities for resource use, outdoor recreation, nature appreciation, and environmental learning (MNR 2022; Turner et al. 2015).

Ecoregion 6E is characterized by diverse forest and wetland communities. Upland sites with developed substrates are typically occupied by hardwood forests dominated by sugar maple, American beech, white ash, eastern hemlock (*Tsuga canadensis*), and other native species. Lowland and floodplain environments support mixed communities of green ash (*Fraxinus pennsylvanica*), silver maple (*Acer saccharinum*), red maple (*Acer rubrum*), eastern white cedar, yellow birch (*Betula alleghaniensis*), balsam fir (*Abies balsamea*), and black ash (*Fraxinus nigra*). Peatland ecosystems occur primarily in the northern and eastern sections of the ecoregion, where fens are common and

bogs are less frequent, supporting species such as black spruce (*Picea mariana*) and tamarack (*Larix laricina*). The region is also notable for containing some of the most significant alvar ecosystems in North America (Crins et al. 2009).

Forest cover is unevenly distributed across the Don River watershed, with the highest proportions occurring in the Upper East Don River (15.6%) and Lower West Don River (10.1%) subwatersheds, and the lowest in the Upper West Don River (4.6%) and Taylor/Massey Creek (5.3%) subwatersheds. Forest vegetation is primarily dominated by sugar maple communities associated with beech, oak, and ash species, as well as mixed forest communities containing hemlock, white pine, sugar maple, and oak species. Pockets of mature and old-growth forest remain throughout the watershed, notably within Sunnybrook Park and Crother's Woods, where they provide critical habitat and contribute substantially to biodiversity conservation (TRCA 2009b).

A wide variety of vertebrate species occur within the region's forest, wetland, and aquatic habitats. Characteristic mammals include white-tailed deer (*Odocoileus virginianus*), northern raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), and woodchuck/ groundhog (*Marmota monax*). Wetlands support diverse communities of waterfowl, wading birds, and shorebirds, including wood duck (*Aix sponsa*), great blue heron (*Ardea herodias*), and Wilson's snipe (*Gallinago delicata*). Open upland environments provide habitat for species associated with grassland ecosystems, such as field sparrow (*Spizella pusilla*), grasshopper sparrow (*Ammodramus savannarum*), and eastern meadowlark (*Sturnella magna*), whereas mature upland forests support species including hairy woodpecker (*Leuconotopicus villosus*), wood thrush (*Hylocichla mustelina*), scarlet tanager (*Piranga olivacea*), and rose-breasted grosbeak (*Pheucticus ludovicianus*). Amphibian and reptile species commonly encountered include American bullfrog (*Lithobates catesbeianus*), northern leopard frog (*Lithobates pipiens*), spring peeper (*Pseudacris crucifer*), red-spotted newt (*Notophthalmus viridescens viridescens*), common snapping turtle (*Chelydra serpentina*), eastern gartersnake (*Thamnophis sirtalis sirtalis*), and common watersnake (*Nerodia sipedon*). Aquatic

communities are characterized by fish species such as White Sucker (*Catostomus commersonii*), Smallmouth Bass (*Micropterus dolomieu*), Walleye (*Sander vitreus*), Northern Pike (*Esox lucius*), Yellow Perch (*Perca flavescens*), Rainbow Darter (*Etheostoma caeruleum*), Emerald Shiner (*Notropis atherinoides*), and Northern Pearl Dace (*Margariscus nachtriebi*) (Crins et al. 2009; TRCA 2009b).

A large portion of the wetlands and forested lands within the region are currently located within or adjacent to valleylands and/or watercourses. Many of these areas are also designated natural heritage systems at the municipal and/or provincial level providing wildlife corridors for aquatic species, amphibians, reptiles, insects and benthic macroinvertebrates as well as habitat for local bird and mammal populations as described above.

Habitat diversity and connectivity are essential components for maintaining ecosystem function and ecological integrity which support the facilitation of terrestrial wildlife and fish movement and migration, enabling animals to access feeding/foraging grounds, breeding and spawning sites, seasonal habitats, and refuge areas. Species' access to a diversity of habitats supports many species' ability to carry out different stages in their life-cycle, as many species require multiple habitat types for breeding, feeding, sheltering, and overwintering. Further wildlife movement and access to diverse habitats facilitates genetic exchange, species dispersal, and adaptation to environmental change. Together, these attributes enhance ecosystem resilience, maintain biodiversity, and sustain the ecological processes necessary for long-term ecosystem health.

3.4 Anthropogenic Land Use Factors

With approximately 1.4 million residents, the Don River watershed is one of the most urbanized watersheds in Canada (TRCA 2009a). Development, habitat fragmentation, watercourse alterations, as well as increased light and noise pollution, have resulted in impacts to habitat quality and quantity, disruption to local wildlife circadian rhythms, air

quality, water quality, and hydrology which have shaped current ecological habitat conditions (TRCA 2009b; Turner et al 2015).

Road development can negatively affect wildlife and ecosystem function by fragmenting previously continuous habitats into smaller, isolated patches. Habitat fragmentation reduces the amount of available habitat, limits movement between habitat areas, and can impede access to important resources such as breeding sites, foraging areas, overwintering habitat, and migration corridors. Roads may also create barriers to dispersal, increase wildlife mortality through vehicle collisions, and facilitate the spread of invasive species and other edge-related disturbances into adjacent natural areas. Smaller and more isolated habitat patches often support lower species diversity and are more vulnerable to local population declines, as wildlife populations may become disconnected from one another and less resilient to environmental change.

3.5 Summary of Landscape-level Biophysical Environment

The ecology of the regional landscape in which the IEA Study Area is located is governed by a combination of abiotic, biotic, and anthropogenic factors as described above. Key drivers include the underlying geological and soils physiography associated with the South Slope, ORM, Peel Plain and Iroquois Sand Plain, the existing natural heritage and hydrologic features and connections associated with the Don River Watershed, the regional climate and changing average temperatures and frequency of extreme weather events, and the anthropogenic impacts resultant from urbanization of the region. The interaction of these drivers across varying spatial and temporal scales has influenced the structure, function, and evolution of the regional ecosystem to existing conditions.

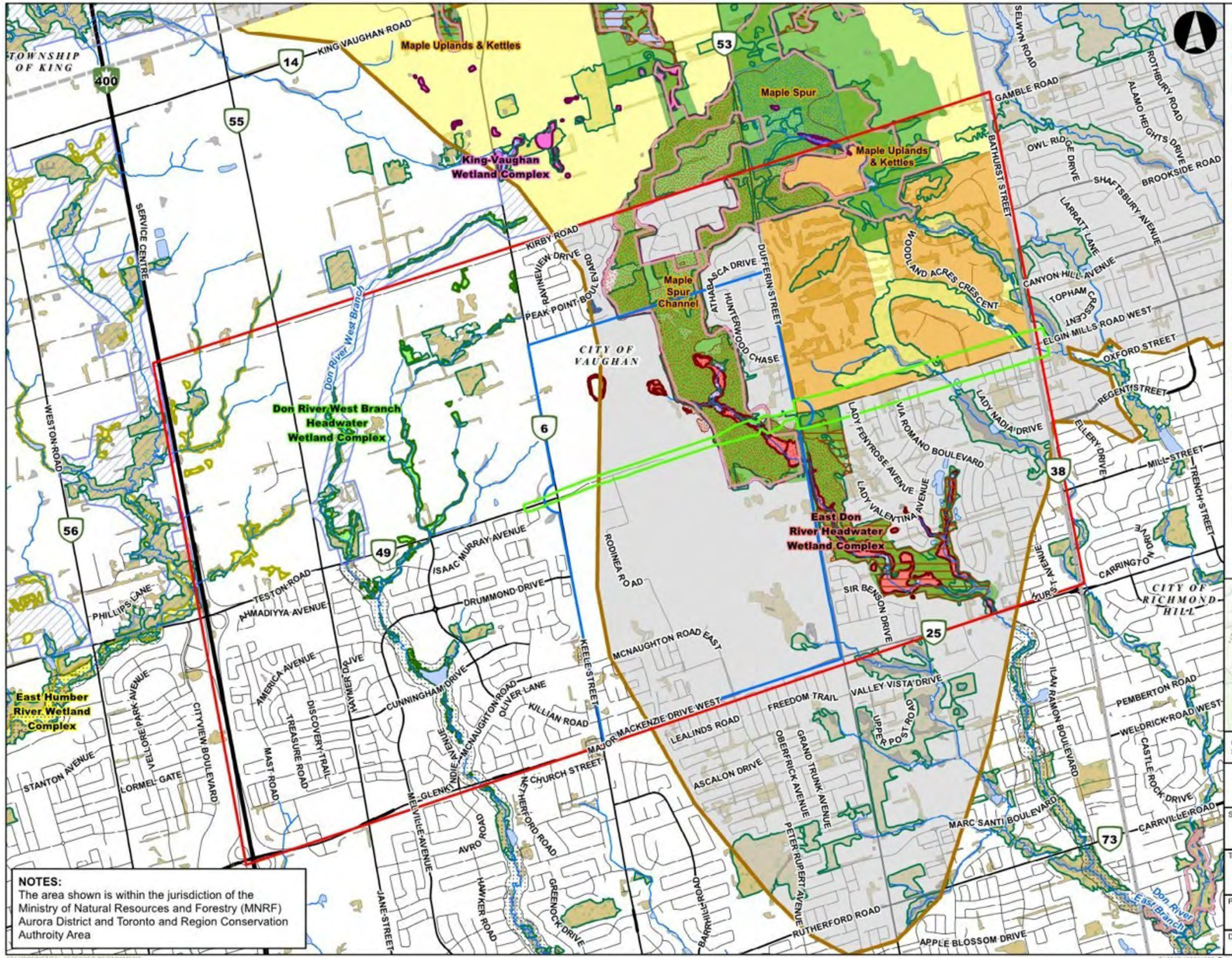
4 Field Investigations

Aquatic and terrestrial field investigations were undertaken over the course of three years, from 2020 to 2022. Field investigations in Year 1 began with preliminary investigations in the overall IEA study area from Highway 400 east to Bathurst Street and from Major Mackenzie Drive north to Kirby Road (discussed above and illustrated in Figure 1). In subsequent years, investigations became more detailed within refined study limits as the project progressed, proposed solutions were developed, and the preliminary design and alignment for the Technically Preferred Alternative for the Teston Road extension became known.

In Year 2, terrestrial field surveys were completed within a focal study area, extending from east of Keele Street to west of Dufferin Street, and from north of Major Mackenzie Drive to south of Kirby Road. These investigations focused on forest and wetland tracts west of Dufferin Road and grassland areas east of Keele Street identified in Year 1, which had been determined to provide the highest quality wildlife habitat in the overall IEA study area, particularly for SAR. These areas were also identified as likely to be impacted by the project (though the alignment for the Technically Preferred Alternative for the Teston Road extension was not yet determined). Fisheries surveys were deemed unnecessary in Year 2, as surveys completed in Year 1 provided sufficient information to assist in informing the selection of the Technically Preferred Alternative.

Aquatic and terrestrial field investigations undertaken in Year 3 were completed within the Technically Preferred Alternative study area, to augment information known about this area from Years 1 and 2. Investigations focused on areas alongside and between the existing sections of Teston Road east of Keele Street and west of Dufferin Street, along the limits of the Technically Preferred Alternative. The field investigations in Year 3 also included surveys to document existing conditions to the east of the Year 2 focal study area, north and south of Teston Road between Dufferin Street and Bathurst Street, where widening of the existing section of Teston Road has also been identified.

Mapping of the locations and limits of the overall IEA, focal, and Technically Preferred Alternative study areas in Years 1, 2, and 3, respectively, can be found within Figure 4.



LEGEND

- Overall IEA Study Area (2020)
- Focal Study Area (2021)
- Technically Preferred Alternative Study Area (2022)

Terrestrial Data - LIO

- Municipal Boundaries
- Watercourses
- Waterbodies
- Environmentally Sensitive Areas
- Significant Forests
- Oak Ridge Moraine Conservation Plan Boundary

ANSI

- ANSI, Earth Science
- Candidate ANSI, Earth Science
- Candidate ANSI, Life Science

Greenbelt Designation

- Protected Countryside
- Urban River Valley

Provincially Significant Wetlands

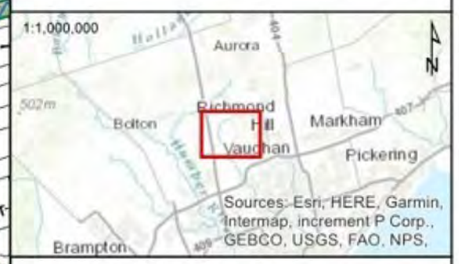
- Don River West Branch Headwater Wetland Complex
- East Don River Headwater Wetland Complex
- East Humber River Wetland Complex
- King-Vaughan Wetland Complex

Wetlands

- Evaluated-Other
- Unevaluated Wetlands

Oak Ridge Moraine Conservation Plan

- Countryside Area
- Natural Core Area
- Natural Linkage Area
- Settlement Area



Coordinate System: NAD 1983 UTM Zone 17N
Sources: MNRf

MORRISON HERSHFIELD

SCALE: 1:30,000
0 200 400 800 1,200 1,600
Meters

TITLE:
Terrestrial Study Areas (Years 1, 2, and 3) and Designated Natural Areas

PROJECT NO.: 190261800
Teston Road

DATE:
August 2023

4.1 Aquatic Sampling Plan and Rationale

Year 1

Fisheries surveys completed in Year 1 included preliminary fisheries assessments for all watercourses within the overall IEA study area, including the East Humber River tributaries, East Don River tributaries and West Don River tributaries, to characterize the existing conditions. This assessment included:

- Visual review of general habitat characteristics to ground truth aerial imagery.
- Identification of stream flow permanency during high and low water seasons.
- Baseline stream water quality including Dissolved Oxygen, Turbidity, pH, and Temperature.
- Identification of potential critical or specialized habitat areas, including ground water seeps and headwater locations.
- Incidental observations of fish to determine the presence of permanent fish habitat.

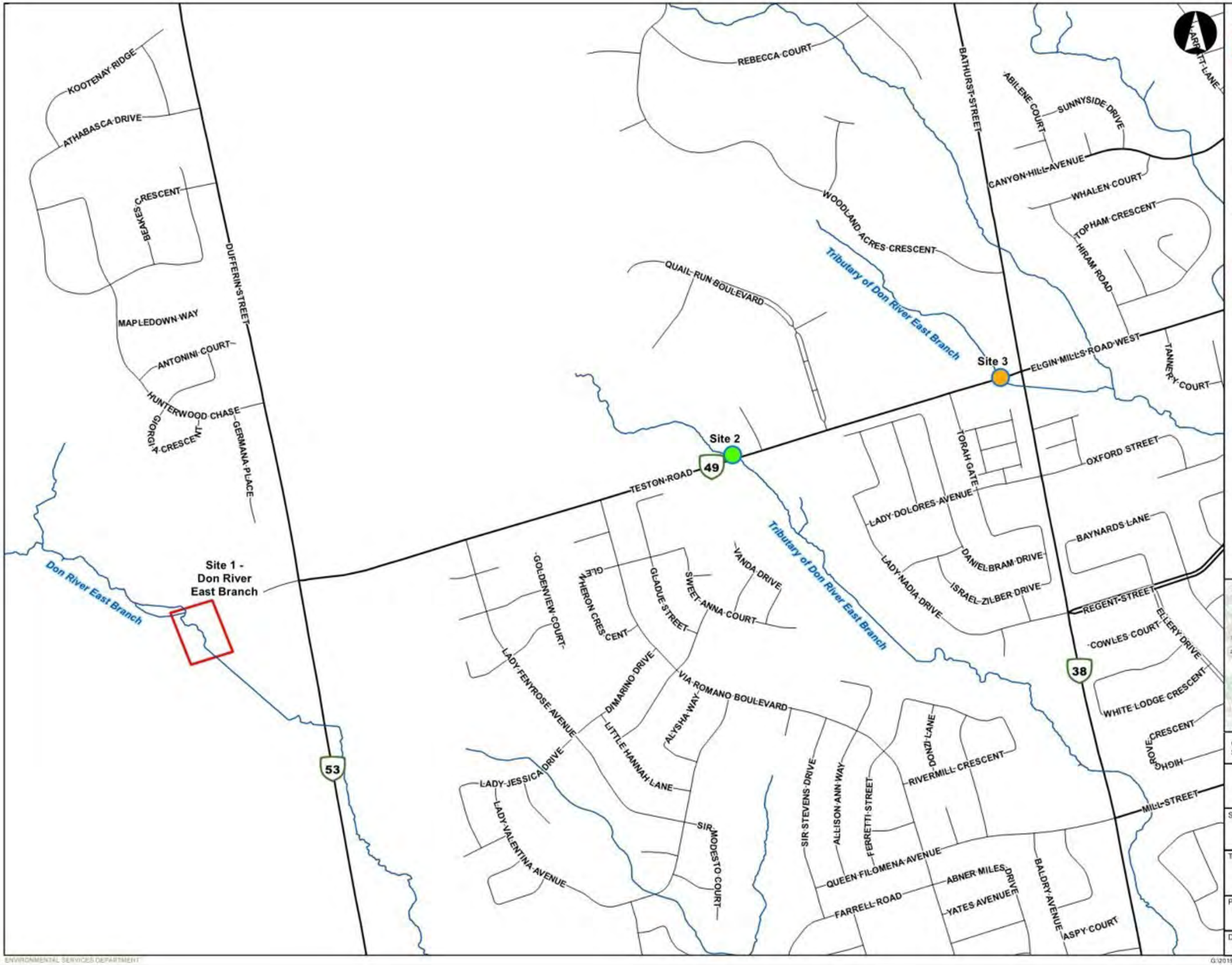
Year 2

Fisheries surveys were deemed unnecessary in Year 2, as surveys completed in Year 1 provided sufficient information to assist in informing the selection of the Technically Preferred Alternative in Year 2. Therefore, detailed fisheries habitat and community investigations were deferred until Year 3, until after the Technically Preferred Alternative had been selected, to focus surveys on this area.

Year 3

Fisheries surveys in Year 3 included spring (May 9, 2022) and summer (August 18, 2022) surveys and were focused on the Don River East Branch located west of Dufferin Street (Site 1) as well as the two watercourse crossings along Teston Road between Dufferin Street and Bathurst Street (Site 2 and 3). Site 1 was also a part of the previous high-level survey in sampling Year 1, and Sites 2 and 3 were surveyed for the first time in sampling Year 3. A figure showing the location of these sites can be found in Figure 5.





LEGEND

- Site 1 - Don River East Branch
- Site 2 - Tributary of Don River East Branch
- Site 3 - Tributary of Don River East Branch
- Watercourses

Transportation Network

- Arterial / Collector
- Local Roads



Coordinate System: NAD 1983 UTM Zone 17N
Sources: MNRF

MORRISON HERSHFIELD

SCALE: 1:9,800

0 80 160 320 480 640

Meters

TITLE:

Fisheries Survey Areas 2023

PROJECT NO.: 190261800

Teston Road

DATE: **January 2023**

ENVIRONMENTAL SERVICES DEPARTMENT

G:\2019\190261800_Teston_Rd\Maps\Aquatic_Maps\Fisheries_Survey_Areas_2023_190261800.mxd

Fisheries surveys in Year 3 included:

- Watercourse thermal and flow regimes
- Determination or confirmation of fish community through electrofishing
- Identification of specialized habitat features
- Identification of physical barriers or impediments to fish movement
- Determination of aquatic habitat sensitivity
- In situ water quality monitoring

4.2 Terrestrial Sampling Plan and Rationale

Year 1

Terrestrial field investigations were undertaken in Year 1 to establish a general baseline and inform the existing terrestrial environment conditions within the overall IEA study area The Year 1 field investigations were conducted on May 25, June 9, July 23, and July 29, 2020, and included the following:

- Collection of general wildlife observations including wildlife signs or evidence of presence (such as scat, trails, browse, nests, burrows, excavated holes, vocalizations etc.) to gain insight into wildlife movement corridors, and overall use of the study area by wildlife.
- Vegetation inventories to contribute to a plant species list for the area over several years and contribute to Ecological Land Classification (ELC) completion.
- Preliminary field investigations to ground truth background information and identify habitat for terrestrial species at a landscape level.

Year 2

The Year 2 terrestrial field surveys within the focal study area were undertaken within the highest quality wildlife habitat area identified in Year 1, which had also been identified as a general area likely to be impacted by the project. Field investigations within the focal study area were completed on June 22, June 30, and July 9, 2021, and included the following:

- Breeding Bird Surveys (BBS) conducted during peak breeding bird season.
    - A total of 17 locations (#'s 1-17) were selected to sample birds within the various vegetation communities present within the focal study area by way of point count surveys, and were spaced far enough apart (i.e., >100 m apart) to avoid double counting individuals.
- Vegetation inventories to contribute to a plant species list for the area over several years and contribute to ELC completion.
- Delineation of ELC units, to Community Series Level where possible, for the focal study area.
    - Existing ELC data available from the TRCA was used and was confirmed and updated where necessary to fill in gaps in the ELC, or to reflect 2021 conditions where discrepancies were present using Ecological Land Classification for Southern Ontario (Lee et al. 2008).
- Continued investigations within wetlands and open water areas to determine SAR turtle presence [e.g., Blanding's Turtle (*Emydoidea blandingii*)] or confirm extent of occupancy for other species already observed [e.g., Snapping Turtle (*Chelydra serpentina*)].
- Surveys of grassland habitat (the closed Vaughan Landfill property) for SAR.
- Surveys of forests, woodlands, and treed areas to determine presence of the following additional potential SAR and Species of Conservation Concern (SOCC) within these communities:
    - Acadian Flycatcher (*Empidonax virescens*)
    - Butternut (*Juglans cinerea*)
    - Canada Warbler (*Cardellina canadensis*)
    - Cerulean Warbler (*Setophaga cerulea*)
    - Evening Grosbeak (*Coccothraustes vespertinus*)
    - Eastern Ribbonsnake (*Thamnophis sauritus*)
- Surveys of forests, woodlands, and treed areas to confirm extent of occupancy for SOCC Eastern Wood-Pewee (*Contopus virens*) and Wood Thrush (*Hylocichla mustelina*), which were already confirmed in Year 1.
- Completion of Phase I: Bat Habitat Suitability Assessment from the *Survey Protocol for Species at Risk Bats within Treed Habitats: Little Brown Myotis (Myotis lucifuga), Northern Myotis (Myotis septentrionalis), & Tri-colored Bat (Perimyotis subflavus)* (MNR 2017) (hereafter referred to as The Protocol)

- Based on The Protocol, suitable maternity roost habitat includes coniferous, deciduous or mixed wooded ecosites that contain:
    - Trees with 10 cm or greater diameter at breast height (DBH); and
    - Trees of suitable species to exhibit cracks, cavities, holes, or loose peeling bark.

Year 3

The Year 3 terrestrial surveys built upon the surveys completed in Years 1 and 2, as there was overlap between the study areas in all years (Figure 4). However, the Year 3 surveys focused on the areas alongside the Technically Preferred Alternative and focused on confirming existing conditions within the area determined to be most likely to be impacted. The field surveys within the Technically Preferred Alternative study area were completed on May 3, 4, 5, 6, and 9, July 7, and August 18, 2022, and included:

- Transect surveys of anticipated areas of impact to identify wildlife habitat features, such as wildlife travel corridors, vernal pools, or other specialized habitats.
- Transect surveys of impacted forests, woodlands, and treed areas in spring and summer to determine SAR and SAR habitat presence within these communities for SAR listed in the Terms of Reference for the Teston Road area (many species of which are now classified as SOCC due to the change from the ESA to SCA) and/or background screening resources, that had not yet been confirmed, including:
    - Acadian Flycatcher
    - American Ginseng (*Panax quinquefolis*)
    - Canada Warbler
    - Cerulean Warbler
    - Evening Grosbeak
    - Least Bittern (*Ixobrychus exilis*)
    - Eastern Ribbonsnake
- Surveys of impacted structures (culverts, bridges, buildings) for Barn Swallow (*Hirundo rustica*) nests and for Chimney Swift (*Chaetura pelagica*) roosting/nesting sites (buildings only).

- Leaf-off surveys for bat maternity roost trees (Phase II: Identification of Suitable Maternity Roost Trees of The Protocol) in spring, consisting of:
    - Documentation of the characteristics and locations of all potential bat maternity roost trees (trees with 10 cm or greater DBH with cavities, cracks, crevices, knotholes, peeling bark, or other such vulnerabilities) within the road footprint, the anticipated grading limits, and a 15 m buffer to account for minor changes in the design details or road alignment, using the preliminary design for the Technically Preferred Alternative current at the time of the surveys in spring, 2022.
- Surveys of impacted forests, woodlands, and treed areas in spring/summer to confirm extent of occupancy for SAR and SOCC that were already confirmed in Year 1 and/or Year 2: Butternut, Eastern Wood-Pewee, and Wood Thrush.
- Continued investigations within wetlands and open water areas to determine SAR turtle presence [e.g., Blanding's Turtle (*Emydoidea blandingii*)] or confirm extent of occupancy for species already observed [e.g., Snapping Turtle (*Chelydra serpentina*)].
- Continued investigations to identify potential habitat for SARand SOCC such as Bank Swallow (*Riparia riparia*), Common Nighthawk (*Chordeiles minor*), Golden-winged Warbler (*Vermivora chrysoptera*), and Red-headed Woodpecker (*Melanerpes erythrocephalus*), as none had been observed to date.
- Jefferson Salamander (*Ambystoma jeffersonianum*) habitat suitability assessments to inform whether species-specific surveys should be identified as a future commitment.
- Confirmation of existing conditions for 120 m north and south of the existing Teston Road along the proposed widening limits between Dufferin Street and Bathurst Street, including completion of ELC and assessment of SAR habitat.
    - Consistent with Year 2, existing ELC data from the TRCA were used where available and updated where necessary to fill in gaps in the ELC, or to reflect current conditions where discrepancies were present. ELC was completed using TRCA ELC (TRCA 2022) methods, for consistency with the existing ELC, except for cultural communities (residential, commercial, agricultural, etc.) which were completed using *Ecological Land Classification for Southern Ontario* (Lee et al. 2008), as no applicable ELC communities exist under the TRCA ELC for such areas.

5 Existing Conditions

5.1 Aquatic Ecosystem Existing Conditions

Year 1

A review of available background data as well as preliminary field investigations have confirmed that there are multiple areas of important aquatic habitat within the overall IEA study area.

- The overall IEA study area contains the headwaters of the East Don River, specifically the area within the McGill Area Environmentally Significant Area (ESA #73) within the Teston Road gap between Keele Street and Dufferin Street. The tributary within this location contains permanent water flow that originates from Maple Down Pond and Maple Ridge Pond, as well as natural wetland habitat west of Hunterwood Chase Road.
- The headwaters within the study area also contain various stream features such as historical ponds, ground water seeps and springs, and the presence of watercress.
- Fish were present in the headwater streams within the Teston Road gap between Keele Street and Dufferin Street, confirming that this area provides permanent fish habitat.

Redside Dace (*Clinostomus elogatus*) have been recorded by Fisheries and Oceans Canada, the NHIC Centre (MNR 2023), and GEO (2026) as occurring within multiple tributaries within the Don River East Branch. Preliminary field investigations have determined that suitable habitat for Redside Dace is present within the Don River East Branch.

Year 2

Fisheries surveys were deemed unnecessary in Year 2, as surveys completed in Year 1 provided sufficient information to assist in informing on the selection of the Technically Preferred Alternative in Year 2.

Year 3

Fisheries surveys in Year 3 were focused on the Don River East Branch located west of Dufferin Street (Site 1) as well as the two watercourse crossings along Teston Road between Dufferin Street and Bathurst Street (Site 2 and 3).

Site 1 – Don River East Branch Located West of Dufferin Street

This stretch of aquatic habitat is located within the natural area west of the Teston Road and Dufferin Street intersection. The detailed aquatic and fisheries habitat survey was completed for this area on August 18, 2022. The area of investigation included a 200 m channel reach within the expected path of the construction of the new bridge, downstream of the private pond and dam.

This study area contains the headwaters for the East Don River. The surveyed reach was a defined channel as it flowed through a mixed forest directly downstream of the private pond, before opening into open marsh habitat and continuing southeast towards Dufferin Street where it crosses just north of the Eagles Nest Golf Course. The pond dam acts as a barrier to fish movement; however, a small branching channel flows to the west around the pond connecting the tributary to the upstream habitat. The main channel contained permanent flow and consisted of 100% run habitat, with a mean wetted depth of 3 cm and a mean wetted width of 40 cm. The bankfull depth was approximate 12 cm and the bankfull width was approximately 3.8 m. The substrates consisted primarily of silt, followed by sand, detritus, and boulders. The banks in this area are moderately unstable and show signs of erosion. In-stream cover was dominated by instream and overhanging woody debris, while instream and overhanging vegetation and organic debris were also present. Emergent vegetation was present within the marsh habitat and consisted primarily of reed canarygrass (*Phalaris arundinacea*) and common jewelweed (*Impatiens capensis*). Iron staining was present approximately 100 m downstream of the dam within the marsh area, indicating groundwater upwelling is present.

The predominantly silt and muck substrate, which was found within the channel primarily 50-80 m downstream from the dam where the channel gradient declines, appeared unnatural compared to the native substrate further downstream. This suggested the dam and pond may be holding and subsequently releasing sediment during large rainfall or snowmelt events.

Fisheries sampling was completed within the channel, which resulted in the capture of Western Blacknose Dace (*Rhinichthys obtusus*), confirming that this channel provides direct fish habitat. Photos of the habitat at Site 1 as well as the fish capture can be seen in the photo record in Appendix B. Water quality sampling results can be found in Table 2.

Site 2 – Tributary of Don River East Branch, Culvert Crossing Teston Road West of Saul Court.

This tributary flows from north to south through a 7.5 m wide and 1.5 m high box culvert under Teston road, 70 m west of Saul Court. The channel upstream (north) of Teston Road is a small, incised channel within dense cattails (*Typha* spp.) and common reed (*Phragmites australis* subsp*. australis*). The channel contained permanent flow and was 100% run habitat, with a wetted depth of 10 cm and a wetted width of 15 cm. The substrate consisted of muck and detritus. The dense vegetation provided 100% shore cover. Permission to enter upstream of Teston Road was not available and this area may need further studies at later design stages.

Downstream (south) of Teston Road the channel leads south through private property where it is crossed by a privately owned bridge approximately 7 m wide consisting of three corrugated steel pipe culverts. This reach is 100% flats habitat and had limited to no flow with a mean wetted depth of 7 cm and a wetted width of 80 cm. The bankfull depth was 17 cm and the bankfull width was 4 m. The dominant substrate was silt, with detritus also present. In stream cover was abundant and included in stream and overhanging vegetation and woody debris, as well as organic debris. The emergent

vegetation consisted of cattails and upland species, and duckweed (*Lemna* sp.) was also present floating vegetation as the channel was not flowing.

Fisheries sampling was not completed at this site as the water depth was insufficient to sample upstream of Teston Road, and downstream of the bridge is classified as Occupied Redside Dace Habitat and therefore sampling this reach was prohibited by MNR. No fish were seen during the survey and low water levels as well as dense vegetation suggest fish passage is unlikely within the sampled reach.

In situ water quality sampling results can be found below in Table 2 and photos of the site can be found in Appendix B.

Table 2 Teston Road Water Quality Monitoring - August 18, 2022

Water Quality Parameters	Site 1	Site 2	Site 3
Turbidity (NTU)	0.0	0.0	Dry
Dissolved Oxygen (mg/L, %)	4.1, 49	5.4, 58	Dry
Conductivity (mS/cm)	1.90	1.34	Dry
Water Temperature (°C)	21.9	17.2	Dry
Air Temperature (°C)	27	28	27
Velocity (m/s)	0.17	Nil (i.e., stagnant)	Dry

Site 3 – Tributary of East Don River, Culvert Crossing Teston Road at Bathurst Street

This tributary flows from north to south into a 1.4 m concrete pipe inlet located 60 m west of Bathurst Street. The tributary is then piped underground southwest approximately 325 m where it emerges to join a second East Don River tributary. The channel was flowing during the spring survey and dry during the summer survey, indicating this channel is intermittent or ephemeral in nature. Landowner access beyond the right of way was not granted and the site survey were completed from within the right of way. From the culvert inlet to the edge of the right of way, the substrate consists of cobble, silt, and boulder, beyond the right of way the channel is low gradient and silt

is dominant. Fisheries sampling was not completed at this site as conditions were dry, and no fish were observed during visual surveys.

Photos of the site can be found in Appendix B. Fisheries field data sheets for all sites can be found in Appendix C. Maps of the aquatic survey areas are shown below in Figure 6 and Figure 7.

Based on background information as well as data collected through field investigations, the typical in-water work timing windows for each watercourse within the project area listed below in Table 3.

Table 3 Typical Fisheries In-Water Work Timing Windows

Watercourse	In-Water Work Timing Window (When Work is Allowed)
Site 1 – Don River East Branch located west of Dufferin Street	June 15 to September 15
Site 2 – Tributary of Don River East Branch, Culvert Crossing Teston Road west of Saul Court	July 1 to September 15 (due to presence of Redside Dace)
Site 3 – Tributary of East Don River, Culvert Crossing Teston Road at Bathurst Street	July 1 to March 31



LEGEND

- Dam Outfall 0.35m High Fish Barrier
- Fish Capture Location
- Abundant In-Stream Woody Debris
- Open Marsh Habitat
- Watercourse
- Natural PedestrianTrail
- Direction of Flow
- Upstream Edge of Detailed Survey
- Downstream Edge of Detailed Survey

NOTES:
Watercourse - Don River East Branch,
Coldwater Thermal Regime,
Permanent Flow, Direct Fish Habitat



Coordinate System: NAD 1983 UTM Zone 17N
Sources: MNRF

MORRISON HERSHFIELD

SCALE: 1:1,000

0 7.5 15 30 45 60
Meters

TITLE:

Aquatic Existing Conditions Map - Site 1

PROJECT NO.: 190261800

Teston Road

DATE: **January 2023**

ENVIRONMENTAL SERVICES DEPARTMENT

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LEGEND

- Site 2
- Site 3
- Occupied Redside Dace Habitat
- Direction of Flow
- Watercourses

Transportation Network

- Arterial / Collector
- Local Roads

NOTES:

Site 2 - Tributary of Don River East Branch,
Coldwater Thermal Regime,
Permanent Flow, Direct Fish Habitat

Site 3 - Tributary of Don River East Branch,
Unknown Thermal Regime,
Intermittent Flow, Indirect Fish Habitat



Coordinate System: NAD 1983 UTM Zone 17N
Sources: MNRF

MORRISON HERSHFIELD

SCALE: 1:5,000

0 40 80 160 240 320
Meters

TITLE:
Aquatic Existing Conditions Map - Sites 2 and 3

PROJECT NO.: 190261800

Teston Road

DATE: **December 2022**

ENVIRONMENTAL SERVICES DEPARTMENT

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5.2 Terrestrial Ecosystem Existing Conditions

The following subsections provide a description of the terrestrial features and functions within the Year 1, Year 2, and Year 3 study areas, with a focus on existing conditions occurring within the Year 3 Technically Preferred Alternative limits, where the project will occur. For additional detail on the Year 1 and Year 2 findings, as well as comprehensive lists of plant and wildlife species observed during all years of the field surveys, refer to Appendix D. A photographic record documenting the terrestrial features identified over the course of the field surveys in all years combined can be found in Appendix B.

5.2.1 Designated Natural Areas

Designated natural areas are defined by resource agencies, municipalities, the government and/or public, through legislation, policies, or approved management plans, to have special or unique value. Such areas may have a variety of ecological, recreational, and/or aesthetic features and functions that are highly valued.

In addition to available online resources, a review of background documents received from the MNR pertaining to designated natural areas located along the limits of the existing and future extension of Teston Road was completed, which included an *Inventory of the Life Science Maple Uplands & Kettle Wetlands and Earth Science Oak Ridges Moraine Maple Spur Areas of Natural and Scientific Interest, City Of Vaughan, Ontario* (MNR 2000) and *Provincially Significant East Don River Headwater Wetland Complex Summary* (GEM 2019).

As described in Section 5.2 and shown in Figure 4, each of the three years of terrestrial field surveys had varying survey limits, with each subsequent year of surveys focusing more closely around anticipated areas of impact as the project plans progressed. As a result, various designated natural areas were associated with each study area, and each year. Designated natural areas noted within each study area, per year, are summarized in Table 4.

Table 4 Designated Natural Areas within Overall IEA, Focal, and Technically Preferred Alternative Study Areas

Designated Natural Area	Present in Overall IEA Study Area (Y/N)?	Present in Focal Study Area (Y/N)?	Present in Technically Preferred Alternative Study Area (Y/N)?
Don River West Branch Headwater Wetland Complex PSW	Y	N	N
East Humber River Wetland Complex PSW	Y	N	N
East Don River Headwater Wetland Complex PSW	Y	Y	Y
King-Vaughan Wetland Complex PSW	Y	N	N
Evaluated Other (non-provincially significant) Wetlands	Y	N	N
Unevaluated Wetlands	Y	Y	Y
McGill Area Environmentally Significant Area #73	Y	Y	Y
Maple Spur Channel Earth Science ANSI	Y	Y	Y
Maple Uplands and Kettles Candidate Life Science ANSI	Y	Y	Y
Maple Spur Candidate Earth Science ANSI	Y	N	N
York Region’s Regional Greenlands System	Y	Y	Y
Significant Woodland	Y	Y	Y

Designated Natural Area	Present in Overall IEA Study Area (Y/N)?	Present in Focal Study Area (Y/N)?	Present in Technically Preferred Alternative Study Area (Y/N)?
Oak Ridges Moraine Conservation Plan Protected Areas – Countryside Area	Y	Y	Y
Oak Ridges Moraine Conservation Plan Protected Areas – Natural Core Area	Y	Y	Y
Oak Ridges Moraine Conservation Plan Protected Areas – Natural Linkage Area	Y	N	Y
Oak Ridges Moraine Conservation Plan Protected Areas – Settlement Area	Y	Y	Y
Greenbelt Plan Protected Areas – Protected Countryside	Y	N	N
Greenbelt Plan Protected Areas – Urban River Valley	Y	N	N

5.2.1.1 Designated Natural Areas within and Adjacent to the Technically Preferred Alternative Study Area

Life Science Maple Uplands & Kettle Wetlands and Earth Science Oak Ridges Moraine Maple Spur Areas of Natural and Scientific Interest

According to the *Inventory of the Life Science Maple Uplands & Kettle Wetlands and Earth Science Oak Ridges Moraine Maple Spur Areas of Natural and Scientific Interest* (MNR 2000), the Maple Uplands & Kettle Wetlands are significant due to the earth science features present, as it contains kettle and meltwater channel features characteristic of moraine physiography. During de-glaciation, most of the area was occupied by a large block of glacial ice, which melted to leave behind a large, flat-

bottomed depression or “kettle”, which occupies the central portion of the site and is the basis for selection of the area as being regionally significant. Around the large kettle formation, the landscape is dotted with small kettle depressions underlain by peat and muck deposits, which sustain a variety of wetlands.

The kettle is characterized by a number of narrow spillway or meltwater channels, of which the largest and best developed is a well-defined valley system, which forms the headwaters of the East Don River. The sand deposits in this area constitute a highly sensitive recharge area, which discharges in the southern part of the ANSI and further south providing a major headwater source for the East Branch of the Don River; waters percolating into the highly permeable sands of the ANSI are discharged in the ANSI and to the south, as headwater sources for the Don River watershed. River valleys such as the East Don River provide important ecological corridors and play an important role in maintaining ecological functions, by allowing for the physical passage and genetic flow of animals and plants.

This ANSI is also noteworthy for its high biodiversity. Its forests are largely intermediate aged to semi-mature, with some trees in excess of 100 years old, and with no recent logging activity. The large forest area provides critical forest interior habitat (i.e., forest habitat at least 120 m from a forest edge) for area sensitive species that depend on this rare habitat type.

Provincially Significant East Don River Headwater Wetland Complex

According to the *Provincially Significant East Don River Headwater Wetland Complex Summary* (GEM 2019), wetlands are considered rare in this region (i.e., Ecoregion 6E), with an estimate of only 6% wetland land cover. The East Don River Headwater Wetland Complex received a high score for its hydrological component, as the wetlands in the complex contribute to flood attenuation, short term water quality improvement, long term nutrient trapping, and groundwater recharge and discharge in the area. The wetlands constitute 81% of all of the water detention or storage areas in the East Don

River upstream catchment, which covers an area 654 ha in size. Most of the wetlands are hydrologically linked to one another by watercourses within the complex.

GEM 2019 also indicated that wildlife has been noted moving between wetlands within the PSW complex, as well as between the wetlands and surrounding upland habitats. The wetlands have been shown to support and sustain numerous provincially significant species and/or SAR, such as Redside Dace, Barn Swallow, Midland Painted Turtle (*Chrysemys pictus marginata*), Wood Thrush, and Eastern Wood-Pewee. Furthermore, the wetlands provide stopover habitat for migrating waterfowl, and support breeding Wood Ducks (*Aix sponsa*), Mallard Ducks (*Anas platyrhynchos*), and Canada Geese (*Branta canadensis*). The East Don wetlands also support breeding populations of amphibians. These amphibians require wetlands for breeding and forested habitats for feeding and hibernating, and they need to be able to travel between these habitats seasonally. In addition to the travel corridors between breeding wetlands and upland habitats, there are also wildlife corridors along the forested East Don River valley corridor and its tributaries.

McGill Area Environmentally Significant Area

The McGill Area Environmentally Significant Area #73 is approximately 344 ha in size and contained within the Don River watershed. Environmentally Significant Areas, such as the McGill Area Environmentally Significant Area #73, are conservation lands owned by TRCA, protecting features such as valley and stream corridors, flood plains, and Lake Ontario shore lands (TRCA 2009a).

Oak Ridges Moraine

According to the *Oak Ridges Moraine Conservation Plan* (Ontario 2017), the purpose of Natural Core Areas identified within the ORM plan area is to maintain, and where possible improve or restore, the ecological integrity of the plan area, by maintaining (and where possible improving or restoring) the health, diversity, size, and connectivity of key natural heritage features, key hydrologic features and the related ecological

functions, maintaining or restoring natural self-sustaining vegetation and wildlife habitat, maintaining the quantity and quality of groundwater and surface water, maintaining groundwater recharge, maintaining natural stream form and flow characteristics, protecting landform features, and protecting and restoring natural areas and features that sequester carbon and provide ecological functions (including water storage) to help reduce the impacts of climate change (Ontario 2017).

The purposes of Natural Linkage Areas identified within the ORM plan area are to maintain, and where possible improve or restore:

- the ecological integrity of the plan area
- regional-scale open space linkages between Natural Core Areas and along river valleys and stream corridors

Through maintaining, and where possible improving or restoring:

- the health, diversity, size, and connectivity of key heritage features, key hydrologic features and the related ecological functions
- natural self-sustaining vegetation over large parts of the area to facilitate movement of plants and animals
- a natural continuous east-west connection and additional connections to river valleys and streams north and south of the plan area
- quantity and quality of groundwater and surface water
- groundwater recharge
- natural stream form and flow characteristics
- protecting landform features
- protecting and restoring natural areas and features that sequester carbon and provide ecological functions (including water storage) to help reduce the impacts of climate change

The purpose of Countryside Areas identified within the ORM plan (Ontario 2017) area is to encourage agricultural and other rural uses that support the Plan’s objectives by:

- protecting prime agricultural areas

- promoting and protecting agricultural and other rural land uses and normal farm practices
- maintaining the rural character of rural settlements
- protecting and restoring natural areas and features that sequester carbon and provide ecological functions (including water storage) to help reduce the impacts of climate change
- maintaining existing public service facilities and adapting them, where feasible, to meet the needs of the community

The purpose of Settlement Areas identified within the ORM plan (Ontario 2017) area is to focus and contain urban growth by:

- encouraging the development of communities that provide their residents with convenient access to an appropriate mix of employment, transportation options and local services and a full range of housing and public service facilities
- minimizing the encroachment and impact of development on the ecological functions and hydrological features of the ORM plan area
- promoting the efficient use of land with transit-supportive densities through intensification and redevelopment within existing urban areas
- providing for the continuation and development of urban land uses consistent with the growth management strategies identified in the applicable official plans

York Region Significant Woodlands

According to *York Region Significant Woodlands Study* (NSEI, 2005), woodlands (sometimes called forests) satisfying any of the following conditions are recommended as being significant in York Region: any woodland that supports any rare or vulnerable (G1, G2, G3, S1, S2, or S3) “plant or animal species or community, as designated by NHIC, or any SAR designated by Committee on the Status of Endangered Wildlife in Canada (COSEWIC) or Committee on the Status of Species at Risk in Ontario (COSSARO) as Threatened, Endangered, or of Special Concern, any woodland that is within 30 metres of a watercourse, surface water feature or evaluated wetland, and any woodland over 2 ha in size that is within 100 metres of another significant feature or that occurs within the Regional Greenlands System…”. The woodlands within the

Technically Preferred Alternative limits would meet all of these criteria, based on the results of the terrestrial field investigations described herein. Therefore, they have been considered as Significant Woodlands.

The features and functions of the Significant Woodlands, ORM plan areas, ANSIs, and PSW in the Teston Road area also contribute to these same general areas being included as part of York Region's Regional Greenlands System.

5.2.2 Rare Vegetation Communities, Rare Species and Species at Risk Habitat

Based on the results of the field investigations, a total of 44 different ELC communities were confirmed within the focal study area, which also contains the west portion of the Technically Preferred Alternative study area from Keele Street to Dufferin Street Figure 4). Approximately 43% (19/44) of these communities were considered communities of Regional Conservation Concern (i.e., L-rank of L1-L4) by the TRCA; refer to Table 5 for a list of ELC communities identified in the focal study area, within and surrounding the west end of the Technically Preferred Alternative study area. Table 5 also indicates TRCA L-Ranks of each community identified. Refer to Appendix E for ELC mapping of the focal study area.

A total of 137 plant species were recorded within the focal study area, of which just over 20% (28 species) were considered species of Conservation Concern by the TRCA; refer to Appendix D for these species. In addition, three butternuts, a species listed as Endangered and protected under the SCA 2025, were recorded in the focal study area in Year 2. One (1) of the three butternuts, which was located west of the east end of the existing section of Teston Road and west of Dufferin Street (a sapling), was determined in Year 3 to have been removed as a result of tree clearing within a Rural Property (CVR-4) that had been completed as part of an unrelated project. The other two butternuts (both larger trees; i.e., over 10 cm DBH) were not located within the Technically Preferred Alternative study area limits in Year 3 after they were documented

in Year 2, therefore, the status of these two trees has not been ascertained since Year 2.

In Year 2, black ash was recorded in the focal study area near BBS #13, within the White Cedar – Conifer Mineral Coniferous Swamp (SWC1-2) community. Although black ash was not noted in the Technically Preferred Alternative study area in Year 3, this same ELC community (SWC1-2) providing confirmed suitable habitat for black ash extends into the Technically Preferred Alternative limits. At the time it was observed in Year 2, black ash was not listed under the former ESA. However, as of March 30, 2026, black ash has been listed as Endangered under the SCA that has replaced the ESA.

Table 5 ELC Communities within the Focal Study Area

Community Grouping	ELC Code	Community Name	L Rank (Regional Rarity Rank)	Present in Technically Preferred Alternative Study Area (Y/N)?
Cultural Communities: Constructed	CGL*	Constructed Green Lands	N/A	Y
	CVC*	Commercial & Institutional	N/A	Y
	CVI*	Transportation & Utilities	N/A	Y
	CVR*	Residential	N/A	Y
	CVR-2*	High-Density Residential	N/A	Y
	CVR-3*	Single Family Residential	N/A	Y
	CVR-4*	Rural Property	N/A	Y
Open Meadow or Barren Communities: Tree and Shrub <25%	OAGM1*	Annual Row Crop	N/A	Y
	CUM1-A	Native Forb Meadow	L5	Y
	CUM1-B	Cool-Season Grass Graminoid Meadow	L+	Y
	CUM1-C	Exotic Forb Old Field Meadow	L+	Y
	SBO1-A	Dropseed Open Sand Barren	L2	N
	SBO1-B	Flat-stemmed Bluegrass - Forb Open Sand Barren	L2	N

Community Grouping	ELC Code	Community Name	L Rank (Regional Rarity Rank)	Present in Technically Preferred Alternative Study Area (Y/N)?
Cultural Communities: >25% and <60% Treed	CUP1-4	Hybrid Poplar Deciduous Plantation	L+	Y
	CUP1-A	Restoration Deciduous Plantation	L5	N
	CUP1-B	Willow Deciduous Plantation	L+	N
	CUP2-A	Restoration Mixed Plantation	L5	N
	CUP2-f	Hybrid Poplar - Conifer Mixed Plantation	L+	Y
	CUP3-8	White Spruce - European Larch Coniferous Plantation	L5	N
	CUP3-H	Mixed Conifer Coniferous Plantation	L5	Y
	CUT1-1	Sumac Deciduous Thicket	L5	N
	CUW1-A	Native Cultural Woodland	L5	Y
	CUW1-A2	White Pine Successional Woodland	L4	N

Community Grouping	ELC Code	Community Name	L Rank (Regional Rarity Rank)	Present in Technically Preferred Alternative Study Area (Y/N)?
Forested Communities: >60% Treed	FOC1-2	Dry-Fresh White Pine (- Red Pine) Coniferous Forest	L3	N
	FOC3-1	Fresh-Moist Hemlock Coniferous Forest	L4	Y
	FOC3-A	Fresh-Moist Hemlock - White Pine Coniferous Forest	L3	Y
	FOD2-4	Dry-Fresh Oak - Hardwood Deciduous Forest	L4	N
	FOD3-1	Dry-Fresh Poplar Deciduous Forest	L3	Y
	FOD5-1	Dry-Fresh Sugar Maple Deciduous Forest	L5	N
	FOD5-10	Dry-Fresh Sugar Maple - Paper Birch - Poplar Deciduous Forest	L4	N
	FOD5-2	Dry-Fresh Sugar Maple - Beech Deciduous Forest	L5	N
	FOD8-1	Fresh-Moist Poplar Deciduous Forest	L5	Y
	FOM3-1	Dry-Fresh Hardwood - Hemlock Mixed Forest	L3	Y
	FOM3-2	Dry-Fresh Hemlock - Sugar Maple Mixed Forest	L4	N
	FOM5-1	Dry-Fresh Paper Birch Mixed Forest	L3	N

Community Grouping	ELC Code	Community Name	L Rank (Regional Rarity Rank)	Present in Technically Preferred Alternative Study Area (Y/N)?
Wetland Communities: Seasonally or Permanently Saturated	MAM2-a	Common Reed Mineral Meadow Marsh	L+	N
	MAM2-10	Forb Mineral Meadow Marsh	L4	N
	MAM2-9	Jewelweed Mineral Meadow Marsh	L4	Y
	SAF1-3	Duckweed Floating-leaved Shallow Aquatic	L4	Y
	SWC1-1	White Cedar Mineral Coniferous Swamp	L4	Y
	SWC1-2	White Cedar - Conifer Mineral Coniferous Swamp	L3	Y
	SWD4-3	Paper Birch - Poplar Mineral Deciduous Swamp	L4	N
	SWT2-5	Red Osier Dogwood Mineral Thicket Swamp	L4	N
	OA*	Open Water	N/A	N

* Indicates that 2008 ELC was used for this community. A shaded row indicates that the community is a community of Regional Conservation Concern (L1-L3) or is of Conservation Concern in Urban Areas (L4). A non-shaded row indicates that the community is not of conservation concern at this time (L5), is not native to or naturally occurring within the TRCA (L+) or is a cultural community that is not ranked by the TRCA (N/A).

A total of 20 different ELC communities were confirmed within and adjacent to the limits of the anticipated widening of the existing Teston Road, between Dufferin Street in the west and Bathurst Street in the east, as shown in Table 6; refer to Appendix E for mapping of ELC completed for this area in Year 3. Very few (2/20) of the communities identified along the Teston Road widening limits, between Dufferin Street and Bathurst Street, were considered communities of Conservation Concern by the TRCA.

Table 6 ELC Communities Along Teston Road between Dufferin Street and Bathurst Street

Community Grouping	ELC Code	Community Name	L Rank
Cultural Communities: Constructed Areas	CGL*	Constructed Green Lands	N/A
	CVC*	Commercial & Institutional	N/A
	CVI*	Transportation & Utilities	N/A
	CVR-1*	Low Density Residential	N/A
	CVR-3*	Single Family Residential	N/A
Open Meadow or Barren Communities: Tree and Shrub <25%	OAGM1*	Annual Row Crop	N/A
	CUM1-A	Native Forb Meadow	L5
	CUM1-B	Exotic Cool Season Grass Graminoid Meadow	L+
	CUM1-C	Exotic Forb Old Field Meadow	L+
	CUH1-A	Treed Hedgerow	L5
Treed Cultural Communities: >25% and <60% Treed	CUP1-4	Hybrid Poplar Deciduous Plantation	L+
	CUP3-2	White Pine Coniferous Plantation	L5
	CUP2-f	Hybrid Poplar - Conifer Mixed Plantation	L+
	CUP3-H	Mixed Conifer Coniferous Plantation	L5
	CUW1-A	Native Cultural Woodland	L5
	CUW1-A1	White Cedar Cultural Woodland	L4

Community Grouping	ELC Code	Community Name	L Rank
	CUW1-A3	Native Deciduous Cultural Woodland	L5
	CUW1-B	Exotic Cultural Woodland	L+
Forested Communities: >60% Treed	FOMA-A	Fresh-Moist White Pine - Sugar Maple Mixed Forest	L3
Wetland Communities: Seasonally or Permanently Saturated	MAS2-1B	Narrow-leaved Cattail Mineral Shallow Marsh	L5

* Indicates that 2008 ELC was used for this community. A shaded row indicates that the community is a community of Regional Conservation Concern (L1-L3) or is of Conservation Concern in Urban Areas (L4). A non-shaded row indicates that the community is not of conservation concern at this time (L5), is not native to or naturally occurring within the TRCA (L+) or is a cultural community that is not ranked by the TRCA (N/A).

Within the Technically Preferred Alternative study area, one new plant species which had not been previously observed, was documented. Numerous Kentucky coffee-trees (*Gymnocladus dioicus*) a species previously listed as Threatened under the ESA, were noted along the existing sections of Teston Road, west of Keele Street and east of Dufferin Street. However, as of March 30, 2026, this species was classified under the SCA as not at risk throughout most of Ontario (aside from within its natural growing range in select jurisdictions in southern Ontario that are listed in O.Reg. 60/26). Therefore, this species no longer receives species and habitat protection under the SCA within York Region. It is also noted that all Kentucky coffee-trees observed were obviously planted as ornamental specimens (e.g., support stakes, mulching, trunk protection, etc. observed).

No additional SAR vegetation besides black ash and butternut have been observed at any time during field investigations.

Two invasive plant species were recorded on site within the Technically Preferred Alternative limits that are regulated and restricted in Ontario under *Invasive Species Act* Regulations –O. Reg. 354/16, including common reed and Japanese knotweed (*Reynoutria japonica*). Goutweed (*Aegopodium podagraria*), a species which is not regulated but similarly invasive, has also been recorded; refer to Appendix D. These species have the capability of dominating other vegetation in an area, resulting in substantially reduced biodiversity.

5.2.3 Rare and Species at Risk Wildlife

The provincial SCA came into effect on March 30, 2026 and replaced the former ESA. The SCA protects those species listed on the Protected Species in Ontario List (O. Reg. 60/26) as EXT, END or THR on provincial, crown, or private lands. Section 16 Activities are those that result or are likely to result in (i) the killing, harming, capturing or taking of a member of a species or (ii) damage to or destruction of the habitat for which the species depend to carry on their life processes.

Species are also assigned an L Rank (i.e., regional rarity rank) by the TRCA to identify species of regional Conservation Concern, which are targeted for conservation in the Toronto area, though they do not receive protection, aside from protection of nests, eggs, and individuals that most birds receive under either the *Migratory Birds Convention Act* (MBCA) or the *Fish and Wildlife Conservation Act* (FWCA). An L Rank of L1-L3 indicates a species of Regional Conservation Concern (L3 being less so than L2 or L1), L4 indicates a species of Conservation Concern in Urban Areas, and L5 indicates a species is secure throughout the region. A rank of L+ indicates that it is not native or is not tracked by TRCA.

During the background screening completed in 2021, 25 terrestrial SAR wildlife under the ESA were identified as being previously recorded in the area surrounding the Technically Preferred Alternative, a number of which have potential or confirmed habitats in the Technically Preferred Alternative limits. Since then, the list has been reduced to six terrestrial SAR species protected under the SCA. Table 7 lists the SAR wildlife (as designated under the SCA) as well as species that were previously listed under ESA (now SOCC) that were identified during the background screening as being previously recorded in the vicinity, identifies those with confirmed and potential habitat in the Technically Preferred Alternative study area, and provides a description of suitable habitat that exists in the Technically Preferred Alternative study area for each species. Appendix F provides a detailed description of each species' habitat requirements, and an assessment of suitable habitat for each species. Further details on these SAR and SOCC species' observations and locations in the project area, are included within this section.

Table 7 Wildlife SAR and SAR Habitat Summary

Common Name	Scientific Name	SCA 2025 Status	Observed during Year 1-3 Field Investigations (Y/N)?	Potential to Occur in Technically Preferred Alternative Study Area (Y/N)?	Description of Habitat within Technically Preferred Alternative Study Area
Jefferson Salamander	*Ambystoma jeffersonianum*	Endangered	No	No	None
Acadian Flycatcher	*Empidonax virescens*		No	No	None
Bank Swallow	*Riparia riparia*		No	Yes; during construction only	None However, construction activities can create habitat.
Barn Swallow	*Hirundo rustica*		Yes	Yes; confirmed	Confirmed foraging in wetlands [Jewelweed Mineral Meadow Marsh (MAM2-9), Narrow-leaved Cattail Mineral Shallow Marsh (MAS2-1B), Duckweed Floating-leaved Shallow Aquatic (SAF1-3)] and open meadows [Native Forb Meadow (CUM1-A)]. Potential nesting structures present, though no nesting observed.
Bobolink	*Dolichonyx oryzivorus*		Yes	Yes; confirmed	Confirmed breeding within open meadow [Native Forb Meadow (CUM1-A)] communities.
Canada Warbler	*Cardellina canadensis*		No	No	None
Cerulean Warbler	*Setophaga cerulea*		No	No	None
Chimney Swift	*Chaetura pelagica*		No	No	None
Common Nighthawk	*Chordeiles minor*		No	No	None
Eastern Meadowlark	*Sturnella magna*		Yes	Yes; confirmed	Confirmed breeding within open meadow [Native Forb Meadow (CUM1-A)] communities.
Eastern Wood-Pewee	*Contopus virens*		Yes	Yes; confirmed	Confirmed breeding and potential habitat within numerous treed and forest communities [Hybrid Poplar - Conifer Mixed Plantation (CUP2-f), White Pine Coniferous Plantation (CUP3-2), Mixed Conifer Coniferous Plantation (CUP3-H), Native Cultural Woodland (CUW1-A), Native Deciduous Cultural Woodland (CUW1-A3), Fresh-Moist Hemlock Coniferous Forest (FOC3-1), Fresh-Moist Hemlock – White Pine Coniferous Forest (FOC3-A), Fresh-Moist Poplar Deciduous Forest (FOD8-1), Dry-Fresh Poplar Deciduous Forest (FOD3-1), Dry-Fresh Hardwood – Hemlock Mixed Forest (FOM3-1), Fresh-Moist White Pine – Sugar Maple Mixed Forest (FOMA-A)].

Common Name	Scientific Name	SCA 2025 Status	Observed during Year 1-3 Field Investigations (Y/N)?	Potential to Occur in Technically Preferred Alternative Study Area (Y/N)?	Description of Habitat within Technically Preferred Alternative Study Area
Evening Grosbeak	*Coccothraustes vespertinus*		No	No	None
Golden Winged Warbler	*Vermivora chrysoptera*		No	No	None
Grasshopper Sparrow	*Ammodramus savannarum*		No	Yes	This species is not currently present, though there is suitable habitat for this species within the same open meadow [Native Forb Meadow (CUM1-A)] communities as Eastern Meadowlark and/or Bobolink.
Least Bittern	*Ixobrychus exilis*		No	No	None
Red Headed Woodpecker	*Melanerpes erythrocephalus*		No	No	None
Wood Thrush	*Hylocichla mustelina*		Yes	Yes; confirmed	Confirmed breeding and potential habitat within numerous treed and forest communities [Native Cultural Woodland (CUW1-A), Native Deciduous Cultural Woodland (CUW1-A3), Fresh-Moist Poplar Deciduous Forest (FOD8-1), Dry-Fresh Poplar Deciduous Forest (FOD3-1), Dry-Fresh Hardwood – Hemlock Mixed Forest (FOM3-1), Fresh-Moist White Pine – Sugar Maple Mixed Forest (FOMA-A)].
Monarch	*Danaus plexippus*		Yes	Yes; confirmed	Confirmed present and to have potential for breeding within open meadow [Native Forb Meadow (CUM1-A)] communities. Nectaring habitat is also present wherever there are flowering plants.
Eastern Small-footed Myotis	*Myotis leibii*	Endangered	No	Yes	There are confirmed suitable maternity roosting trees within treed and forest communities, where potential maternity roost trees were documented.
Little Brown Myotis	*Myotis lucifugus*	Endangered	No	Yes	There are confirmed suitable maternity roosting trees within treed and forest communities where potential maternity roost trees were documented.
Northern Myotis	*Myotis septentrionalis*	Endangered	No	Yes	There are confirmed suitable maternity roosting trees within treed and forest communities where potential maternity roost trees were documented.
Tri-colored Bat	*Perimyotis subflavus*	Endangered	No	Yes	There are confirmed suitable maternity roosting trees within treed and forest communities where potential maternity roost trees were documented.

Common Name	Scientific Name	SCA 2025 Status	Observed during Year 1-3 Field Investigations (Y/N)?	Potential to Occur in Technically Preferred Alternative Study Area (Y/N)?	Description of Habitat within Technically Preferred Alternative Study Area
Blanding's Turtle	*Emydoidea blandingii*	Endangered	No	Yes	This species is not highly detectable without targeted surveys. This species has not been observed on site. However, there is suitable habitat for this species in wetland [Jewelweed Mineral Meadow Marsh (MAM2-9), Narrow-leaved Cattail Mineral Shallow Marsh (MAS2-1B), Duckweed Floating-leaved Shallow Aquatic (SAF1-3)] and swamp [White Cedar - Conifer Mineral Coniferous Swamp (SWC1-2)] communities and in adjacent upland habitats.
Eastern Ribbonsnake	*Thamnophis sauritus*		No	Yes	This species is not highly detectable without targeted surveys. This species has not been observed on site. However, there is suitable habitat for this species in throughout the site, in all wetland, treed, and forest communities.
Snapping Turtle	*Chelydra serpentina*		Yes	Yes; confirmed	This species has been confirmed and there is suitable year-round habitat for this species in wetland [Jewelweed Mineral Meadow Marsh (MAM2-9), Narrow-leaved Cattail Mineral Shallow Marsh (MAS2-1B), Duckweed Floating-leaved Shallow Aquatic (SAF1-3)] and swamp [White Cedar - Conifer Mineral Coniferous Swamp (SWC1-2)] communities and in adjacent upland habitats.

Over the course of the field investigations in all years, 73 species of birds, eight (8) species of mammals, eight species of herpetofauna, and 10 species or family groups of invertebrates have been observed (Appendix D). Of these, the majority are ranked by the TRCA as species of conservation concern and have potential to occur within or adjacent to the Technically Preferred Alternative limits. Within the focal and Technically Preferred Alternative study areas, 39 of the 65 birds observed, three of six mammals, and five of five herptiles were ranked as species of Regional Conservation Concern (L1-L3) or L4 by the TRCA; refer to Table 8. In general, the wildlife species observed represented a high diversity of wildlife and wildlife habitats present in the area.

Table 8 Wildlife Observed in Focal and Technically Preferred Alternative Study Areas

Species	Common Name	Scientific Name	L-rank	SCA 2025 Status
Birds	House Sparrow	*Passer domesticus*	L+	
	American Woodcock	*Scolopax minor*	L3	
	Bobolink	*Dolichonyx oryzivorus*	L3	
	Clay-coloured Sparrow	*Spizella pallida*	L3	
	Eastern Meadowlark	*Sturnella magna*	L3	
	Eastern Towhee	*Piplio erythrophthalmus*	L3	
	Great Blue Heron	*Ardea herodias*	L3	
	Horned Lark	*Eremophila alpestris*	L3	
	Magnolia Warbler	*Setophaga magnolia*	L3	
	Mourning Warbler	*Geothlypis philadelphia*	L3	
	Osprey	*Pandion haliaetus*	L3	
	Pileated Woodpecker	*Dryocopus pileatus*	L3	
	Scarlet Tanager	*Piranga olivacea*	L3	
	Vesper Sparrow	*Pooecetes gramineus*	L3	
	Wild Turkey	*Meleagris gallopavo*	L3	
	Winter Wren	*Troglodytes hiemalis*	L3	
	American Kestrel	*Falco sparverius*	L4	

Species	Common Name	Scientific Name	L-rank	SCA 2025 Status
	American Redstart	*Setophaga ruticilla*	L4	
	Barn Swallow	*Hirundo rustica*	L4	
	Common Yellowthroat	*Geothlypis trichas*	L4	
	Eastern Kingbird	*Tyrannus tyrannus*	L4	
	Eastern Wood-pewee	*Contopus virens*	L4	
	Field Sparrow	*Spizella pusilla*	L4	
	Gray Catbird	*Dumetella carolinensis*	L4	
	Great Crested Flycatcher	*Myiarchus crinitus*	L4	
	Hairy Woodpecker	*Picoides villosus*	L4	
	Indigo Bunting	*Passerina cyanea*	L4	
	Killdeer	*Charadrius vociferus*	L4	
	Least Flycatcher	*Empidonax minimus*	L4	
	Northern Flicker	*Colaptes auratus*	L4	
	Northern Mockingbird	*Mimus polyglottos*	L4	
	Pine Warbler	*Setophaga pinus*	L4	
	Red-eyed Vireo	*Vireo olivaceus*	L4	
	Ring-billed Gull	*Larus delawarensis*	L4	
	Savannah Sparrow	*Passerculus sandwichensis*	L4	

Species	Common Name	Scientific Name	L-rank	SCA 2025 Status
	Swamp Sparrow	*Melospiza georgiana*	L4	
	Tree Swallow	*Tachycineta bicolor*	L4	
	White-breasted Nuthatch	*Sitta carolinensis*	L4	
	Willow Flycatcher	*Empidonax traillii*	L4	
	American Crow	*Corvus brachyrhynchos*	L5	
	American Goldfinch	*Spinus tristis*	L5	
	American Robin	*Turdus migratorius*	L5	
	Baltimore Oriole	*Icterus galbula*	L5	
	Black-capped Chickadee	*Poecile atricapillus*	L5	
	Blue Jay	*Cyanocitta cristata*	L5	
	Brown-headed Cowbird	*Molothrus ater*	L5	
	Cedar Waxwing	*Bombycilla cedrorum*	L5	
	Chipping Sparrow	*Spizella passerina*	L5	
	Common Grackle	*Quiscalus quiscula*	L5	
	Downy Woodpecker	*Picoides pubescens*	L5	
	House Wren	*Troglodytes aedon*	L5	
	Mallard	*Anas platyrhynchos*	L5	
	Mourning Dove	*Zenaida macroura*	L5	

Species	Common Name	Scientific Name	L-rank	SCA 2025 Status
	Northern Cardinal	*Cardinalis cardinalis*	L5	
	Orchard Oriole	*Icterus spurius*	L5	
	Red-bellied Woodpecker	*Melanerpes carolinus*	L5	
	Red-breasted Nuthatch	*Sitta canadensis*	L5	
	Red-tailed Hawk	*Buteo jamaicensis*	L5	
	Red-winged Blackbird	*Agelaius phoeniceus*	L5	
	Song Sparrow	*Melospiza melodia*	L5	
	Turkey Vulture	*Cathartes aura*	L5	
	Warbling Vireo	*Vireo gilvus*	L5	
	Yellow Warbler	*Setophaga petechia*	L5	
	Swainson's Thrush	*Catharus ustulatus*	Not listed	
	Gull sp.	*Larus* sp.	N/A	
	Wood Thrush	*Hylocichla mustelina*	L3	
Herptiles	Spring Peeper	*Pseudacris crucifer*	L2	
	Midland Painted Turtle	*Chrysemys picta marginata*	L3	
	American Toad	*Anaxyrus americanus*	L4	
	Green Frog	*Lithobates clamitans*	L4	
	Eastern Gartersnake	*Thamnophis sirtalis sirtalis*	L4	

Species	Common Name	Scientific Name	L-rank	SCA 2025 Status
Mammals	Eastern Chipmunk	*Tamias striatus*	L4	
	Eastern Cottontail	*Sylvilagus floridanus*	L4	
	White-tailed Deer	*Odocoileus virginianus*	L4	
	Eastern Gray Squirrel	*Sciurus carolinensis*	L5	
	Striped Skunk	*Mephitis mephitis*	L5	
	Raccoon	*Procyon lotor*	L5	
Invertebrates	Black Swallowtail	*Papilio polyxenes*	N/A	
	Bluet sp.	*Enallagma sp*	N/A	
	Brush-footed Butterflies	*Nymphalidae*	N/A	
	Cabbage White	*Pieris rapae*	N/A	
	Common European Amber Snail	*Succinea putris*	N/A	
	Litter Moths	*Zanclognatha sp.*	N/A	
	Monarch	*Danaus plexippus*	N/A	
	Narrow-winged Damselflies	*Coenagrionidae*	N/A	
	Silvery Blue	*Glaucopsyche lygdamus*	N/A	
	Stink Bugs	*Pentatomidae*	N/A	

Over the course of the terrestrial field surveys, five SOCC wildlife species observed within or proximal to the Technically Preferred Alternative limits (previously listed as Special Concern under the ESA), including Barn Swallow, Eastern Wood-Pewee, Wood Thrush, Snapping Turtle, and Monarch. In addition, two wildlife species observed are listed as Threatened under the ESA, including Bobolink, and Eastern Meadowlark. It should be noted that Barn Swallow was previously listed as Threatened under the ESA, at the time of the Year 2 surveys, however, it has since been re-listed as Special Concern under the ESA in Ontario.

Barn Swallows were observed foraging at five breeding bird survey locations (BBS 1, BBS 2, BBS 5, BBS 6, and BBS 17). Monarch, Eastern Meadowlark, and Bobolink were all observed within the Native Forb Meadow (CUM1-A) community present within the Vaughan landfill. It is also presumed that suitable habitat for these species is present in the City of Toronto's Keele Valley Landfill site to the south, based on conditions observed across the property line. Bobolinks were recorded at four (4) breeding bird survey locations (BBS 2, BBS 4, BBS 5, and BBS 6), and Eastern Meadowlarks were recorded at six (6) breeding bird survey locations (BBS1 through to BBS 6). Eastern Wood-Pewee and Wood Thrush were observed within several of the forested communities in the tract of forest north and west of Dufferin Street alongside the East Don River (BBS 3, BBS 7, BBS 9, BBS 12, BBS 13, BBS 14, and BBS 17 for Eastern Wood-Pewee and BBS 7 and BBS 14 for Wood Thrush). Snapping Turtle was observed basking in open water within a Duckweed Floating-leaved Shallow Aquatic (SAF1-3) community at BBS 10, and Barn Swallows were observed foraging over open water at two (2) locations: north of Teston Road and west of Dufferin Street, and east of Dufferin Street and south of Teston Road.

No additional rare or SAR wildlife were observed during the field surveys (refer to Appendix D). No bird nests were observed within culverts assessed within the Technically Preferred Alternative study area, and no suitable structures for Barn Swallow or Chimney Swift nesting aside from the assessed culverts were identified

within the Technically Preferred Alternative study area. During the numerous surveys completed by MH (now Stantec) in spring in Year 3, no vernal or ephemeral pools were observed within the forested communities contained within the within the Technically Preferred Alternative limits. Therefore, these specialized habitat features for salamanders, including Jefferson Salamanders (a species listed as END under theSCA), were confirmed to be absent.

Aside from SAR, an additional noteworthy wildlife observation was two Eastern Gartersnakes (*Thamnophis sirtalis sirtalis*) basking together in early spring along a pathway running east to west within the Dry-Fresh Hardwood – Hemlock Mixed Forest (FOM3-1) community located directly east of the Vaughan and City of Toronto landfills, within the Technically Preferred Alternative limits. Given the time of year that these snakes were observed and the suitability of the surrounding habitat features (rocky slope with sun exposure) it is likely that a potential hibernaculum for snakes was located in the vicinity of this observation. However, confirmation of more than five individuals of the same species of snake are required to meet the threshold of Significant Wildlife Habitat (SWH) - Reptile Hibernaculum, per the criteria within this region (i.e., Ecoregion 6E); refer to Section 5.2.4 for further discussion on SWH.

Based on the Year 2 field surveys, which included an initial assessment of habitat for SAR bats, almost all of the forest and woodland communities located within the focal study area met the criteria to be considered suitable maternity roost habitat for SAR bats under Phase I: Bat Habitat Suitability Assessment of The Protocol, aside from several small and immature Willow Deciduous Plantation (CUP1-B) and Restoration Deciduous Plantation (CUP1-A) communities located within the Vaughan landfill. Therefore, the majority of forest and woodland communities were deemed to warrant more detailed, Phase II: Identification of Suitable Maternity Roost Trees surveys for SAR bat habitat in Year 3, using The Protocol. Following Phase II: Identification of Suitable Maternity Roost Trees of The Protocol in Year 2, bat maternity roost tree surveys were completed in Year 3, and a total of 86 potential maternity trees were

identified during the surveys; refer to Figure 8 for the locations of all potential maternity roost trees identified. Many of the trees identified exhibit one or more characteristics that would make them of higher quality for bats, such as cavities, cracks, or crevices higher than 10 m, being located in close proximity to other potential roost trees, having 25 cm or greater DBH, and being in earlier stages of decay. Based on the results of the Phase II: Identification of Suitable Maternity Roost Trees surveys, the treed communities adjacent to the existing sections of Teston Road contained very few potential maternity roost trees, and were therefore less suitable for bat roosting, whereas all of the treed communities located in between the existing sections of Teston Road were of higher suitability for bats, containing a much higher density of potential maternity roost trees (Figure 8).

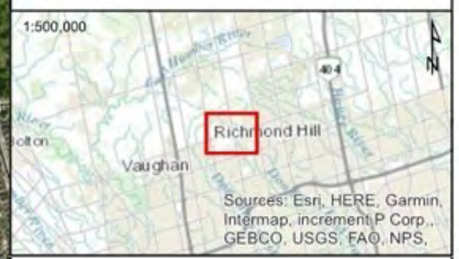


LEGEND

- Potential Maternity Roost Tree
- Maternity Roost Tree Survey Limits

Transportation Network

- Arterial / Collector
- Local Roads



Coordinate System: NAD 1983 UTM Zone 17N
Sources: MNRF

MORRISON HERSHFIELD

SCALE: 1:13,000

0 80 160 320 480 640

Meters

TITLE:

Bat Maternity Roost Tree Surveys

PROJECT NO.: 190261800

Teston Road

DATE: **January 2023**

ENVIRONMENTAL SERVICES DEPARTMENT

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5.2.4 Significant Wildlife Habitat

A number of potential and confirmed SWH types have been identified in proximity to the proposed project, particularly within the Technically Preferred Alternative study area, where the project impacts are proposed (refer to Section 6.2.4 for discussion on impacted SWH). Appendix G includes a detailed assessment of SWH presence and absence within the Technically Preferred Alternative study area.

The project area is located within Ecoregion 6E. There are four categories of provincially SWH within Ecoregion 6E according to the Significant Wildlife Habitat Technical Guide (MNR 2000) and the Significant Wildlife Habitat Eco-Regional Criterion Schedule for Ecoregion 6E (MNR 2015), including:

1. Seasonal Concentration Areas of Animals.
2. Rare Vegetation Communities or Specialized Habitat for Wildlife.
3. Habitat for Species of Conservation Concern (Not including END or THR Species).
4. Animal Movement Corridors.

Significant Wildlife Habitat: Seasonal Concentration Areas of Animals

Some species of animals gather together from geographically wide areas at certain times of the year. This could be to hibernate or to bask (e.g., some reptiles and bats), over-winter (e.g. deer yards), or to breed (e.g. Bullfrog breeding and nursery areas, bird breeding colonies). Maintenance of the habitat features that result in these concentrations can be critical in sustaining local or even regional populations of wildlife.

Based on the results of the field surveys completed, the habitat and ELC communities present, and site conditions observed, candidate (i.e., potential) Seasonal Concentration Areas of Animals identified included Shorebird Migratory Stopover Areas, a Raptor Wintering Area, Bat Maternity Colonies, Turtle Wintering Areas, Reptile Hibernacula, and Colonially - Nesting Bird Breeding Habitat (Tree/Shrubs).



The shorelines of watercourses and wetlands present act as a Shorebird Migratory Stopover Area. The large tracts of forest and grassland present may act as a Raptor Wintering Area, and both Red-tailed Hawk and American Kestrel have been observed during the summer field surveys (Table 8) and also have the potential to be present during the winter. Numerous potential maternity roost trees for bats have been documented and, given the abundance and quality of available habitat present, it is likely that Bat Maternity Colonies are present. Wetlands and watercourses present may provide Turtle Wintering Areas, and both Snapping Turtles and Midland Painted Turtles have been observed in the area (Table 8). There may be numerous opportunities for Reptile Hibernacula in the area (e.g., rock piles or fissures, in wetlands) and as noted in Section 5.2.3, two Eastern Gartersnakes were observed basking in early spring in the forest west of the East Don River, suggesting that this SWH is likely present. Wetlands and forests in the area may potentially provide Colonially - Nesting Bird Breeding Habitat, particularly for Green Herons (*Butorides virescens*) and Great Blue Herons (*Ardea herodias*), the latter of which has been confirmed in the area (Table 8).

Significant Wildlife Habitat: Rare Vegetation Communities or Specialized Habitat for Wildlife

Rare Vegetation Communities often contain rare species, particularly plants, which depend on those habitats for survival and cannot readily move or find alternative habitats. There were no Rare Vegetation Communities identified within the study area. As a result of the field surveys, Rare Vegetation Communities were confirmed to be absent within the Technically Preferred Alternative study area.

Specialized Habitat for Wildlife can include old-growth forests, calving areas for moose, cliffs, and habitat for bird species requiring large blocks of habitat (generally greater than 25 ha in size). Based on the field survey results and the site conditions, several candidate Specialized Habitats for Wildlife were identified, including Waterfowl Nesting Areas, Bald Eagle and Osprey Nesting, Foraging, and Perching Habitat, Woodland Raptor Nesting Habitat, Turtle Nesting Areas, Seeps and Springs, Amphibian Breeding

Habitat (Woodlands), Amphibian Breeding Habitat (Wetlands), and Woodland Area Sensitive Breeding Bird Habitat.

Wetlands and surrounding upland areas proximal to the project may contain Waterfowl Nesting Areas, particularly for species such as Wood Duck and Mallard Ducks, as noted within *Provincially Significant East Don River Headwater Wetland Complex Summary* (GEM 2019). Osprey Nesting, Foraging, and Perching Habitat may be available, as nesting and foraging habitat is present in proximity to each other, and Ospreys were observed foraging over open water and wetlands along the East Don River during several site visits (Table 8). The continuous forest along the East Don River is large (>30ha) and includes interior habitat, therefore it may provide Woodland Raptor Nesting Habitat for several species. Lands adjacent to wetlands and watercourses have the potential to provide Turtle Nesting Areas. Both Snapping Turtles and Midland Painted Turtles have been observed during field surveys (Table 8 and Appendix D), and a Midland Painted Turtle hatchling was previously observed adjacent to a Duckweed Floating-leaved Shallow Aquatic (SAF1- 3) community (north and west of Dufferin Street near BBS 15) indicating that turtle nesting does occur in the area, though the scale and extent of nesting activity is unknown and the threshold for this SWH could not be confirmed. Seeps have been recorded in headwater areas within the project limits, though the scale and extent of these features are unknown and the threshold for this SWH could not be confirmed. Wetland habitats with permanent water adjacent to woodlands are present and may provide Amphibian Breeding Habitat (Woodlands), and wetlands themselves may provide Amphibian Breeding Habitat (Wetlands). Several amphibian species have been recorded during field surveys that require these habitat types (Table 8). Interior forest habitat is present along the East Don River and several species indicating Woodland Area Sensitive Breeding Bird Habitat is present have been observed during the breeding season, including Red-breasted Nuthatch, Winter Wren, and Black-throated Green Warblers (Table 8 and Appendix D), though the threshold for this SWH could not be confirmed.

Significant Wildlife Habitat: Habitat for Species of Conservation Concern

Rare wildlife status is based on species listed as having Global Rank G3 or less (G-Rank) or Provincial Rank S3 or less (S-rank) status, identified through the NHIC. The Significant Wildlife Habitat Technical Guide (MNR 2000) suggests that the highest priority for protection should be provided to habitats of the rarest species (on a scale of global through to local municipality).

Both confirmed and candidate Habitat for Species of Conservation Concern were identified based on the field survey results and the site conditions recorded, including Marsh Breeding Bird Habitat, Open Country Bird Breeding Habitat, and habitat for Special Concern and Rare Wildlife Species.

Marsh habitat is present in proximity to the project and may provide Marsh Breeding Bird Habitat for several species, particularly Green Heron. Large Native Forb Meadow (CUM1-A) communities are present with Savannah Sparrow and Vesper Sparrow determined to be probable breeders in this community during breeding bird surveys (Table 8), therefore this SWH has been confirmed. Rare species observed to date with confirmed habitat in the project area include Barn Swallow, Wood Thrush, Eastern Wood-pewee, Monarch, and Snapping Turtle, therefore habitat for Special Concern and Rare Wildlife Species has been confirmed.

Significant Wildlife Habitat: Animal Movement Corridors

Animal Movement Corridors are elongated areas used by wildlife to move from one habitat to another. They are important to ensure genetic diversity in populations, to allow seasonal migration of animals (e.g., deer moving from summer to winter range) and to allow animals to move throughout their home range from feeding areas to cover areas. Animal Movement Corridors in Ecoregion 6E include Amphibian Movement Corridors and Deer Movement Corridors.

No confirmation of Animal Movement Corridors was obtained during the Year 1 surveys. However, potential Amphibian Movement Corridors were noted along the watercourses within the Year 1 study area, as there was interspersed open water and wetland habitats surrounded by naturalized vegetative communities, east of Keele Street from Kirby Road south to Major Mackenzie Drive. No confirmation of Animal Movement Corridors was obtained during the Year 2 surveys either. Potential White-tailed Deer movement corridors were identified between the Native Forb Meadow (CUM1-A) communities and the forest communities within the focal study area through evidence of deer observed (i.e., a deer trail, deer beds, deer tracks, and a deer foraging), which are likely locally significant to deer. However, the MNR is responsible for identifying Deer Movement Corridors as provincially SWH areas and has not identified them in this area. In Year 2, potential Amphibian Movement Corridors and locally significant movement corridors for deer were also noted along the watercourses within the focal study area, where there are interspersed open water and wetland habitats surrounded by naturalized vegetative communities. In Year 3, the same potential movement corridors as in Year 2 were confirmed as being likely, due to continuing evidence of deer as well as persistence of similar site conditions.

As discussed in Section 5.2.1, *Inventory of the Life Science Maple Uplands & Kettle Wetlands and Earth Science Oak Ridges Moraine Maple Spur Areas of Natural and Scientific Interest, City Of Vaughan, Ontario* (MNR 2000) and *Provincially Significant East Don River Headwater Wetland Complex Summary* (GEM 2019) each note that river valleys such as the East Don River play essential roles in maintaining ecological functions by providing corridors that allow for the physical passage and genetic flow of animals and plants. The documents further indicate that there are known travel corridors along the East Don River between amphibian breeding wetlands and adjacent upland habitats, as well as movement corridors for wildlife along the forested East Don River valley corridor and its tributaries.

5.2.5 Non-designated Wildlife and Wildlife Habitat

The field program has identified the presence of agricultural lands, terrestrial meadows, thickets, cultural plantations, cultural woodlands and forest habitats within the IEA Study Area. Further, wetland habitat including communities of marsh, swamp thicket and treed swamp were also observed within the IEA Study Area (see Section 5.2.2 and Appendix E for details). Some of the features observed in the IEA Study Area have been designated through natural heritage planning policy at the provincial or municipal level as described in Section 5.2.2. Assessment of both the designated and non-designated lands were included in the rare and SAR assessments, as described in sections 5.2.3 and 5.2.5.

Undeveloped lands within the IEA Study Area that have not been designated by the province or municipal authorities predominantly include habitats and communities that are of lower habitat quality, either due to ongoing active management activities (e.g. lawns and agricultural fields subject to tilling, harvesting or mowing) or have degraded due to proximity to anthropogenic disturbance and/or have established with large populations of non-native invasive species and exhibit lower species diversity.

Many species use agricultural lands and terrestrial meadows for feeding, nesting, movement, or temporary cover. For example, field birds (e.g., Horned Lark, Savannah Sparrow, Killdeer), small mammals, pollinators, raptors, deer, and some amphibians may utilize agricultural landscapes, meadows and thickets. Hedgerows, fencerows, drainage ditches, shelterbelts, and uncultivated field margins can be particularly important because they provide food, cover, nesting sites, and movement corridors.

Areas dominated by invasive plant species generally provide reduced habitat quality and ecological value compared to native vegetation communities. Invasive species often form dense, monospecific stands that displace native plants, reduce plant diversity, and simplify vegetation structure. This can limit the availability and diversity of food resources, nesting sites, shelter, and breeding habitat for wildlife, and as such often don’t support rare or SAR species. Though these environments typically support lower biodiversity and fewer specialized species than native ecosystems, invasive-dominated habitats are often still used by common and adaptable species for foraging, cover, and/or movement; as such, they are considered habitat for local wildlife in the area.

6 Impact Assessment

The intent of this impact assessment is to document the potential effects of the Technically Preferred Alternative to the terrestrial and aquatic features and functions within the limits of proposed work and the adjacent lands within 120 m. The preliminary design plans for the Technically Preferred Alternative consist of an extension of Teston Road between Keele Street and Dufferin Street along its current alignment, a 40 m bridge spanning the East Don River to the west of Dufferin Street and widening of the existing section of Teston Road between Dufferin Street and Bathurst Street. As the impacts have been assessed based on preliminary design information, impacts will need to be reassessed when detailed designs become available.

Given that the project is not anticipated to commence for some time, there is potential that classifications of species under the SCA may change. Further, habitat conditions on site are subject to change. As such, species' statuses and protections, as well as on-site conditions should be re-examined during subsequent phases of this project.

The existing environmental site conditions within the Technically Preferred Alternative and 120 m adjacent lands have been evaluated against the proposed project plans to assess potential direct and indirect impacts to terrestrial and aquatic habitat, which have been divided into three types of impacts.

- Permanent loss areas include areas where vegetation and habitat cannot be reinstated in situ following work, and generally include all roads, pathways, and impermeable surfaces or structures. This category includes impacts resultant from fragmentation caused with the road development across the natural heritage system (NHS).
- Negative impact areas are those requiring grading or excavation, though they can be revegetated and eventually provide habitat for wildlife, after time to re-establish.

- Harmful alteration areas essentially include areas underneath the proposed bridge, where, although some vegetation and habitat for fish and wildlife may remain available following the work, the habitat will vary from previous conditions and there will ultimately be limited opportunities for restoration, resulting in an overall reduction of habitat quality.

Figures illustrating the aquatic and terrestrial areas of potential impact associated with the Technically Preferred Alternative and can be found in Appendix H.

6.1 Aquatic Areas of Impact

Site 1 – Don River East Branch Located West of Dufferin Street

Impacts to the headwaters of the East Don River within the Teston Road extension between Keele Street and Dufferin Street are expected, as direct fish habitat and hydrology will be permanently altered by the creation of the new road and the resulting bridge crossing the watercourse. As per the federal *Fisheries Act*, the DFO screening process has been completed for the new Teston Road extension to determine the applicability of DFO's Standards and Codes of Practice. These works do not meet the criteria for the Clear Span Bridges DFO Code of Practice, so they have been assessed using DFO's Pathway of Effects (PoE) model. Refer to Appendix I for the Aquatic Effects Summary Tables completed using the PoE tables.

The planned construction of the Teston Road bridge over the Don River East Branch is likely to result in both land and water-based impacts to the natural environment. Activities including vegetation clearing, grading, excavation, use of industrial equipment, riparian planting, temporary change in flows, and temporary fish passage alterations, will likely result from the proposed works. Through the placement of the retaining walls and wingwalls, the bridge footprint will permanently impact 90 m^2 below the 2-year high water mark. The specific details of the placement of materials will be confirmed at a later design stage. The bridge deck will cover 225 m^2 of area over the 2-year high water mark, however it is expected that the natural channel form will be maintained throughout

the width of the bridge, and acceptable light levels will be present such that plant growth on the banks is likely to occur.

Due to the potential magnitude of impact associated with this crossing, and the potential for the work to result in the death of fish or the Harmful Alteration, Disruption or Destruction (HADD) of fish and fish habitat (both of which are prohibited under the *Fisheries Act*), a Request for Review should be submitted to DFO during the detailed design phase of the project. While potential impacts were assessed based on the available information, impacts will need to be reassessed when new design information becomes available.

The hydrologic function (as it relates to ecology) of the headwater features is not anticipated to be substantially affected assuming road crossings will be designed to convey existing flows.

Site 2 – Tributary of Don River East Branch, Culvert Crossing Teston Road West of Saul Court

Aquatic impacts between Dufferin Street and Bathurst Street are expected to be limited; however, the future design of this culvert is likely to include the installation of wing walls at the culvert inlet and/or outlet. In-water work is likely to be needed for the installation of the wing walls. Although too early in the design process to assess impacts from this work, it will be the goal that all construction activities can be properly mitigated with no residual effects persisting following completion of the roadway expansion and wingwall construction. Redside Dace, a federally listed END species, are present within the watercourse downstream of Teston Road and will be considered as a part of the wingwall design process and development of mitigation measures during the detailed design phase.

Site 3 – Tributary of East Don River, Culvert Crossing Teston Road at Bathurst Street

Aquatic impacts between Dufferin Street and Bathurst Street are expected to be limited as the roadway widening will not require widening or extension of the culvert at Site 3. No in-water work is expected, and potential impacts related to construction activities are anticipated to be mitigated with no residual effects persisting following completion of the roadway expansion.

6.2 Terrestrial Areas of Impact

Existing Teston Road from West of Keele Street to Rodinea Road

From west of Keele Street to Rodinea Road, along the existing Teston Road, impacts to the terrestrial environment are expected to be minor. Work will involve the widening of Teston Road and associated infrastructure as well as improvements at the Keele Street and Teston Road intersection to facilitate the widening. This area is already relatively developed, and predominated by commercial, residential, and agricultural ELC communities and the area of impact is anticipated primarily within the existing Teston Road right-of-way (ROW); refer to Appendix H. Permanent loss areas include those within and immediately adjacent to the footprint of the road widening. Negative impact areas will include the grading limits and embankment areas, beyond the road widening, which can be re-planted.

Extension of Teston Road from Rodinea Road East to Dufferin Street

From Rodinea Road east to Dufferin Street, the impacts to the terrestrial environment are anticipated to be moderate to substantial. Construction of the new section of Teston Road between the existing sections of Teston Road as well as construction of the 40 m span bridge over the East Don River is likely to result in impacts within undisturbed natural and naturalized areas; refer to Appendix H.

Although minor gravel access roads exist within the landfills along the west end of the proposed alignment of the new Teston Road, from east of Rodinea Road to the forests adjacent to the East Don River, the limited and infrequent use of these roads do not appear to impact the quality or function of the adjacent habitat presently. Under current conditions, the naturalized Native Forb Meadow (CUM1-A) communities alongside the existing gravel roads were found to function as a grassland and provide confirmed habitat for grassland birds, including SOCC Eastern Meadowlark and Bobolink and provide habitat and a likely movement corridor for mammals such as White-tailed Deer; refer to Section 6.2.4 for discussion on impacts within SWH, and to Section 6.2.3 for discussion on impacts to SAR habitat.

Within the forest and wetland communities along the east end of the proposed alignment of the new Teston Road, west of Dufferin Street, only small and discrete footpaths exist at this time, and habitat remains generally intact, including potential habitat for bats, habitat for several Rare species, SWH for numerous species, and habitat and likely movement corridors for mammals and herpetofauna. Furthermore, areas of Significant Forest, PSW, ANSI, and ORM Conservation Plan areas are within the area of impact associated with the new roadway; refer to Section 6.2.1 for discussion on impacts within designated natural areas.

Permanent loss areas will include areas within and immediately adjacent to the footprint of the new roadway and bridge. Negative impact areas will include the grading limits and embankment and access areas, beyond the new road and bridge footprints, which can be re-planted. Harmful alteration areas will include areas underneath the span of the bridge, where restoration capacity will be limited.

Existing Teston Road from Dufferin Street to West of Bathurst Street

From Dufferin Street east to west of Bathurst Street along the existing Teston Road, impacts to the terrestrial environment are anticipated to be minor. Work will involve widening of Teston Road and associated infrastructure as well as improvements at the intersection of Bathurst Street and Teston Road. This area is already relatively



developed, and predominated by commercial, residential, and agricultural ELC communities and the area of impact is anticipated primarily within the existing Teston Road ROW; refer to Appendix H. However, small sections of Significant Forest, unevaluated wetlands, and ORM Conservation Plan areas around the tributaries of The Don River East Branch, surrounding fisheries survey Site #2 and Site #3 will be within the area of impact associated with the widening; refer to Section 6.2.1 for discussion on impacts within designated natural areas. Permanent loss areas include those within and immediately adjacent to the footprint of the road widening. Negative impact areas will include the grading limits and embankment areas, beyond the road widening, which can be re-planted.

6.2.1 Designated Natural Areas

The proposed work will occur within the limits of several designated natural areas as listed in Table 4 (for the Technically Preferred Alternative study area), as described within Section 6.2, and as shown in Appendix H. Table 9 below includes the anticipated areas of negative impact, permanent loss, and harmful alteration within each designated area, based on the preliminary designs.

Table 9 Areas of Impact within Designated Natural Areas.

Designated Natural Area	Area of Permanent Loss (m^2)	Area of Negative Impact (m^2)	Harmful Alteration (m^2)
Significant Woodlands	25,591	20,210	1,353
McGill Area Environmentally Significant Area (ESA #73)	16,072	15,001	1,438
Maple Uplands and Kettles, Candidate Life Science ANSI	17,424	16,502	1,438
East Don River Headwater Wetland Complex (PSW)	1,294	486	1,205
Unevaluated Wetland	0	664	0

Designated Natural Area	Area of Permanent Loss (m^2)	Area of Negative Impact (m^2)	Harmful Alteration (m^2)
Oak Ridges Moraine Conservation Plan - Countryside Area	36,620	3,311	0
Oak Ridges Moraine Conservation Plan - Natural Core Area	23,102	16,158	1,438
Oak Ridges Moraine Conservation Plan - Natural Linkage Area	3,689	2,640	0
Oak Ridges Moraine Conservation Plan - Settlement Area	65,820	10,141	0

It should be noted that while impacted areas are quantified per designated area, many of the designated areas overlap with one another, and thus impacts overlap. Therefore, totaling the impacts wouldn't be representative of the overall impacts.

Although the permanent impacts associated with the proposed work may appear relatively minor given the amount of available area as a whole, the severance and discontinuity of these designated natural areas by introducing a roadway into them are anticipated to affect the overall functions of these designated areas, particularly by constricting and restricting wildlife movement.

Life Science Maple Uplands & Kettle Wetlands and Earth Science Oak Ridges Moraine Maple Spur Areas of Natural and Scientific Interest

Within the *Inventory of the Life Science Maple Uplands & Kettle Wetlands and Earth Science Oak Ridges Moraine Maple Spur Areas of Natural and Scientific Interest, City Of Vaughan, Ontario* (MNR 2000) it is recommended that no further development should occur in the ANSI, and that appropriate buffers from development be set aside to ensure that all ecological functions of the ANSI are maintained. It is also recommended that the corridor connecting the ANSI's forests and kettle wetlands to the East Don

valley system be maintained, and strengthened, and that natural corridors also be maintained and protected between the ANSI and the surrounding kettle wetlands to ensure wildlife passage is maintained. Since the proposed Teston Road project will result in development within the ANSI, permanent fragmentation and loss of natural corridors along the East Don River, and permanent restrictions to wildlife movement, these objectives within the Inventory of the *Life Science Maple Uplands & Kettle Wetlands and Earth Science Oak Ridges Moraine Maple Spur Areas of Natural and Scientific Interest, City Of Vaughan, Ontario* (MNR 2000) will not be met, and the ecological function of the ANSI as a natural wildlife corridor conducive to wildlife movement may be permanently impaired.

Provincially Significant East Don River Headwater Wetland Complex

Within the *Provincially Significant East Don River Headwater Wetland Complex Summary* (GEM 2019) it is stated that major wetland functions need to be maintained at the East Don River Headwater Wetland Complex, including: its diversity of wetlands, its diversity of species, its groundwater seeps, its association of wetlands and uplands, and its wildlife corridors. Wildlife corridors in the East Don wetlands need to be maintained, and strengthened, as studies have shown the importance of wildlife corridors in maintaining diversity and resiliency in an ecosystem. Since the proposed Teston Road project will result in permanent loss of PSW areas as well as permanent impairment and loss of wildlife corridors along the East Don River, and permanent restrictions to wildlife movement, this objective within the *Provincially Significant East Don River Headwater Wetland Complex Summary* (GEM 2019) will not be met.

Oak Ridges Moraine

According to the *Oak Ridges Moraine Conservation Plan* (Ontario 2017), Natural Core Areas protect those lands with the greatest concentrations of key natural heritage features which are critical to maintaining the integrity of the moraine as a whole. Only existing uses, agricultural uses, and very restricted new resource management, low intensity recreational, home businesses, and infrastructure (such as new roadways)

uses are allowed in these areas. Natural Linkage Areas protect critical natural and open space linkages between the Natural Core Areas and along rivers and streams. The only uses that are allowed within Natural Linkage Areas are those allowed in Natural Core Areas (i.e., existing uses, agricultural uses, and very restricted new resource management, low intensity recreational, home businesses, and infrastructure uses), plus some aggregate resource operations. Countryside Areas provide an agricultural and rural transition and buffer between the Natural Core Areas and Natural Linkage Areas and the urbanized Settlement Areas. Uses typically allowed in agricultural and other rural areas are allowed here to support agriculture and the rural economy. Existing public service facilities in Countryside Areas should be maintained and adapted to meet the needs of the community, where feasible. Policies on creating and developing new lots in Natural Core Areas, Natural Linkage Areas and Countryside Areas are very restrictive. ORM Settlement Areas reflect a range of existing communities planned by municipalities to reflect community needs and values. Urban uses and development (as set out in municipal official plans) are allowed within Settlement Areas.

Given that undertaking construction of the Technically Preferred Alternative will result in a permanent loss of 36,620 m^2 (3.66 ha) of ORM Countryside Area, 23,102 m^2 (2.31 ha) of ORM Natural Core Area, 3,689 m^2 (0.37 ha) of ORM Natural Linkage Area, and result in harmful alteration to 1,438 m^2 (0.14 ha) of ORM Natural Core area as well as additional negative impacts in these ORM protected areas (Table 9), and long-term fragmentation of these areas, the project is not conducive to the objectives within the ORM Conservation Plan, such as maintaining the integrity of the ORM as a whole, maintaining natural and open space linkages, or maintaining buffers between Natural Core Areas and Natural Linkage Areas and the urbanized Settlement Areas. However, infrastructure, such as new roadways, is a permitted use within these lands, subject to demonstration of the need for the project and that there is no reasonable alternative, and contingent upon demonstration that the planning, design and construction practices adopted will keep any adverse effects on the ecological integrity of the Plan Area to a minimum, the design practices adopted will maintain, and where possible improve or

restore, key ecological and recreational linkages, and that the long-term landscape management approaches adopted will maintain, and where possible improve or restore, the health, diversity, size and connectivity of the key natural heritage feature (Ontario 2017). The IEA process will address these requirements.

6.2.2 Vegetation and Terrestrial Habitat

Based on the preliminary designs, it is anticipated that the proposed project will result in a total permanent loss of approximately 155,118 m^2 (15.51 ha). Of this, 59,565 m^2 (5.96 ha) will be within existing vegetation communities, while the remaining 95,553 m^2 (9.56 ha) will be within existing cultural communities and constructed areas. An additional negative impact of 33,896 m^2 (3.39 ha) will be required for construction. Of this, 25,405 m^2 (3.39 ha) will occur within existing vegetation communities, while the remaining 8,491 m^2 (8.49 ha) will be within existing cultural communities and constructed areas. Negative impacts within vegetation communities are expected to be temporary, as these are areas where removal of vegetation and habitat will occur, but, following construction, vegetation can be replaced and re-establish. An additional 1,437 m^2 (0.14 ha) of vegetation will be within an area of harmful alteration, and this habitat will be impaired. As shown in Table 10, the majority of the project impacts are within already developed cultural communities/constructed areas versus within naturalized vegetation communities.

Table 10 Areas of Impact per ELC Community

Communities	ELC Classification	ELC Code	L-rank	Area of Permanent Loss (m^2)	Area of Negative Impact (m^2)	Area of Harmful Alteration (m^2)
Vegetation Communities	Treed Hedgerow	CUH1-A	L5	315	293	0
	Native Forb Meadow	CUM1-A	L5	33,808	2,662	0
	Exotic Cool Season Grass	CUM1-B	L+	1,620	0	0
	Exotic Forb Old Field Meadow	CUM1-C	L+	4,733	2,418	0
	Hybrid Poplar Deciduous Plantation	CUP1-4	L+	5	0	0
	White Pine Coniferous Plantation	CUP3-2	L5	72	0	0
	Mixed Conifer Coniferous Plantation	CUP3-H	L5	73	466	0

Communities	ELC Classification	ELC Code	L-rank	Area of Permanent Loss (m^2)	Area of Negative Impact (m^2)	Area of Harmful Alteration (m^2)
	Native Cultural Woodland	CUW1-A	L5	3,711	4,620	0
	Native Deciduous Cultural Woodland	CUW1-A3	L5	253	1,235	0
	Exotic Cultural Woodland	CUW1-B	L+	0	133	0
	Fresh-Moist Hemlock Coniferous Forest	FOC3-1	L4	544	138	0
	Fresh-Moist Hemlock – White Pine Coniferous Forest	FOC3-A	L3	0	1,528	0
	Fresh-Moist Poplar Deciduous Forest	FOD8-1	L5	2,410	1,806	97

Communities	ELC Classification	ELC Code	L-rank	Area of Permanent Loss (m^2)	Area of Negative Impact (m^2)	Area of Harmful Alteration (m^2)
	Dry-Fresh Poplar Deciduous Forest	FOD3-1	L3	5,476	5,506	0
	Dry-Fresh Hardwood – Hemlock Mixed Forest	FOM3-1	L3	5,030	2,836	0
	Fresh-Moist White Pine – Sugar Maple Mixed Forest	FOMA-A	L3	102	486	0
	Jewelweed Mineral Meadow Marsh	MAM2-9	L4	1,065	54	823
	Narrow-leaved Cattail Mineral Shallow Marsh	MAS2-1B	L5	149	1,224	0

Communities	ELC Classification	ELC Code	L-rank	Area of Permanent Loss (m^2)	Area of Negative Impact (m^2)	Area of Harmful Alteration (m^2)
	Duckweed Floating-leaved Shallow Aquatic	SAF1-3	L4	23	0	52
	White Cedar - Conifer Mineral Coniferous Swamp	SWC1-2	L3	176	0	465
			Total Area	59,565	25,405	1,437
Cultural Communities/Constructed Areas	Constructed Green Lands	CGL	N/A	984	500	0
	Commercial and Institutional	CVC	N/A	1,0816	945	0
	Transportation and Utilities	CVI	N/A	62,259	950	0
	Residential	CVR	N/A	2,755	395	0
	Low Density Residential	CVR-1	N/A	3,493	1,634	0

Communities	ELC Classification	ELC Code	L-rank	Area of Permanent Loss (m^2)	Area of Negative Impact (m^2)	Area of Harmful Alteration (m^2)
	High Density Residential	CVR-2	N/A	2,875	76	0
	Single Family Residential	CVR-3	N/A	9,622	2,247	0
	Rural Property	CVR-4	N/A	1,349	1,724	0
	Annual Row Crop	OAGM1	N/A	1,400	20	0
			Total Area	95,553	8,491	0

In addition to physical removal of vegetation both permanently and temporarily, as shown in Table 10 above, post-construction impacts to vegetated areas along the new and widened Teston roadway may also include increases in run-off, soil erosion, sedimentation, and pollution such as excess salts. Increased edge impacts may also occur, such as an increased potential for introduction of invasive species into areas alongside the roadway. Although many of these impacts can be reduced through considerations within the design plans and/or mitigation and avoidance measures, they cannot be entirely prevented from increasing from current conditions (i.e., with no roadway present within the river valley and no widening along the existing sections of Teston Road).

6.2.3 Rare and Species at Risk, Wildlife and Wildlife Habitat

As discussed within Section 5.2.3, the majority of wildlife observed are considered species of Conservation Concern by the TRCA, and numerous SAR were determined to be present, attesting to the high quality and diversity of habitat present for wildlife.

Both negative and permanent impacts to wildlife habitat will occur through vegetation clearing and habitat loss resulting from the project, as detailed in Table 10. Migratory and breeding birds will lose stopover, foraging and nesting habitat within vegetated areas being cleared permanently as well as in the interim in a larger area (i.e., negative impact areas) until planted areas can re-establish. Mammals will lose feeding and denning or roosting sites, and herpetofauna may lose hibernation and overwintering or breeding sites or lose freedom of movement between these important seasonal habitat types, both permanently and in the interim in a larger area (i.e., negative impact areas). Both mammals and herptiles will be susceptible to road mortality where they have not previously, due to construction of a new roadway throughout the existing intact and undisturbed forest and wetland tracts along the East Don River. Construction of the new roadway also introduces habitat fragmentation and reduces the connectivity of habitats, mainly for mammals and herpetofauna, by funneling wildlife to dedicated crossing points

along the road, such as under the bridge or through a wildlife crossing. Both birds and mammals are also likely to experience permanent impacts associated with the new roadway as a result of loss of interior forest habitat, and newly introduced forest edge impacts, such as the increased potential for the introduction of invasive species.

In addition, the construction activities will generate nuisance effects in the surrounding area, such as heavy equipment traffic and increased noise, dust, and vibrations, which could adversely affect wildlife and migratory birds, though these impacts will be temporary. However, in the long term, all wildlife in the vicinity will experience some level of permanent disturbance post-construction due to newly introduced roadway noise, frequent human presence and increased human access, and artificial lighting into the area. Although many of these impacts can be reduced through considerations within the design plans and/or mitigation and avoidance measures, they cannot be entirely prevented from increasing from current conditions (i.e., with no roadway present within the river valley and no widening along the existing sections of Teston Road). However, despite the anticipated project impacts, it is anticipated that, given the scale of the proposed work, habitat for the majority of wildlife species detected will remain present, following completion of the project.

In terms of SAR, six were detected or were determined to have potential habitat in proximity to the project as detailed in Table 7. The provincial SCA, 2025 prohibits killing, harming or capture of EXT, END, or THR species that are listed in O.Reg. 60/26 under the Act. The SCA also prohibits damage to, or destruction of their habitats. Impacts anticipated for each of the six SAR, and previous 11 SAR (now SOCC), as detailed in Table 7 are summarized below.

Bank Swallow

Neither Bank Swallows nor their habitat have been identified to date. However, there is the potential for this species to arrive on site following commencement of construction activities, as they are attracted to nesting in loose soils on exposed vertical faces, such as those resulting from construction of embankments, excavations, or stockpiles of



soils. This species will not be impacted by the project, but creation of suitable habitat should be prevented during construction.

Barn Swallow

Barn Swallows have been observed foraging in nearby wetlands and in meadows extending into the project limits, though they have not been identified nesting within the proposed project limits. Construction of a new road and widening of the existing roads will result in a minimal loss of foraging habitat for this species. However, as Barn Swallows are aerial foragers and only use above-ground habitat for foraging, and since the majority of foraging habitat for this species will remain available following completion of the project, there will be no permanent impacts to foraging opportunities for this species. Currently, no impacts to nesting Barn Swallows are anticipated as a result of the proposed work, although there is potential for this species to commence nesting in existing suitable structures (i.e., culverts). In addition, the Teston Road project may in fact benefit Barn Swallows by introducing new structures into the area such as culverts and the proposed bridge over the East Don River, thus providing new nesting opportunities.

Bobolink, and Eastern Meadowlark

Bobolink and Eastern Meadowlark have been confirmed present and breeding within the native forb meadow (CUM1-A) communities within the landfills. While there are existing gravel roads and footpaths through the landfills, access is limited and the level of disturbance to nesting Bobolinks and Eastern Meadowlarks is currently low. This will no longer be the case after introduction of a major roadway into the area, and increased noise during and after construction may further reduce useable habitat for these species, by reducing the distance at which breeding calls can be heard (thereby reducing breeding success), and/or by increasing agitation of these birds during breeding. In addition, the creation of a multi-lane road through the middle of this habitat could potentially result in introduction of invasive species and/or non-grassland species during or following construction, resulting in a further loss of habitat for Bobolinks and

Meadowlarks. Currently, despite a small permanent loss in area available for breeding, this loss of habitat is not anticipated to affect nesting Bobolinks or Eastern Meadowlark provided that large enough tracts of native forb meadow (CUM1-A) communities remain. However, under current legislation, actions for Bobolink and Eastern Meadowlark are required under the ESA due to the proposed impacts to habitat for these species; refer to Section 8 for discussion on future commitments for the project, including ESA requirements. Based on the preliminary designs, it is anticipated that the area of SAR grassland bird habitat (Native Forb Meadow – CUM1-A) impacted by the Technically Preferred Alternative will be 34,671 m^2 (3.47 ha), of which 32,383 m^2 (3.24 ha) will be permanent.

Grasshopper Sparrow

Although Grasshopper Sparrow has not been detected and is not currently present in proximity to the project, there is potential for this species to commence nesting at or near any of the locations where Bobolink and/or Eastern Meadowlark were observed.

Eastern Wood-Pewee and Wood Thrush

Eastern Wood-pewee and Wood Thrush have been confirmed present and breeding within several forested and treed communities along the East Don River. While there are existing footpaths through the forests, access is limited and the level of disturbance to Wood-Pewees and Wood Thrushes is currently very low. This will no longer be the case after introduction of a major roadway into the area, and increased noise during and after construction may further reduce useable habitat for these species, by reducing the distance at which breeding calls can be heard (thereby reducing breeding success), and/or by increasing agitation of these birds during breeding. In addition, the creation of a multi-lane road through the middle of this habitat could potentially result in introduction of invasive species and/or non-forest species during or following construction, resulting in a further loss of habitat for Eastern Wood-pewee and Wood Thrush. Currently, despite a small permanent loss in area available for breeding, this loss of habitat is not anticipated to affect nesting Eastern Wood-pewee or Wood Thrush provided that large



enough tracts of forest communities remain. As these species are listed as Special Concern, no actions under the ESA are required for the proposed impacts on habitat for these species.

Monarch

The native forb meadow (CUM1-A) communities have been found to provide suitable nectaring and breeding habitat for Monarchs, and Monarchs were observed within this community. Nectaring habitat is also present for Monarchs throughout the area, wherever flowering plants are present, such as in residential gardens, wetlands, etc. The proposed work will minimally reduce the amount of available nectaring and breeding habitat for this species. However, given the scale of the proposed work relative to the local abundance of breeding habitat (i.e., areas of Common Milkweed) and nectaring habitat (i.e., areas of flowering plants) the project is not anticipated to permanently impact this species. As Monarch is listed as Special Concern, no actions under the ESA are required for the proposed impacts on habitat for this species.

Butternut

Butternut is listed as Endangered under the SCA. To date, three butternuts have been documented in the vicinity of the project during field investigations. Of these, one has been removed as a result of tree clearing for another project along the proposed alignment of Teston Road, west of Dufferin Street. The remaining two are located within 120 m of the proposed site plan. However, both of these butternuts are located greater than 50 m away from the proposed work, therefore no impacts to butternuts or their habitat are anticipated as a result of the proposed project.

Black Ash

Black ash has been previously recorded in the area, during the Year 2 surveys, within the White Cedar – Conifer Mineral Coniferous Swamp (SWC1-2) community (near BBS 13). As of March 30, 2026, black ash was listed as Endangered under the SCA. No

black ash trees are currently present within the proposed work limits, therefore no impacts to this species are anticipated as a result of the proposed project.

Bat Species at Risk

Eastern Small-footed Myotis, Little Brown Myotis, Northern Myotis, Tri-colored Bat, Hoary Bat (*Lasiurus cinereus*), Silver-haired Bat (*Lasionycteris noctivagans*), and Eastern Red Bat *(Lasiurus borealis*) are listed as Endangered under the SCA. As 86 potential maternity roost trees for bats have been documented within numerous treed and forest communities, as per Phase II: Identification of Suitable Maternity Roost Trees of The Protocol, there is potential suitable habitat for these species. Phase III: Acoustic Surveys of The Protocol have not been undertaken and so presence/absence of these species has not yet been assessed. However, based on the quality of the habitat identified, it is likely that one species or more of SAR bats are present. Based on the current design, permanent impacts to SAR bats, if present, and their habitat will include clearing of treed and forest habitat resulting in a loss of roosting locations, fragmentation of what is currently a continuous tract of habitat and loss of interior habitat, potential introduction of invasive and/or non-forest species due to imposed edge impacts, and an increase in noise and disturbance, both during and after construction, which may further reduce useable habitat for bats if they are unable to forage or roost effectively in areas with increased noise and disturbance. If SAR bats are determined to be present, under current legislation, actions for these species would be required under the CSA due to the proposed impacts to their habitat; refer to Section 8 for discussion on future commitments for the project, including SCA requirements.

Blanding’s Turtle

Blanding’s Turtles are listed as Threatened under the SCA. Although this species has not been confirmed, as they are not highly detectable and are highly mobile, there is potential for Blanding’s Turtle to be present since suitable habitat is available along the East Don River, within wetlands, swamps, and adjacent upland areas for nesting and migration between seasonal habitat types. As this species is known to travel long



distances over land to move between over wintering, summer, and nesting sites, construction of a roadway through a continuous tract of undisturbed habitat may create a barrier to Blanding's Turtle movement and introduce the threat of road mortality. If Blanding's Turtles are determined to be present, under current legislation, actions for this species would be required under the SCA due to the proposed impacts to habitat for this species; refer to Section 8 for discussion on future commitments for the project, including SCA requirements.

Eastern Ribbonsnake

Although this species has not been confirmed, as they are not highly detectable and are highly mobile, there is potential for Eastern Ribbonsnake to be present since suitable habitat is available within wetlands, treed habitats, and forest communities. Introduction of a major roadway (i.e., Teston Road) into the area would remove habitat for this species, fragment what is currently a continuous tract of habitat, introduce the threat of road mortality, and restrict movement of this species.

Snapping Turtle

Snapping Turtles have been confirmed present in proximity to the project, and suitable habitat for this species exists along the East Don River within wetlands, swamps, and adjacent upland areas for nesting and migration between seasonal habitat types. As this species is known to travel long distances over land to move between over wintering, summer, and nesting sites, construction of a roadway through a continuous tract of undisturbed habitat will create a barrier to Snapping Turtle movement and introduce the threat of road mortality; this is the largest permanent impact to Snapping Turtles resulting from the proposed project although permanent impacts within wetland communities are also anticipated (Table 10).

6.2.4 Significant Wildlife Habitat

As discussed within Section 5.2.4, the project area contains confirmed and potential provincially SWH for numerous species. A detailed assessment of SWH within the project area can be found in Appendix G. Based on this assessment, the following SWH types have been confirmed present or are candidate:

- Seasonal Concentration Areas of Animals
    - Shorebird Migratory Stopover Area (Candidate)
    - Raptor Wintering Area (Candidate)
    - Bat Maternity Colonies (Candidate)
    - Turtle Wintering Areas (Candidate)
    - Reptile Hibernaculum (Candidate)
    - Colonially-Nesting Bird Breeding Habitat (Trees/Shrubs) (Candidate)
- Specialized Habitat for Wildlife
    - Waterfowl Nesting Area (Candidate)
    - Bald Eagle and Osprey Nesting, Foraging and Perching Habitat (Candidate)
    - Woodland Raptor Nesting Habitat (Candidate)
    - Turtle Nesting Areas (Candidate)
    - Seeps and Springs (Candidate)
    - Amphibian Breeding Habitat (Woodlands) (Candidate)
    - Amphibian Breeding Habitat (Wetlands) (Candidate)
    - Woodland Area Sensitive Bird Breeding Habitat (Candidate)
- Habitats for Species of Conservation Concern
    - Marsh Breeding Bird Habitat (Candidate)
    - Open Country Bird Breeding Habitat (Confirmed)
    - Special Concern and Rare Wildlife Species (Confirmed)
- Animal Movement Corridors
    - Amphibian Movement Corridors (Candidate)

Based on the proposed project plans, it is anticipated that the majority of candidate and confirmed SWH identified will persist upon completion of the project, as most habitat types will remain available in the area in abundance and will remain accessible to wildlife. However, there are several exceptions where SWH may be permanently impacted, as described below.

Seasonal Concentration Areas of Animals – Reptile Hibernacula (Candidate)

Two (2) Eastern Gartersnakes were previously observed basking together along a pathway running east to west within the Dry-Fresh Hardwood – Hemlock Mixed Forest (FOM3-1) community located directly east of the Vaughan and City of Toronto landfills, east of Keele Street. Given the time of year that these snakes were observed and the suitability of the surrounding habitat features, it is likely that a potential hibernaculum for snakes was located in the vicinity of this observation, though the threshold required to meet the criteria of SWH was not reached. As the proposed alignment for the Teston Road extension will run directly through the location of this observation, if a hibernaculum is present in the vicinity, it may be directly and permanently impacted by construction of the roadway or may no longer be accessible to snakes as a result of the road.

Specialized Habitat for Wildlife – Woodland Raptor Nesting Habitat (Candidate)

Raptors require large tracts of forest with interior forest habitat (i.e., forest habitat > 200 m from a forest edge). As the proposed Teston Road project will fragment the forest habitat along the East Don River, resulting in a loss of interior forest habitat, the remaining forest in the vicinity of the project may no longer be suitable for Woodland Raptor Nesting.

Specialized Habitat for Wildlife – Seeps and Springs (Candidate)

Seeps have been recorded in headwater areas within the project limits, although the scale and extent of these features are unknown and so the criteria for this SWH could not be confirmed. As the proposed alignment for the Teston Road extension will run

directly through the headwaters of the East Don River, if seeps are present in the vicinity they may be directly and permanently impacted by construction of the roadway. As detailed design progresses, additional assessments of groundwater seeps and springs should be undertaken to refine the understanding of how the project is likely to affect headwater drainage features and associated wetlands.

Specialized Habitat for Wildlife – Woodland Area Sensitive Bird Breeding Habitat (Candidate)

Woodland Area Sensitive Birds require large tracts of forest with interior forest habitat (i.e., forest habitat > 200 m from a forest edge). As the proposed Teston Road project will fragment the forest habitat along the East Don River, resulting in a loss of interior forest habitat, the remaining forest in the vicinity of the project may no longer be suitable for Woodland Area Sensitive Bird Breeding.

Habitats for Species of Conservation Concern – Open Country Bird Breeding Habitat (Confirmed)

Open Country Breeding Birds require large, undisturbed tracts of grasslands or meadows. As the proposed Teston Road project will fragment the meadow habitat east of the East Don River, resulting in a loss of interior meadow habitat, the remaining meadows in the vicinity of the project may no longer be suitable for Open Country Bird Breeding.

Habitats for Species of Conservation Concern – Amphibian Movement Corridors (Candidate)

Given that amphibians are known to travel long distances over land to move between breeding wetlands and hibernation sites seasonally, construction of a roadway through a continuous tract of wetlands and adjacent upland habitats will result in creation of a barrier to Amphibian Movement Corridors and introduce the threat of road mortality to amphibian populations.

6.3 Cumulative Effects

Urban development can result in considerable cumulative effects on local wildlife habitat through the progressive loss, degradation, and fragmentation of natural areas. While individual developments may affect relatively small areas, the combined impact of multiple projects over time can significantly reduce the quantity and connectivity of habitats available to wildlife. As natural landscapes are converted to residential, commercial, transportation, and infrastructure uses, wildlife populations can become increasingly isolated within smaller habitat patches. This fragmentation can limit access to food, shelter, breeding sites, and seasonal movement corridors, resulting in reduced genetic diversity, increased mortality from road crossings, and diminished resilience of wildlife populations to environmental stressors (Turner et al. 2015).

The cumulative effects of urbanization also alter ecological processes that sustain habitat quality. Increased impervious surfaces such as roads, parking lots, and buildings modify natural hydrologic cycles by increasing surface runoff, reducing groundwater recharge, and contributing contaminants to adjacent natural systems. Elevated levels of noise, artificial lighting, human activity, domestic predators, and invasive species can further degrade habitat suitability, causing sensitive species to avoid otherwise functional habitat areas. Over time, these stressors can contribute to the establishment of disturbance-tolerant and generalist species and result in declines in species that require larger and less disturbed habitat areas, and/or specialized environmental conditions (MNR 2000b; Turner et al. 2015).

Fish habitat and hydrology is similarly affected by the cumulative impacts of urban development throughout a watershed. The widespread alteration of drainage patterns and increases in stormwater runoff can contribute to channel erosion, sedimentation, elevated water temperatures, and poorer water quality in receiving watercourses. These changes can reduce the availability and quality of critical fish habitat features such as spawning substrates, pool-riffle sequences, instream cover, and riparian vegetation. When combined with barriers to fish movement, channel modifications, and the loss of



wetlands and floodplain functions, cumulative urbanization pressures can impair aquatic ecosystem function and reduce the diversity, abundance, and long-term sustainability of fish communities (TRCA 2009a; Turner et al. 2015). Where individual development projects have limited direct effects, their incremental contributions to watershed-scale stressors can result in cumulative impacts on aquatic habitat and ecosystem health.

There are several on-going development applications including proposed residential subdivision developments within the region near the IEA Study Area. Figure 9 depicts the IEA Study Area (outlined in red) and the current locations of development applications within and surrounding the IEA Study Area (data retrieved in August 2026, City of Vaughan 2026).

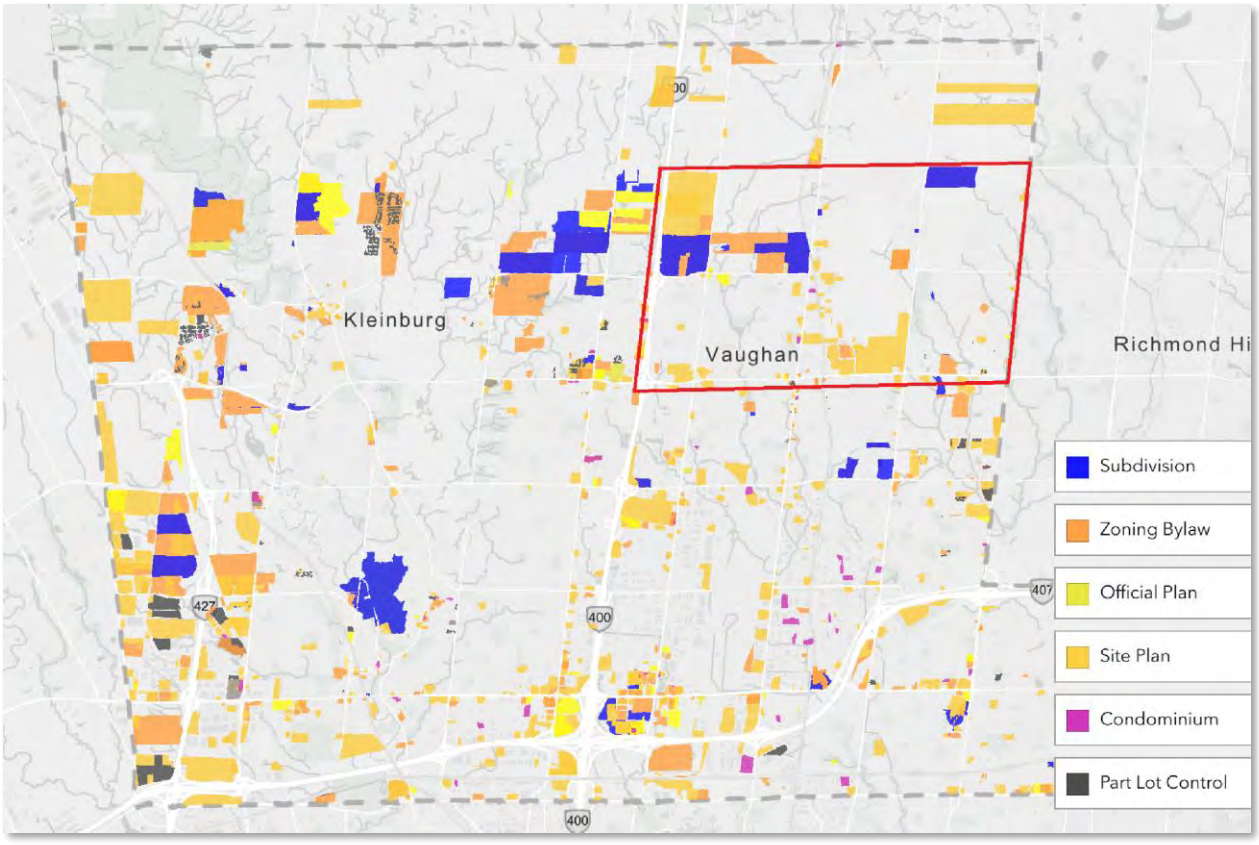


Figure 9 Ongoing Development Applications (City of Vaughan, 2026)

Further, there are additional on-going transportation projects, including the Kirby Road extension (Dufferin Street to Bathurst Street; see Figure 10) which transects the Maple Spur ANSI.

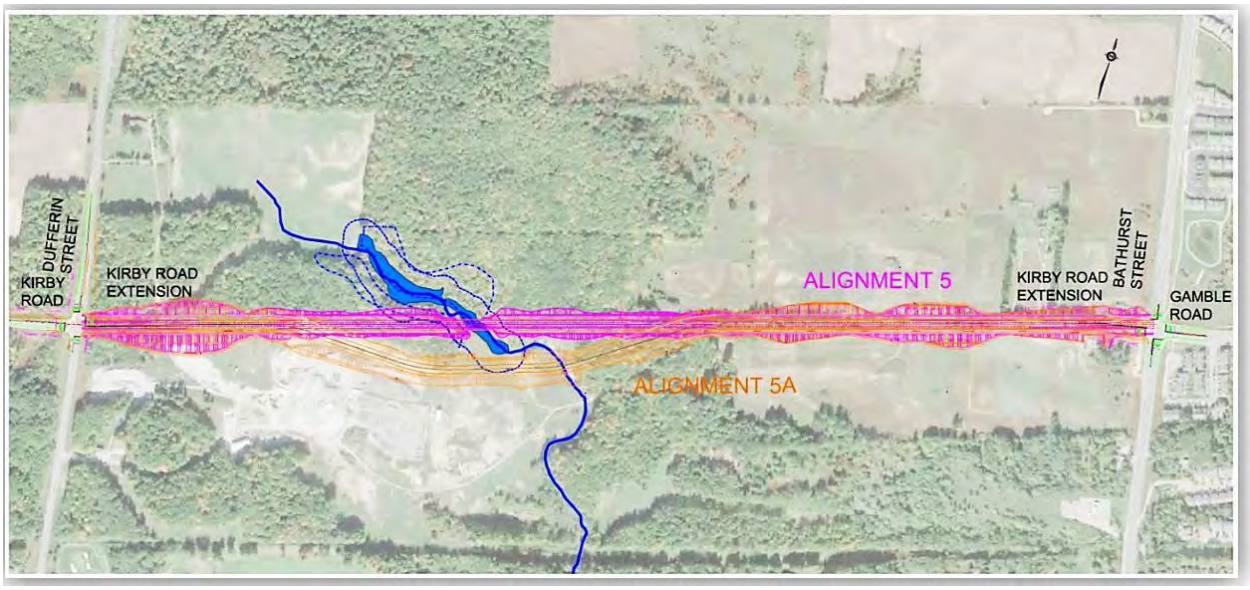


Figure 10 Kirby Road Extension Project Location (Schaeffer and Associates, 2009)

Development applications on private lands are subject to the natural heritage policies of the Provincial Planning Statement (2024) as well as municipal natural policies (e.g. buffers to natural heritage features) and project compliance with federal and provincial legislation and regulations concerning impacts to terrestrial and aquatic habitat. It is anticipated that compensation and mitigation measures are associated with these applications through the permits and approvals process concerning impacts to natural heritage.

Urbanization of the area through land development and infrastructure projects have the potential to generate negative ecological effects including habitat loss (through road widening projects and land development, including the conversion of undeveloped and agricultural lands to residential developments) as well as habitat fragmentation caused by road extensions through natural heritage features and areas, including wetlands.

7 Mitigation and Avoidance Measures

The EA was completed in accordance with the Ontario *Environmental Assessment Act* and Terms of Reference approved by the MECP. The following mitigation measures are proposed based on current legislation, regulations, and specifications, as well as on impacts to significant natural heritage features anticipated from the available design. With the exception of the recent change from the ESA to the SCA (see Section 5.2.3), the legislative and policy framework under which this assessment was completed focuses on features and areas that meet the technical criteria for significance or SAR in accordance with the Ministry of Municipal Affairs and Housing (MMAH), MNR, MECP and York Region and City of Vaughan. Limitations concerning local and cumulative impacts to species not protected under the current policy and legislative framework including fragmentation and compensation for the loss of habitat not covered under the Environmental Assessment Act (EAA), SCA, Fisheries Act or MBCA are acknowledged. It is acknowledged the absence of identified significant impacts should not be interpreted as an absence of ecological or cultural importance, but rather as a function of the criteria and boundaries used to define significance.

The project timeline is subject to change and may result in a delay between the presentation of this impact assessment, the detailed design, and the commencement of construction. During that time there is potential for changes to legislation, regulations, specifications, wildlife habitat, and wildlife presence. Therefore, mitigation measures recommended here must be reviewed, in the context of the design, and updated as necessary prior to construction.

Throughout the construction period, a monitoring program will be implemented and include adaptive environmental management strategies which will support the early identification of additional undesirable environmental effects and the development and implementation of an intervention strategy aimed at addressing such effects before they are realized. For example, adaptive management practices would include provisions for



the proper installation and regular inspection of wildlife exclusionary fencing and sediment fencing and protocols concerning encounters with wildlife or nests. The monitoring and adaptive management program is anticipated to support addressing additional potential impacts which may come to light throughout the duration of the project and which are not included in this report due to unknowns at this stage in the process.

7.1 Fish and Fish Habitat

In order to protect fish and fish habitat and reduce the risk that the construction works will not result in death of fish or HADD of fish habitat, the mitigation measures (DFO's Measures to Avoid and Mitigate Risks to Fish and Fish Habitat; DFO 2026b) as summarized below should be followed.

- Work at Site 1 will be carried out within the in-water timing window between **June 15 to September 15** when water levels are depressed and to avoid harming or killing fish or impacting their habitat during critical life stages. Future work at Site 2 will be carried out within the in-water timing window of **July 1 to September 15**, to protect Redside Dace and their habitat downstream of Teston Road.
    - Bridge and future culvert works will be carried out in the dry, within the confines of cofferdams.
    - Work area dewatering will be directed to a flat vegetated area at least 30 m from the receiving watercourse or ditchline or outlet into a filter bag (also 30 m from surface water features) to allow sediments to settle out before the water re-enters the watercourse.
- Minimize vegetation removal on the waterbody banks where possible in order to maintain shading and bank stability.
    - Stabilize disturbed banks with native seed mixture and/or cover exposed areas with erosion control measures until seeding or planting can occur.
    - Clearing shall be completed in accordance with the specifications outlined in **Ontario Provincial Standard Specification (OPSS) MUNI-201: Construction Specification for Clearing, Close Cut Clearing, Grubbing, and Removal of Surface and Piled Boulders**.

- Reinstate and stabilize banks disturbed during construction to pre-construction or better condition.
    - Exposed areas will be revegetated using a seed mix composed of native species that are appropriate for the site conditions, as per **OPSS.MUNI-804: Construction Specification for Seed and Cover**
- Grading operations must be completed as per **OPSS.MUNI-206: Grading**
    - Topsoil will be replaced after grading operations as per **OPSS.MUNI-802: Construction Specification for Topsoil**.
- Use of effective erosion and sediment control measures including topsoil and seed, sediment fence barriers, and erosion control blankets as per **OPSS.MUNI-804: Construction Specification for Seed and Cover** and **OPSS.MUNI 805 Temporary Erosion and Sediment Control Measures**.
    - Install erosion and sediment controls prior to beginning the project.
    - Regularly monitor the watercourse or water body for signs of suspended sediment during all phases of the project.
    - Take corrective action when and where required.
    - Inspect the erosion and sediment controls regularly during all phases of the project.
    - Repair the erosion and sediment controls during all phases of the project.
    - Use biodegradable materials for erosion and sediment controls whenever possible.
    - Dispose of, and stabilize, all excavated material above the ordinary high water mark or top of bank of nearby watercourses or waterbodies.
    - Use clean materials free of fines (for example, silt, clay or sand).
    - Keep the erosion and sediment controls in place until all disturbed ground has been stabilized and suspended sediments have settled.
- Operation of equipment in waterbodies or on waterbody banks shall be carried out according to **OPSS.MUNI-182: Environmental Protection for Construction in Waterbodies and On Waterbody Banks**
    - Have spill kits onsite and drip pans under all non-mobile machinery.
    - Refueling, maintenance and necessary repairs shall be carried out on a site designated for this purpose located 30 m way from any waterbody

- Heavy machinery access and staging will be limited to areas within the new ROW and along the banks of the watercourse.
- Develop a plan to prevent deleterious substances from entering a watercourse or water body.
- Maintain all machinery on site in a clean condition and free of fluid leaks.
- Wash, refuel and service machinery in such a way as to prevent any deleterious substances from entering a watercourse or water body.
- Store fuel and other materials for the machinery in such a way as to prevent any deleterious substances from entering a watercourse or water body.
- Plan activities near water such that materials (for example, paint, primers, blasting abrasives, rust solvents, degreasers, grout, poured concrete, foam, or other chemicals) do not enter a watercourse or water body.
- Ensure that building material used in a watercourse or water body has been handled and treated in a manner that prevents the release or leaching of deleterious substances into a watercourse or water body.
- Dispose of all waste materials on land in a designated area away from the ordinary high water mark of any watercourse or water body.
- Stop work and implement a response plan immediately in the event of a spill of a deleterious substance (including sediment).
- Report spill immediately when a deleterious substance enters a watercourse or water body.
- Use an emergency spill kit.
- Contain water with deleterious substances.
- Clean-up and dispose of water contaminated with deleterious substances.
- No explosives are to be used in or near water.
- Capture fish trapped within an isolated or enclosed area and relocate them to the same watercourse or water body.
- Dewater gradually to reduce the potential for stranding fish.
- Capture and relocate any fish as per applicable permits.
- Reduce impingement and entrainment of fish from water intakes when in operation.
- Reduce noise and energy during all phases of the project.

- Avoid changing flow or water level.
- Avoid obstructing or interfering with the movement and migration of fish.
- Maintain fish passage during all phases of the project.
- Maintain hydrodynamic and hydraulic conditions (meaning, flow) during all phases of the project.
- Construct roads, access points and approaches perpendicular to the watercourse or water body.
- Use methods to reduce soil compaction (for example, swamp mats, pads).
- Limit disturbance of fish habitat features (for example, aquatic plants, rocks, woody material) to the area required to carry out the project.

7.2 Terrestrial Habitat

Vegetation and Soils

As shown in **Table 10**, vegetation clearing is required as part of the proposed Teston Road project. Therefore, mitigation and restoration measures are required. It is recommended that the following measures be implemented for vegetation removals, in addition to any recommendations within MH's (now Stantec's) arborist assessment and tree preservation plan:

- All vegetation removals will be completed as per **OPSS.MUNI-201: Construction Specification for Clearing, Close Cut Clearing, Grubbing, and Removal of Surface and Piled Boulders**.
- In areas requiring only temporary disturbance and where feasible, grubbing will not be completed in order to promote more rapid regrowth of vegetation.
- Surplus material resulting from vegetation and earth removal operations should be handled as per **OPSS 180: General Specification for the Management of Excess Materials**.
- Any damaged trees not being removed shall be pruned or treated as outlined in **OPSS 801: Construction Specification for the Protection of Trees**.
- Trees and treed areas to be protected will be protected as per the *York Region Street Tree and Forest Preservation Guidelines*. It is noted that an Arborist Report and Tree Preservation Plan are being prepared by MH (now Stantec) and will address impacts to individual trees in more detail.

- Minimize vegetation disturbance wherever possible by reducing temporary working easements, limiting equipment storage areas and vehicle turning points to open areas dominated by exotic species, and reducing ROW footprints as per TRCA's *Forest Edge Management Plan Guidelines* (2004). Limits of construction shall be clearly delineated to avoid intrusion into adjacent areas.
- Areas of vegetation disturbed and requiring cover shall be planted with native species appropriate for the area and site conditions, in accordance with the *Vegetation Restoration Plan* (Section 7.2), and as per **OPSS 803: Construction Specification for Vegetative Cover and OPSS 802: Construction Specification for Topsoil**.
- To maintain soil conditions appropriate for restoring vegetation, soil should be managed as per TRCA's *Preserving and Restoring Healthy Soil: Best Practices for Urban Construction* (2012).
- The Contractor must ensure that machinery arrives on site in a clean condition and is maintained free of excess or leaking fuel, lubricants, coolant or any other contaminants for the duration of construction, as per **OPSS.PROV 182: General Specification for Environmental Protection for Construction in Waterbodies and on Waterbody Banks**.
- The limits of Designated Natural Areas (PSW and ANSIs) will be shown on the contract drawings as Environmentally Sensitive Areas, and equipment, construction, etc. will not extend beyond the work limits, into these areas.
- Stockpiling of materials shall be limited to clearly identified locations within the project footprint as per **OPSS.MUNI-180: General Specification for the Management of Excess Materials**.
- All disturbed soils will be properly contained to prevent silt and sediment from entering watercourses, ditches, and adjoining properties and lands as per using **OPSS-804: Construction Specification for Temporary Erosion Control** and **OPSS-805: Construction Specification for Temporary Sediment Control**. Erosion and sediment controls shall be frequently monitored maintained, adapted, and repaired as required to remain effective at all times.
- Vegetation should be maintained for as long as possible prior to disturbance. Excavations and removals shall be performed in such a manner and with such equipment as to leave undisturbed and undamaged any portion of an area not designated for removal/excavation or salvage. All damaged or disturbed areas shall be corrected expeditiously, in accordance with **OPSS MUNI 510: Removals**.



- A Spill Response Plan must be prepared that outlines the measures that will be implemented, such as spill kits, and drip pans under all non-mobile machinery, and must be kept on site at all times. Details pertaining to spill prevention and response for operation of machinery and storage of deleterious substances (i.e., fuel, oil etc.) shall be included in this plan to ensure adequate mitigation measures are implemented to prevent release of such substances into the adjacent waterbody or soils. All spills shall be reported to the Ministry of Environment (MOE) Spills Action Centre (1-800-268-6060) as well as to DFO and MNR Aurora District if there is potential for substantial impacts to fish or fish habitat and/or wildlife resources.
- Areas within the work limits contain two invasive plant species (common reed and Japanese knotweed) which are restricted species under Invasive Species Act Regulations (O. Reg. 354/16). Regulations for restricted invasive species include ensuring these species are not spread/deposited elsewhere into new locations. Therefore, the spread of invasive and noxious vegetation species to, from and within the work limits must be prevented.
    - Implementation of best management practices to prevent the introduction/spread of invasive plants will be required, including proper soil management and equipment clearing protocols. Guidelines outlined in the *Invasive Phragmites (Phragmites australis): Best Management Practices in Ontario*, (Nichols, 2020), *Invasive Japanese Knotweed (Raynoutria japonica): Best Management Practices in Ontario*, (Simkovic and Mitchell 2026), and Invasive Goutweed (Kendall 2021) shall be followed.
    - Debris including earth clods or invasive and noxious vegetation material attached to the outside surfaces of equipment is prohibited from entering the work limits. Equipment coming on site shall be inspected as close to the site entrance as possible for debris, and if present, debris shall be completely removed and collected for disposal, prior to the equipment proceeding to the work area
    - Surveys within the disturbance limits to delineate invasive species are required closer to commencement of the project. Where invasive species have been identified within the limits of disturbance associated with the work, these areas will be clearly marked on the contract drawings. The Contractor shall clean all vehicles and equipment exposed to invasive plants prior to leaving the site.

- Best Management Practices set forth in the *Clean Equipment Protocol for Industry* (Halloran et. al 2013), prepared by the Peterborough Stewardship Council and the Ontario Invasive Plant Council for the Canada-Ontario Invasive Species Centre and the MNR, shall be followed at all times.
- Soils from areas impacted by invasive vegetation shall not be stockpiled for reuse.
- No invasive species shall be present in fill or topsoil brought on to the site to complete the work.
- A disposal plan will be required to dispose of invasive species and soils containing invasive species. Soils containing invasive species are difficult to accommodate at some landfill facilities, as these soils are not clearly defined, and most landfills deem it a contaminated soil. Though considered a non-hazardous material, many landfill locations do not accept invasive species containing soils.

Operation of Machinery

The following mitigation measures are recommended to minimize potential for disruption to wildlife, during construction:

- All equipment shall be maintained in an operating condition that prevents unnecessary noise, including but not limited to non-defective muffler systems, properly secured components, unnecessary idling/running, and the lubrication of moving parts.
- All work will conform with York Region Noise bylaws unless an exemption is obtained.
- Night work should not occur in proximity to potential bat maternity roost trees. If night work must occur, lighting must be directed away from bat habitat areas and toward the work zone, to the greatest degree possible.
- As per **OPSS MUNI 506: Dust Suppression**, steps shall be taken as necessary to control dust resulting from operations such that it does not enter surface waters or escape beyond the working area to cause a nuisance to wildlife. Dust suppressants shall be applied in a manner that avoids ponding, runoff, drifting, and tracking of the material beyond the area of application. Dust suppressant application shall not proceed during periods of rain when the surface is in a saturated condition or on areas of ponded water. Dust suppressants, other than water, shall not be applied when weather forecasts indicate a high probability of



rainfall in order to minimize loss of the material from the intended area of application. Areas receiving rainfall within 6 hours after application may require reapplication of the material.

Designated Natural Areas

The proposed work will occur within several designated natural areas as shown in Table 9. Wherever possible, it is recommended that negative impact areas be restored to conditions similar to pre-construction conditions. Compensation plantings to offset permanent impacts to designated areas should be focused on areas connected to remaining intact habitats, or on creating additional connections to adjacent habitats, to maximize ecological function in the area; refer to Section 8 for further discussion of future commitments, including restoration and potential ecosystem compensation. MH's (now Stantec's) Arborist Assessment and Tree Preservation Plan (prepared separately) provides further detail on tree removals, tree protection, and re-planting plans. Mitigation and avoidance measures required for vegetation and soils (above) will also reduce temporary impacts within designated natural areas, during construction.

Significant Wildlife Habitat

Several confirmed and candidate SWH types have been identified and will be impacted by the project. Emphasis on restoration of suitable vegetative species in particular locations will help to ensure continuation of SWH in the area. Further surveys to confirm several SWH types are recommended, in order to better determine suitable restoration or compensation measures to reinstate lost habitat. Alternatively, SWH can be presumed to be present, and restoration/compensation can be planned accordingly (refer to Section 8 for further discussion on future commitments pertaining to SWH). Mitigation and avoidance measures required for Wildlife and Migratory Birds (below) will also reduce temporary impacts within SWH, during construction.

Wildlife and Migratory Birds

The MBCA provides legal protection to migratory birds in Canada, and prevents harm, harassment, or destruction of their young, nests, and eggs. Modernized Migratory Birds Regulations under the MBCA came into force on July 30, 2022. The new regulations, provide protection to most migratory bird nests only when they are considered to have a higher conservation value for migratory birds (i.e., when they are active or in use). However, 18 migratory bird species are listed under Schedule 1 of the Migratory Birds Regulations, and nests of these species receive protection year-round unless they have been shown to be abandoned for a specified period of time. Two Schedule 1 species, Pileated Woodpecker and Great Blue Heron, have been observed within or adjacent to the project limits, and one , Green Heron, has potential to be present as well. Therefore, further studies to determine nest locations for these species are recommended and are discussed in Section 8.

Under the FWCA 1997, a person shall not destroy, take, or possess fish or the nest or eggs of a bird that belongs to a species that is wild by nature; this Act generally applies only to birds not covered under the MBCA. The FWCA also regulates the conditions under which numerous species of fish, mammals, reptiles, amphibians, and birds can be caught or hunted, which is defined under the Act to include pursuing, chasing, capturing, harassing, injuring, or killing. The following avoidance and mitigation measures are recommended to avoid impacts to MBCA and/or FWCA protected birds as a result of the Project activities:

- Individuals, nests, eggs, or young of MBCA or FWCA protected birds shall not be disturbed or destroyed at any time.
- All vegetation and tree removal and/or clearing operations must be completed after August 31 and before April 1 of any year, outside of the breeding bird active nesting season.
    - In the event a tree removal must occur between April 1 and August 31, the Contractor must retain a Qualified Avian Specialist to conduct a survey to confirm that no nests are present, prior to clearing. Nest search surveys

are only suitable on isolated trees or in sparsely vegetated areas; they are not to be relied on as an alternative to abiding by the timing window for breeding birds.

- If a bird showing behaviour indicative of nesting (e.g., carrying nesting material, alarm calling, acting agitated, etc.) and/or nests or young birds are encountered in the work limits at any time, consultation with an Avian Specialist shall be completed, and works will not continue in the location of the observation until after August 31 (or until the area is determined by the Avian Specialist to no longer be in use by breeding birds). Species specific buffers (or setback distances) in which no work can occur may be established by the Avian Specialist surrounding nests or other observations, using guidance provided by Environment and Climate Change Canada.

To prevent impacts to other wildlife during construction, the following shall be implemented:

- A daily pre-construction search of all machinery and the work area shall be implemented to identify presence of wildlife, as animals may be found hiding or basking around equipment, rocks, debris piles etc., especially if they are displaced during construction.
- Before filling any holes or trenches, they shall be inspected for wildlife, and any trapped wildlife shall be removed and released nearby.
- Any wildlife encountered in the work area will not be knowingly harmed and shall be allowed to move away from the work area on their own. In the event that any wildlife encountered does not move away from the area or is injured, the Contract Administrator shall be notified immediately, and a Qualified Biologist should be contacted for recommendations to prevent harassment and/or harm to applicable wildlife.
- A worker awareness program shall be provided to all on-site personnel for all wildlife likely to be encountered on site, which includes species identification, habitat characteristics, and species-specific guidance with respect to appropriate actions to be taken if these species are encountered.
- The Contractor should be advised that any brush piles or soil stockpiles should be tarped or covered to ensure they do not provide nesting, denning, or hiding opportunities for wildlife, unless the intent of such brush piles or soil stockpiles is to provide intentional temporary cover for wildlife during construction.

- Wherever work in or adjacent to water (e.g., in-filling, work adjacent to wetlands or around bridge abutments, etc.) will occur, heavy duty silt fencing and turbidity curtains shall be installed within and adjacent to all turtle habitat areas, to prevent or minimize the risk of harm to turtles by physically preventing turtles from entering the work areas at any time prior to or during construction. Where work in water must occur during the peak activity period for turtles (i.e., April 1 to October 31), heavy duty silt fence and turbidity curtains shall be installed around the work limits, prior to the peak activity period (before April 1), and shall be frequently monitored and maintained for the duration of construction.
- There is potential for turtle nesting in gardens, in lawns areas, along trail systems and roadways, and on sun exposed slopes, or they can be created during construction if there are exposed soils from excavation or soil stockpiles present during the nesting season. If a nesting turtle is observed at any time (i.e., digging or sitting on a nest), the MNR shall be notified immediately, a five metre buffer zone shall be flagged around the nest site, and the area shall be protected from harm during the nesting season, unless otherwise managed (i.e., relocation or offsite incubation) with MNR's approval.
- If a turtle is sighted during construction, work will immediately stop near the turtle, and it should be allowed to move out of the work area on its own. The Contractor should immediately notify the Contract Administrator, and the Contract Administrator will be responsible for notifying the MNR for further direction.

As a result of identified potential roosting habitat (i.e., maternity roost trees) for SAR and non-SAR bats, the following mitigation and avoidance measures to avoid impacts to these species, which are protected under the FWCA and/or SCA, shall be implemented:

- No tree removals or vegetation clearing can occur in potential bat habitat areas (i.e., where potential maternity roost trees were identified) until it is first confirmed through acoustic monitoring whether SAR bats are present, and whether a permit (or other authorization) under the SCA is required for impacts to SAR bats and their habitat (refer to Section 8).
- Removals of trees that are potential bat maternity roost trees will not be permitted during the active bat season, from March 15 to November 30 of any year. All potential roost trees shall be clearly marked on the contract drawings.
- Night work should not occur in proximity bat habitat areas. If night work must occur, lighting must be directed away from bat habitat and toward the work zone, to the greatest degree possible.



Species at Risk

Numerous SAR have been identified as present or potentially present within the project limits, as described herein. Those that have been confirmed as present have a higher likelihood of being encountered during the project. If a SAR is encountered within the work limits at any time that is likely to be impacted by the operations:

- The Contractor shall immediately notify the Contract Administrator and suspend operations within the area identified by the Contract Administrator, as per **OPSS MUNI 100: General Conditions of Contract**.
- Work shall remain suspended within that area until otherwise directed by the Contract Administrator in writing, that the work can proceed; the Contract Administrator must contact a Qualified Biologist for species specific recommendations.

In addition, the following actions are anticipated for the SAR and SOCC species that have been assessed as part of the project impact assessment (Section 6).

Bank Swallow

Although Bank Swallow nesting habitat is not currently present, there is the potential for this species to arrive on site following commencement of construction activities as they are attracted to nesting in loose soils such as those resulting from construction of embankments and slopes, or those found in stockpiles of soils. If work within stockpiles or slopes is required during the breeding bird season, a slope reduction plan should be used to deter nesting by Bank Swallows, and can be achieved by:

- Sloping off stockpiles (using a bulldozer excavator etc.).
- Contouring slope faces.
- Piling materials on the face (exclusion).

Note that any slopes or parts of slopes that are not rendered unsuitable can be occupied as quickly as overnight. For work sites that are operational daily, slopes should be left at 70 degrees or less at the end of each day. Slope reduction measures should continue throughout the breeding bird season (April 1 – August 31) of any year.

Butternut

Given the locations of known butternuts currently, no specific actions are anticipated, as these trees are greater than 50 m from the proposed project limits. However, there is potential for new trees to establish at different locations before commencement of the project. If this species is identified within the project limits at a later time, appropriate actions will need to be undertaken and authorization under the SCA may need to be obtained for this species (refer to Section 8).

Black Ash

Given the locations of known black ash trees, no specific actions are anticipated, as these trees are located well beyond the proposed project limits. However, there is potential for new trees to establish at different locations before commencement of the project. If this species is identified within the project limits at a later time, appropriate actions will need to be undertaken and permitting or registration under the SCA may be required for this species (refer to Section 8).

Species at Risk Bats

Surveys for potential bat maternity roost trees have indicated that potential SAR bat habitat is present. Therefore, acoustic surveys as per Phase III: Acoustic Surveys of The Protocol need to be completed targeting potential roost locations, to determine whether SAR are present and if actions for SAR bats and authorization under the SCA are required before the project can proceed (refer to Section 8).

Blanding’s Turtle

No Blanding’s Turtles have been observed to date, though suitable habitat is available within the project limits. Therefore, it is recommended that targeted surveys be carried out to determine the presence or absence of this species. In the event that presence is confirmed, authorization or registration under the SCA may be required (refer to Section 8).

8 Summary and Future Commitments

A review of potential constraints related to terrestrial features, and fish and fish habitat was completed for the proposed Teston Road project. Background research and field studies coupled with agency consultation were used in the determination of habitat function and significance, which has resulted in identification of the following noteworthy features:

- Designated Natural Areas
- SWH
- SAR and SAR Habitat
- Rare Vegetation and Wildlife
- Important Fish Habitat
- Environmentally sensitive areas (e.g., ground water upwellings, wetlands)

Through correspondence with the MNR Aurora District, supplemented with background data review and field investigations determined that the project area contains the headwaters for the East Don River and most tributaries support fish and fish habitat. Redside Dace have been recorded by Fisheries and Oceans Canada (DFO 2026a), the MNR NHIC (MNR 2023), and GEO (GEO 2026) as occurring within multiple tributaries within the Don River East Branch. Preliminary field investigations have determined that suitable habitat for Redside Dace is present within the Don River East Branch.

Numerous terrestrial constraints have been identified within the project limits and will require appropriate mitigation and avoidance measures during construction to minimize the scale and permanency of impacts to the greatest degree possible (refer to Section 7.2). Despite implementation of mitigation and avoidance measures, the project will have permanent impacts on terrestrial wildlife and their habitat, therefore restoration and habitat compensation will be required to minimize and mitigate these impacts (refer to Section 8.2).

In consideration of the site conditions, including opportunities and constraints, the following outlines recommended future field investigations and recommendations site restoration and habitat compensation.

8.1 Recommended Future Field Surveys

Aquatic Field Surveys

During the detailed design stage it is recommended that aquatic field investigations take place to update or confirm fish habitat and aquatic conditions to ensure they are consistent with those collected in 2020 and 2022. Field investigations should include confirmation of the following at Site 1, Site 2, and Site 3:

- Watercourse thermal and flow regimes
- Determination or confirmation of fish species present
- Confirmation of in water timing windows
- Identification of specialized habitat features
- Identification of physical barriers to fish movement
- Confirmation of aquatic habitat sensitivity
- Water quality monitoring

Terrestrial Field Surveys

Based on the existing conditions documented on site to date and the impact assessment presented in this report, recommendations for additional terrestrial field surveys are outlined below. It is noted, however, that the next steps of the project as they relate to natural environment assessment will need to be conducted in accordance with up-to-date guidelines and legislation at the time of the detailed design. Legislation and listed species are periodically updated and will need to be consulted during the detailed design stage to identify any changes. The following recommendations are written based on current requirements.

- As numerous potential maternity roost trees for SAR bats have been identified, acoustic surveys per Phase III: Acoustic Surveys of The Protocol are



recommended, as soon as possible before Phase II: Identification of Suitable Maternity Roost Trees surveys need to be completed again. Acoustic surveys will confirm whether SAR bats are present in potential maternity roost trees in the area and will assist in determining whether authorization under the SCA will be required.

- As tree conditions and characteristics are subject to change (e.g., further decay, new loss of limbs or woodpecker activity creating cavities, wind blowdown, etc.), if Phase III: Acoustic Surveys of the protocol are not initiated in the next few years (~2 years), Phase II: Identification of Suitable Maternity Roost Trees of The Protocol should be completed again prior to completing Phase III, to ensure current maternity roost tree conditions are captured.
- Wetland boundaries within the project limits, particularly surrounding PSWs and wetland communities of regional conservation concern (L1-L3), should be confirmed closer to the undertaking.
- It is anticipated that an authorization from TRCA under O. Reg. 41/24: Prohibited Activities, Exemptions and Permits will be required. Mitigation measures with regard to the regulated area should be discussed with TRCA at the time of the application.
- As several potential Significant Wildlife Habitat types are present (e.g., Reptile Hibernaculum, Bat Maternity Roosting Colonies, etc.) further surveys to assess these SWH within and adjacent to the project limits are recommended. Alternatively, these SWHs can be presumed present, and planned for accordingly within the design and restoration plans.
- Due to regulation changes that came into force under the MBCA in Year 3 (2022) which have resulted in the requirement to identify nests (either active or abandoned) belonging to Schedule 1 species that may have potential nesting habitat within or adjacent to the project limits, it is recommended that surveys to confirm locations of these species' nests, if present, are completed. Schedule 1 species requiring nest searches within the Technically Preferred Alternative limits include: Pileated Woodpecker, Great Blue Heron, and Green Heron.
    - Surveys must be completed to confirm presence/absence of nests belonging to Schedule 1 species within or adjacent to the project limits, closer to commencement of the project but with enough time to complete any multi-season or multi-year surveys if required (as outlined below for abandoned nests).

    - Schedule 1 nests will be protected year-round unless they have been shown to be abandoned. In order to be considered abandoned:
        - The Minister must be notified, via an online registration, through the Abandoned Nest Registry, that the nest does not contain a live bird or viable egg; and
        - The nest must remain unused by migratory birds during the designated wait time for that species: for Pileated Woodpecker – 36 months, for Great Blue Heron – 24 months, and for Green Heron – 24 months.
- Targeted surveys to determine the presence or absence of SAR Blanding's Turtles within and adjacent to the project limits are required to determine whether actions/authorization under the SCA are required for this species.
- While there are currently no butternut or black ashe within the proposed work limits, since these species are already present in the vicinity, they can readily establish in new locations in the area over a short time period. Therefore, given the anticipated time lag before commencement of the project, there is opportunity for butternut and black ash trees to establish in new locations in the area, and presence/absence of this species may need to be reassessed. Surveys for SAR trees (butternut and black ash) are recommended within and adjacent to the project limits again, closer to commencement of the project, to determine whether these species have exploited new locations, and whether permitting or registrations under the SCA are required.
- Field investigations to confirm locations and limits of invasive species should be completed as part of the detailed design, to inform appropriate removal and management measures or best management practices for their removal and disposal.

8.2 Restoration Recommendations and Commitments

This section of this report is intended to identify restoration or compensation strategies, and opportunities for maximizing habitat at the site for wildlife in post-construction conditions. These recommendations are illustrated in Figure 11. Surveys required at the detailed design stage to support restoration and compensation plans are also identified in this section.

Design Elements

Design Impacts
- Permanent Loss
- Negative Impact
- Harmful Alteration
- Proposed Design

Recommendation 1: SAR Habitat can be developed only where appropriate mitigation and compensation measures have been developed, and where permits/authorizations under the ESA are in place. Legislation will need to be consulted during the detailed design stage to identify any changes to SAR statuses or protections, and obtain any applicable permits/approvals.

Recommendation 2: Wildlife crossing must be considered and incorporated into the design and wildlife fencing must be placed alongside the road to tie in with wildlife crossings.

Recommendation 3: Field investigations to confirm conditions in and boundaries of significant wetland features, and significant wildlife habitat must be completed closer to the time of detailed design.A Wetland and Significant Wildlife Habitat Restoration Plan will be developed. Enhancement measures implemented should consider and complement confirmed significant wildlife habitat.

Recommendation 4: Invasive species such as Common Reed (restricted), Japanese Knotweed (restricted), and Goutweed have been recorded within and adjacent to the project limits. Field investigations to confirm locations and limits of invasive species must be completed closer to the time of detailed design, to inform on appropriate removal and restoration measures. Legislation is updated on a regular basis and will need to be consulted during the detailed design stage to identify any changes to restricted species or best management practices for their removal and disposal.

Recommendation 5: A Vegetation Restoration Plan will be developed to reinstate lost vegetation within negative impact and harmful alteration areas, which includes native and high benefit vegetation species.

Recommendation 6: The use of low impact development (LID) stormwater management solutions should be investigated during project design. LIDs should be used to control untreated surface water runoff generated from the roadway from directly entering the Don headwaters.

Recommendation 7: Restoration and planting plans within and adjacent to wetlands and along the tributary can focus on improving riparian conditions and functions to improve habitat quality and water quality at the bridge as well as downstream

Recommendation 8: Opportunity to take pond off-line by rerouting the existing watercourse around the pond, improving habitat quality within watercourse for fish, while still ensuring maintenance of wetland habitat within pond for reptiles, amphibians, and other wildlife.

SAR Observed
Barn Swallow - Special Concern
Bobolink - Threatened
Eastern Meadowlark - Threatened

SAR Observed
Eastern Wood-pewee
- Special Concern

Snapping Turtle

Private Property (1600 Teston Development)

Private Property

City of Vaughan Landfill/Future Park

City of Toronto Keele Valley Landfill

City of Vaughan

Maple Uplands & Kettles

Maple Spur Channel

No Access

GERMANA PLACE

DUFFERIN STREET

TESTON ROAD

SWC1-2, FOC3-A, SWD4-3, FOD5-10, SAF1-3, MAM2-9, FOC3-1, MAM2-10, FOD5-1, CUM1-b, FOD3-1, SAF1-3, FOD8-1, SWC1-1, CUW1-A, CVR, CVR-4, SAF1-3, MAM2-9, CUM1-A, CVR-2, CUW1-A, CUP3-H, CUM1-A, FOC3-A, FOM3-1, CUP1-4, SWC1-2, SWT2-5, CUM1-A, FOD2-4

Significant Natural Heritage Features
- Potential Maternity Roost Trees for SAR Bats
- 2020 SAR Observation Locations
- Ecological Land Classification

ELC Community L Rank
- L3
- L4
- L+, L5
- Not Ranked

Other
- Property Boundaries

Breeding Bird Survey Locations
- Threatened/Endangered Species Detected
- Special Concern SAR Detected
- No SAR Detected

Land Information Ontario Data
- Watercourses
- Waterbodies

Designated Areas
- Oak Ridges Moraine Countryside Area
- Oak Ridges Moraine Natural Core Area
- Oak Ridges Moraine Settlement Area
- Significant Forests
- Environmentally Sensitive Areas
- ANSI, Earth Science
- Candidate ANSI, Life Science
- Evaluated-Provincially Significant Wetlands

NOTES:
- The area shown is within the jurisdiction of the Ministry of Natural Resources and Forestry (MNRF) Aurora District and Toronto and Region Conservation Authority Area

1:200,000

Richmond Hill, Vaughan, Maple

Coordinate System: NAD 1983 UTM Zone 17N
Sources: MNRF

MORRISON HERSHFIELD

SCALE: 1:3,000

0 10 20 40 60 80 100 120 140 160 180 200
Meters

Ecological Land Classification
- CUM1-A, Native Forb Meadow
- CUM1-b, Exotic Cool-season Grass Graminoid Meadow
- CUP1-4, Hybrid Poplar Deciduous Plantation
- CUP3-H, Mixed Conifer Coniferous Plantation
- CUT1-1, Sumac Deciduous Thicket
- CUW1-A, Native Cultural Woodland
- CVI, Transportation & Utilities
- CVR, Residential
- CVR-2, High-Density Residential
- CVR-3, Single Family Residential
- CVR-4, Rural Property
- FOC3-1, Fresh-Moist Hemlock Coniferous Forest
- FOC3-A, Fresh-Moist Hemlock - White Pine Coniferous Forest
- FOD2-4, Dry-Fresh Oak - Hardwood Deciduous Forest
- FOD3-1, Dry-Fresh Poplar Deciduous Forest
- FOD5-1, Dry-Fresh Sugar Maple Deciduous Forest
- FOD5-10, Dry-Fresh Sugar Maple - Paper Birch - Poplar Deciduous Forest
- FOM3-1, Dry-Fresh Hardwood - Hemlock Mixed Forest
- FOM3-2, Dry-Fresh Hemlock - Sugar Maple Mixed Forest
- FOM5-1, Dry-Fresh Paper Birch Mixed Forest
- MAM2-10, Forb Mineral Meadow Marsh
- MAM2-9, Jewelweed Mineral Meadow Marsh
- OAGM1, Annual Row Crop
- SAF1-3, Duckweed Floating-leaved Shallow Aquatic
- SWC1-1, White Cedar Mineral Coniferous Swamp
- SWC1-2, White Cedar - Conifer Mineral Coniferous Swamp
- SWD4-3, Paper Birch - Poplar Mineral Deciduous Swamp
- SWT2-5, Red Osier Dogwood Mineral Thicket Swamp

TITLE:

Teston IEA Valley Crossing Restoration Recommendations

PROJECT NO.: 190261800

Teston Road, Vaughan Ontario

DATE: April 2024

ENVIRONMENTAL SERVICES DEPARTMENT

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Recommendation 1 – Species at Risk

Species at Risk habitat compensation will be addressed as part of detailed design based on up-to-date site conditions and legislative requirements. Based on information gathered within the Technically Preferred Alternative limits, confirmed SAR habitat requiring compensation includes potential SAR habitat requiring compensation includes habitat for SAR bats.

Recommendation 2 – Wildlife Crossing

As wildlife movement corridors will be impaired by the project, including for White-tailed Deer, leading to increased susceptibility to road mortality and motorist collisions with wildlife, wildlife passages should be implemented in suitable locations, should be of sufficient size, and should be designed with features that facilitate wildlife movement across the roadway. A Wildlife Crossing Plan should be developed as part of detailed design. Wildlife crossing for deer, small mammals, turtles, and amphibians will be considered and incorporated into the detailed design. This will include wildlife fencing alongside the road within and adjacent to habitat for these species to tie in with wildlife crossings and encourage use by wildlife. There may be additional opportunities for wildlife crossing associated with a proposed trail connection.

Recommendation 3 – Significant Wetlands and Significant Wildlife Habitat

A Wetland and Significant Wildlife Habitat Restoration Plan should be developed to accurately characterize these areas, identify opportunities to minimize impacts, and to develop appropriate mitigation and restoration measures for any impacts in consultation with the MNR. Impacts to Significant Wetlands and Significant Wildlife Habitat will be assessed as part of detailed design based on up-to-date site conditions. Field investigations to confirm conditions in and boundaries of significant wetland features, as well as locations and limits of SWH will be completed as part of detailed design. Key considerations at detailed design, based on the results of these surveys, will be ensuring maintenance of wetland connectivity and appropriate restoration or

compensation of wetlands. Enhancement measures implemented as part of the restoration plan should consider and complement confirmed SWH within the project limits, and may include turtle nesting areas, turtle basking areas, reptile hibernacula, bat houses, duck nesting structures, and more.

Recommendation 4 – Invasive Species Removal and Management

An Invasive Species Management Plan should be developed to document up-to-date conditions and removal and management plans. Invasive species such as common reed (restricted under O.Reg 354/16), Japanese knotweed (restricted under O.Reg. 354/16), and Goutweed have been recorded within and adjacent to the project limits. Field investigations to confirm locations and limits of invasive species will be completed as part of detailed design to inform appropriate removal and management measures. Legislation is periodically updated and will need to be consulted during the detailed design stage to identify any changes to restricted species or best management practices for their removal and disposal.

Recommendation 5 – Vegetation Restoration

A Vegetation Restoration Plan will be developed to reinstate lost vegetation within negative impact and harmful alteration areas within the project footprint. Development of a Vegetation Restoration Plan will include recommendations within TRCA’s Seed Mix Guideline (2022) and be completed in consultation with the TRCA. Key measures will include planting of native species providing similar or superior benefit to wildlife than those being impacted. Where possible, restoration techniques on site should be in accordance with TRCA’s Post-Construction Restoration Guidelines (2004).

Recommendation 6 – Storm Water Management

The use of low impact development (LID) stormwater management solutions should be investigated during project design. LIDs should be used to control untreated surface water runoff generated from the roadway from directly entering the Don headwaters. As groundwater recharge and flow is important in a headwater ecosystem, LIDs should be



implemented to ensure there is no net loss of groundwater inputs to the watercourse or adjacent wetlands. A Stormwater Management Strategy that involves LID solutions has been developed and can be found in the Draft Teston Road Drainage and Stormwater Management Report, MH now Stantec 2023.

Recommendation 7 – Riparian Planting

Restoration and planting plans within and adjacent to wetlands and along the tributary should focus on improving riparian conditions and functions to improve habitat quality and water quality at the bridge as well as downstream. The section of the Don River tributary which falls within the project area is a clear, cold, headwater stream and would benefit from additional woody material and leaf litter contributions and riparian shading.

Recommendation 8 – Take Private Pond Off-line

There is an opportunity to take the existing pond [Duckweed Floating-leaved Shallow Aquatic (SAF1-3) community] off-line by rerouting the existing watercourse around the pond, improving habitat quality within the watercourse for fish, while still ensuring maintenance of wetland habitat within the pond for amphibians and other wildlife. This pond is located on private property therefore this recommendation will need to be addressed in conjunction with the adjacent property owner and developer. DFO should be consulted (i.e., through submission of a Request for Review) on any changes made to existing fish habitat, as a *Fisheries Act* Authorization may be required to complete this work. To maintain wetland functions, it is important to preserve water quality, quantity, and duration of seasonal inundation or water holding of wetlands. Alterations to water regimes could have negative impacts on wetland communities and their resident species (GEM 2019). If this recommendation is implemented, the detailed design plans will need to ensure that water quality, quantity, and seasonal inundation or water holding in the existing pond is maintained, to reduce the risk of permanent alterations to water regimes resulting in long-lasting and far-reaching impacts to wetland communities and associated wildlife.

8.3 Ecosystem Compensation Recommendations

Ecosystem compensation recommendations are quantified for permanent loss areas, in accordance with the TRCA's *Guideline for Determining Ecosystem Compensation* (2023). This approach to ecosystem compensation uses the basal area per ELC community impacted to determine the ratio of replacement required for that particular community, which can be used to calculate areas of compensation required relative to the area of each community impacted. Since it takes much longer to re-establish treed ecosystems as a result of their long development times and the impracticality of planting large, full-grown trees, this approach attempts to address the issue of lag-time in ecosystem establishment by recommending that that the loss of a mature forest (i.e., a community with a higher basal area) requires replacement with a larger forest (i.e., replacement at a higher ratio) than a non-treed community. Table 11 shows the ecosystem compensation ratios and results that are recommended to replace permanent loss areas resulting from the project, per ELC community, for all vegetated, non-cultural/non-constructed communities.

Table 11 Areas of Ecosystem Compensation Recommended per ELC Community

Communities	ELC Classification	ELC Code	Basal Area (m^2/ha)*	Replacement Ratio	Area of Permanent Loss (m^2)	Ecosystem Compensation Area Required (m^2)
Vegetation Communities	Treed Hedgerow	CUH1-A	N/A	2:1	315	630
	Native Forb Meadow	CUM1-A	5	1:1	33,808	33,808
	Exotic Cool Season Grass	CUM1-B	5	1:1	1,620	1,620
	Exotic Forb Old Field Meadow	CUM1-C	5	1:1	4,733	4,733
	Hybrid Poplar Deciduous Plantation	CUP1-4	N/A	2:1	5	10
	White Pine Coniferous Plantation	CUP3-2	N/A	2:1	72	144
	Mixed Conifer Coniferous Plantation	CUP3-H	N/A	2:1	73	146
	Native Cultural Woodland	CUW1-A	8	2:1	3,711	7,422
	Native Deciduous Cultural Woodland	CUW1-A3	22	5:1	253	1,265

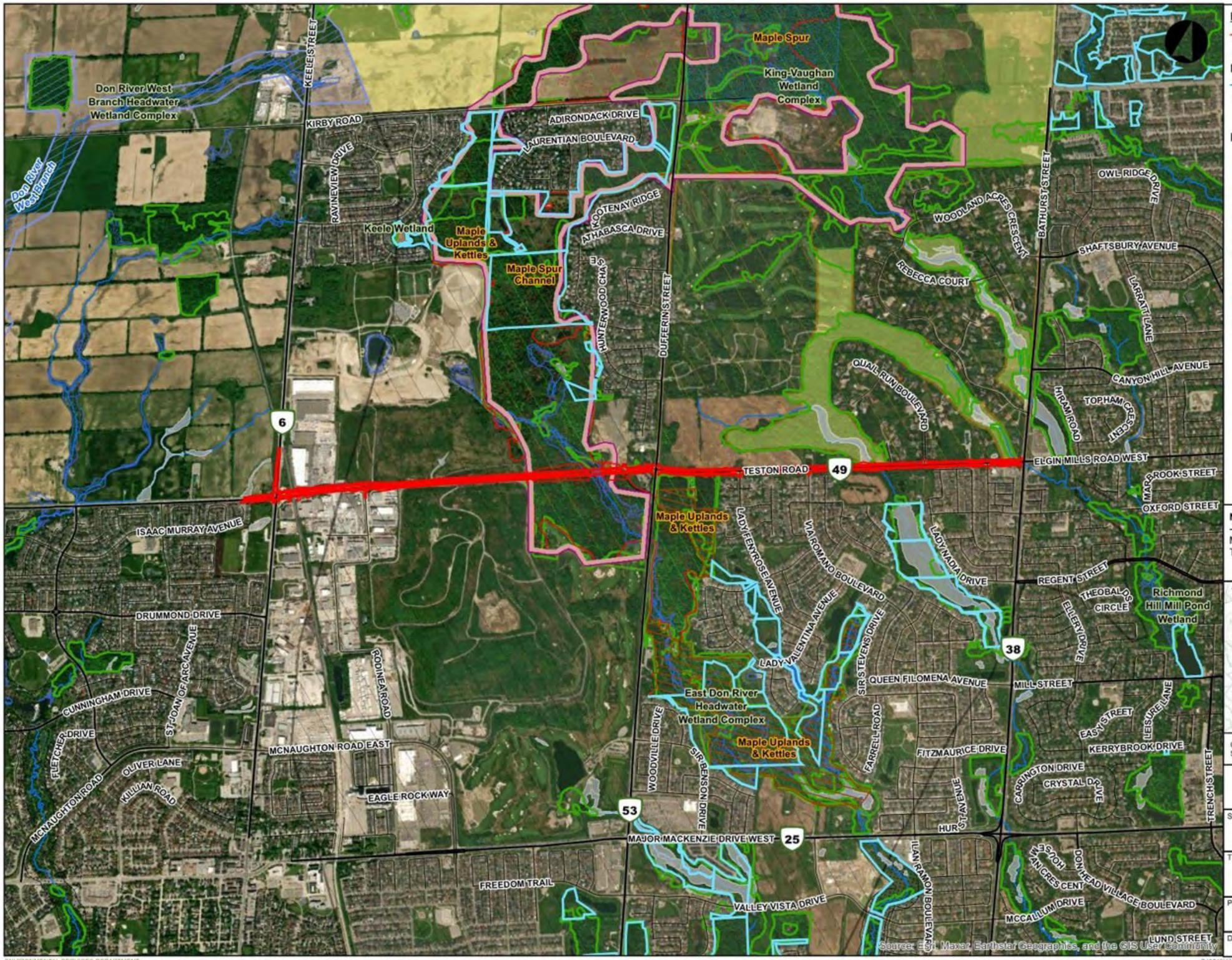
Communities	ELC Classification	ELC Code	Basal Area (m^2/ha)*	Replacement Ratio	Area of Permanent Loss (m^2)	Ecosystem Compensation Area Required (m^2)
	Exotic Cultural Woodland	CUW1-B	22	5:1	0	0
	Fresh-Moist Hemlock Coniferous Forest	FOC3-1	32	5:1	544	2,720
	Fresh-Moist Hemlock – White Pine Coniferous Forest	FOC3-A	50	5:1	0	0
	Fresh-Moist Poplar Deciduous Forest	FOD8-1	32	5:1	2,410	12,050
	Dry-Fresh Poplar Deciduous Forest	FOD3-1	32	5:1	5,476	27,380
	Dry-Fresh Hardwood – Hemlock Mixed Forest	FOM3-1	38	5:1	5,030	25,150
	Fresh-Moist White Pine – Sugar Maple Mixed Forest	FOMA-A	38	5:1	102	510
	Jewelweed Mineral Meadow Marsh	MAM2-9	18	4:1	1,065	4,260

Communities	ELC Classification	ELC Code	Basal Area (m^2/ha)*	Replacement Ratio	Area of Permanent Loss (m^2)	Ecosystem Compensation Area Required (m^2)
	Narrow-leaved Cattail Mineral Shallow Marsh	MAS2-1B	18	4:1	149	596
	Duckweed Floating-leaved Shallow Aquatic	SAF1-3	12	3:1	23	69
	White Cedar – Conifer Mineral Coniferous Swamp	SWC1-2	40	5:1	176	880
				Total Area (m^2)	59,565	123,393
				Total Area (ha)	6.00	12.34

* N/A indicates that a basal area was not available for that ELC community from the MH (now Stantec) Arborist Assessment, and a 2:1 replacement ratio was presumed given the cultural conditions associated with the site. A shaded basal area indicates that a basal area was not available for that ELC community, and a basal area from the most similar ELC community was assumed (e.g., basal area for MAS2-1B was presumed similar to MAM2-9, FOMA-A was presumed similar to FOM3-1, etc.). For all CUM communities, a basal area of 5 was applied per the *Guideline for Determining Ecosystem Compensation* (TRCA, 2023) which states that a vegetation community with few or no trees will have a basal area of 5 or less and can therefore be replaced at a 1:1 ratio.

As the foremost project impact will be fragmentation of intact forest and wetland habitats, including to the north and south of the project, and within designated natural areas, priority for compensation should be given to replacing ecosystems adjacent to the project limits. However, given that there are numerous constraints directly at the project location making compensation in the immediate area impractical, including conflicts with new and ongoing developments, conflicts with existing developed areas or with current land uses (e.g., golf courses, cemeteries, park spaces, and private land), and the need to maintain identified important habitat (e.g., SWH) , coupled with the large total area recommended to accommodate all required compensation areas (minimum of approximately 123,393 m^2 or 12.40 ha total) as shown in Table 11, one or more off-site locations, as proximal as possible to the project, will need to be considered for implementation of ecosystem compensation measures at a largescale to account for permanent habitat losses. Thus, the focus on selecting suitable sites for ecosystem compensation should be on creating new, nearby continuous habitat tracts in locations lacking vegetation, ideally within designated natural areas.

Based on a review of aerial imagery and property ownership in the surrounding area, the greatest potential for implementing compensation in locations meeting these criteria in the vicinity of the project is on TRCA owned lands of varying sizes; refer to Figure 12. The site(s) ultimately selected for compensation will depend on numerous factors, such as stakeholder and landowner agreement, future planned land use in the area(s), and the density of vegetation already at the site(s), etc. The compensation location(s) and detailed ecosystem compensation plans to offset permanent losses from the project will be determined at the detailed design stage. The offsite compensation should incorporate some enhancement and/or wetland compensation components included under Restoration Recommendation 3 – Significant Wetlands and Significant Wildlife Habitat (Section 8.2) as well if required or desired.



Legend

- Preliminary Design
- TRCA Property

Land Information Ontario Data

- Watercourses
- Evaluated-Other Wetlands
- Unevaluated Wetlands

Designated Areas

- Oak Ridges Moraine Countryside Area
- Oak Ridges Moraine Natural Core Area
- Oak Ridges Moraine Natural Linkage Area
- Oak Ridges Moraine Settlement Area
- Greenbelt: Protected Countryside
- Greenbelt: Urban River Valley
- Significant Forests
- Environmentally Sensitive Areas
- ANSI, Earth Science
- Candidate ANSI, Earth Science
- Candidate ANSI, Life Science
- Evaluated-Provincially Significant Wetlands

NOTES:

- The area shown is within the jurisdiction of the Ministry of Natural Resources (MNR) Aurora District and Toronto and Region Conservation Authority Area



Coordinate System: NAD 1983 UTM Zone 17N
Sources: MNRF

MORRISON HERSHFIELD now Stantec

SCALE: 1:20,000

0 100 200 400 600 800
Meters

TITLE:

Potential Ecosystem Compensation Areas

PROJECT NO.: 190261800

Teston Road, Vaughan Ontario

DATE: **July 2024**

ENVIRONMENTAL SERVICES DEPARTMENT

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