APPENDIX B

Natural Heritage Impact Assessment and Mitigation Report

GANNETT FLEMING

NATURAL HERITAGE REPORT IMPACT ASSESSMENT AND MITIGATION

STEVENSON ROAD NORTH ENVIRONMENTAL ASSESSMENT
CITY OF OSHAWA

prepared for:

GANNETT FLEMING

On Behalf of

Oshawa®

prepared by:

LGL LIMITED
Est. 1971
environmental research associates

JANUARY 2025

NATURAL HERITAGE REPORT IMPACT ASSESSMENT AND MITIGATION

STEVENSON ROAD NORTH ENVIRONMENTAL ASSESSMENT
CITY OF OSHAWA

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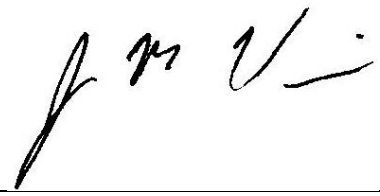

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

1.0 INTRODUCTION

The City of Oshawa is undertaking a Schedule 'C' Class Environmental Assessment (Class EA) for upgrades to Stevenson Road North from Taunton Road West to Conlin Road West. The study also includes an evaluation for the need for an east-west arterial road from the Oshawa/Whitby border to Stevenson Road North to service the Northwood Business Park or to justify its removal from the City's Official Plan. The study limits are presented on **Figure 1**.

Gannett Fleming is managing the study on behalf of the City of Oshawa. LGL Limited is providing natural heritage services on behalf of Gannett Fleming.

The purpose of this report is to provide an account of the existing natural heritage conditions within the study area based on a secondary source review and field investigations conducted by LGL biologists during the 2022 and 2023 field seasons. The site visits were conducted to survey the existing conditions pertaining to fish and fish habitat, general wildlife, breeding birds, breeding amphibians, and vegetation communities within the study area and to constraints to the proposed road improvements.

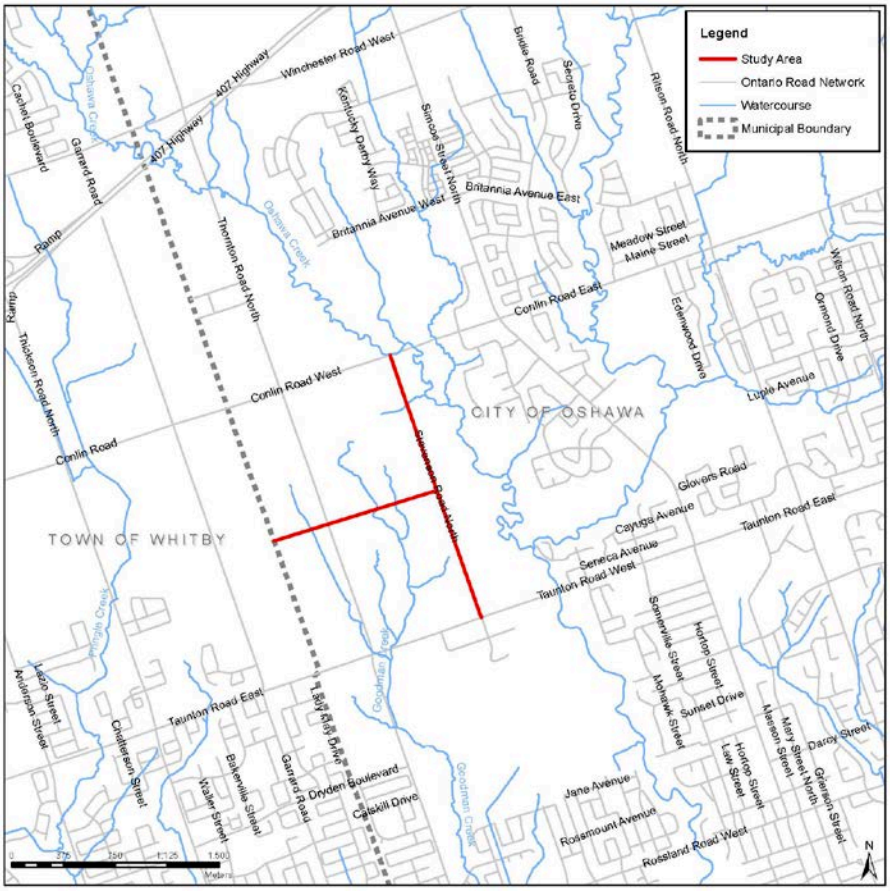


FIGURE 1. KEY PLAN

2.0 EXISTING CONDITIONS

The following discussion outlines the existing environmental conditions within the study area and identifies natural heritage areas and/or features of environmental sensitivity and/or significance.

2.1 Aquatic Habitats and Communities

The study area is located within the Oshawa Creek watershed, specifically the Upper Main and Goodman subwatersheds, which are under the jurisdiction of Central Lake Ontario Conservation Authority (CLOCA) and the Ontario Ministry of Natural Resources (MNR) Aurora District. There are two watercourses/drainage features that cross Stevenson Road North within the study area: a tributary of Goodman Creek (Crossing 1) and a tributary of Oshawa Creek (Crossing 2). In response to a data request, CLOCA states that both subwatersheds have coldwater thermal regimes (CLOCA 2022a). The Aquatic Resource Area (ARA) layers in the Land Information Ontario (LIO) database database (Ontario GeoHub; MNRF 2022a) show that the tributary of Goodman Creek (Crossing 1) has a warmwater thermal regime while the tributary of Oshawa Creek (Crossing 2) is coldwater. Both crossings are located within the CLOCA regulation limit (as is much of Stevenson Road North; **Figure 2**) and, as such, works within these areas will need permitting under *Ontario Regulation 41/24* (formerly *Ont. Reg. 42/06* Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation).

Background Data

In addition to the information received from CLOCA, LGL conducted a secondary source review to identify the fish community within the watersheds. The secondary source review included a species at risk screening though aquatic species at risk mapping (DFO 2022) and the Natural Heritage Information Centre (NHIC) database (MNRF 2022b). Background review also included the LIO Aquatic Resource Area (ARA) datasets (MNRF 2022a). LGL also reviewed the 2020 Watershed Plan Update for Oshawa Creek (CLOCA 2020). The fish species information for the watercourses compiled from these sources is presented in **Table 1**. According to background investigations, no aquatic species at risk occur within the study limits and none were observed during field work conducted for this project.

Field Investigations

LGL conducted surveys of aquatic habitat on July 11, 2022 along Stevenson Road North. The watercourses were investigated from mainly within the right-of-way as they traversed through private property. Site photographs for each of the watercourse crossings are presented in **Appendix A**. Note, the proposed east-west arterial road was not investigated in the field.

2.1.1 Crossing 1 – Tributary of Goodman Creek

Crossing 1 is located approximately 510 m north of Taunton Road West (**Figure 2**) and the crossing is comprised of a small diameter corrugated steel pipe (CSP) culvert. When flowing, the drainage feature at this location would convey water from east to west. The CSP is has been damaged (bent) at both ends which resulted in the openings being smaller than the actual diameter of the culvert. It appears to be an ephemeral drainage feature that conveys overland flows from the east roadside ditch across Stevenson Road North into a grassy swale. There is no defined channel either upstream or downstream and the feature is vegetated with terrestrial plant species (mainly grasses). Downstream the feature roughly parallels a driveway. It also conveys drainage from the west ditch during precipitation and snowmelt events. No evidence of recent water flow was observed. No fish sampling has occurred within this tributary of Goodman Creek. This drainage feature does not comprise fish habitat.

TABLE 1.
FISH COLLECTION RECORDS FROM RECEIVING WATERCOURSES WITHIN PROXIMITY TO THE STUDY AREA

Scientific Name	Common Name	Goodman Creek	Oshawa Creek	COSEWIC	SARA	ESA
Chrosomus eos	Northern Redbelly Dace	x		-	-	-
Luxilus cornutus	Common Shiner		z	-	-	-
Pimephales notatus	Bluntnose Minnow		y	-	-	-
Pimephales promelas	Fathead Minnow	x	y	-	-	-
Rhinichthys cataractae	Longnose Dace		y	-	-	-
Rhinichthys atratulus	Blacknose Dace	x	y	-	-	-
Semotilus atromaculatus	Creek Chub	x	y	-	-	-
Catostomus commersonii	White Sucker	x	y	-	-	-
Salmo trutta	Brown Trout		y	-	-	-
Oncorhynchus tshawytscha	Chinook Salmon		y	-	-	-
Oncorhynchus mykiss	Rainbow Trout		y	-	-	-
Culaea inconstans	Brook Stickleback	x		-	-	-
Cottus bairdi	Mottled Sculpin		y	-	-	-
Lepomis gibbosus	Pumpkinseed		y	-	-	-
Etheostoma nigrum	Johnny Darter		y	-	-	-

Note: x = CLOCA (2022a) collection data from four sampling sites (OB09, OB10, OB11, OB12) downstream of confluence (2000, 2007, 2017-2019)

y = CLOCA (2022a) collection data from three sampling sites upstream (OA17) and downstream (OA12, OA16) of confluence (2000, 2011, 2012, 2017-2019)

z = MNRF (2022a) collection data from ARA sites upstream and downstream (AU-008-OSH; 2013, 2018)

2.1.2 Crossing 2 – Tributary of Oshawa Creek

Crossing 2 is located approximately 370 m south of Conlin Road West (**Figure 2**). The tributary of Oshawa Creek crosses the roadway through a 900 mm diameter CSP culvert that is situated on a skew and is approximately 16 m long. Upstream (west) of Stevenson Road North, the watercourse consists of an undefined channel in a small cattail marsh within approximately 20 m of the road. Upstream of this area, the vegetation becomes dominated by shrubs and trees. The cattail marsh was dry during the site investigation and evidence of very minor flows could be seen within the culvert. This watercourse appears to flow intermittently.

Downstream, the culvert outlet is perched by 30 cm to 40 cm and there are slabs of concrete below the outlet to dissipate flows. There was a small amount of oil-stained, very shallow standing water over substrates comprised of silt and detritus. There was a narrow valley/floodplain through which the watercourse travels, but no defined channel. At the culvert the substrates were not vegetated as shading from overhanging deciduous trees was substantial. However, further downstream, the canopy thins, and herbaceous vegetation growth was robust within the floodplain.

No fish sampling has been conducted within this tributary of Oshawa Creek. The crossing location is approximately 140 m from Oshawa Creek, but it is likely that this tributary is not used by fish and is, therefore, indirect fish habitat due to its lack of flows and defined channel. Even if it could be used by fish, the perched culvert at Stevenson Road North forms a barrier to fish passage.

2.1.3 East-West Arterial Road – Goodman Creek Subwatershed

The proposed east-west arterial road from Stevenson Road North to the Whitby-Oshawa border would cross at least three watercourses within the Goodman Creek subwatershed, including Goodman Creek. No fish sampling has occurred in these watercourses in the approximate area of the proposed road, but the locations of the sampling stations from which the species listed in Table 1 are reported are closer to these watercourses than they are to Crossing 1. Therefore, it is possible that one or more of these features support direct fish habitat. In addition, their sensitivity to development is likely higher than the ephemeral drainage feature at Crossing 1 because they flow out of and through (i.e., they are part of) a relatively large provincially significant wetland (PSW; Whitby-Oshawa Iroquois Beach Wetland Complex) that constitutes a substantial portion of the lands between Stevenson Road North and the Whitby-Oshawa border. Much of this area is also designated as a Key Hydrologic Area by CLOCA (CLOCA 2020). This designation means that the area between Stevenson

Road North and the Whitby-Oshawa border is a Significant Groundwater Recharge Area, High Vulnerability Aquifer, and/or an Ecologically Significant Groundwater Recharge Area. As noted in Section 2.1 that CLOCA (2022a) reported that the watercourses in this subwatershed are coldwater, but that the ARA dataset (MNRF 2022a) has them mapped as warmwater.

2.1.4 Species at Risk

A search of the MNRF's Natural Heritage Information Centre (NHIC) records and DFO aquatic species at risk mapping indicated that there are no aquatic species at risk within study area.

2.2 Vegetation and Vegetation Communities

The geographical extent, composition, structure and function of vegetation communities were identified through air photo interpretation and field investigation. Air photos were examined to determine the limits and characteristics of vegetation communities. Field investigations of the vegetation communities within the Stevenson Road North right-of-way and beyond, to the extent possible were conducted on October 7, 2022.

Vegetation communities were classified according to the *Ecological Land Classification for Southern Ontario: First Approximation and Its Application* (Lee *et al*. 1998). The communities were sampled using a plotless method for the purpose of determining general composition and structure of the vegetation. Plant species status was reviewed for Ontario (Oldham 2009) and Durham Region (Varga 2000). Vascular plant nomenclature follows Newmaster *et al*. (1998) with a few exceptions that have been updated to Newmaster (2008).

2.2.1 Vegetation Communities

A total of seven Ecological Land Classification (ELC) community types were identified within the study area including Dry-Fresh White Pine-Maple-Oak Mixed Forest (FOM2), Dry-Moist Old Field Meadow (CUM1-1), Mineral Cultural Woodland (CUW1), Mineral Cultural Savannah (CUS1), Mineral Deciduous Swamp (SWD4), and Mineral Cultural Thicket/Mineral Swamp Thicket (CUT1/SWT2). These vegetation communities are considered widespread and common in Ontario and secure globally. These communities are delineated in **Figure 2** and are described in **Table 2**.

The study area consists largely of a mixture of cultural vegetation communities, including portions of vegetation communities that are already in a disturbed state as a result of land uses. Evidence of disturbance includes a high proportion of non-native plant species that are well adapted to persist in areas that experience regular

disturbances. This includes species that are adapted to high light conditions, limited soil moisture, and species that are tolerant of salt spray.

The natural/semi-natural features within the study area consist of wetland and forest communities. A mixed forest community was identified on the west side of Stevenson Road North and generally provided moderate quality habitat. In addition, narrow deciduous swamp communities were identified adjacent to the watercourse within the study area.

There are several areas that are not identified as ELC vegetation communities including manicured areas (M) which include mown lawns, gardens and planted trees.

2.2.2 Flora

A total of 84 plant species have been recorded within the study area. Two plant species were only identified two genus and are not included in the following calculations. Of the 81 plants identified to species, 41 (50%) plant species identified are native to Ontario and 41 (50%) plant species are considered introduced and non-native to Ontario. A list of vascular plant is presented in **Appendix B**. Definitions of the acronyms and species ranks used in **Appendix B** are described in **Appendix C**.

2.2.3 Species at Risk

No plant species that are regulated under the Ontario *Endangered Species Act* (ESA) or the Canada *Species at Risk Act* (SARA) (i.e., those plant species regulated as Endangered, Threatened, or Special Concern) were encountered during LGL's botanical investigation within the subject area. A review of the NHIC (MNRF 2022b) indicates there is one record of red mulberry (*Morus rubra*) within the study area. Red mulberry is regulated as Endangered under the ESA. Although suitable habitat for red mulberry has the potential to occur within the study area, no red mulberry individuals were identified during LGL's botanical field investigation. A description of provincial species ranks is provided in **Appendix C**.

TABLE 2.
SUMMARY OF ECOLOGICAL LAND CLASSIFICATION VEGETATION COMMUNITIES

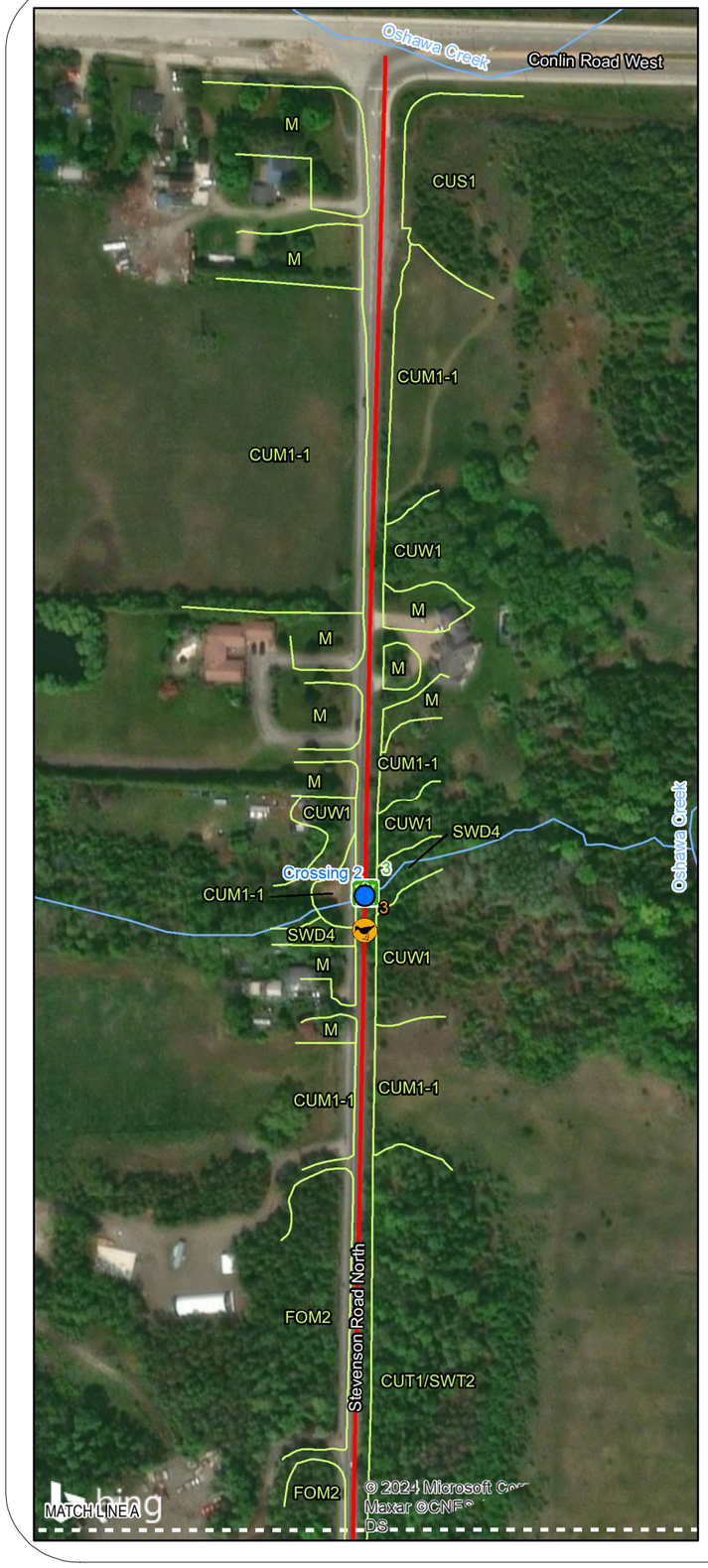
ELC Code	Vegetation Type	Species Association	Community Characteristics
TERRESTRIAL-NATURAL/SEMI-NATURAL			
FOM	Mixed Forest		
FOM2	Dry-Fresh White Pine-Maple-Oak Mixed Forest	**Canopy:** includes eastern white pine (*Pinus strobus*), eastern white cedar (*Thuja occidentalis*), black locust (*Robinia pseudo-acacia*), sugar maple (*Acer saccharum* var*. saccharum*) and Manitoba maple (*Acer negundo*). **Understory:** includes white pine, trembling aspen (*Populus tremuloides*), common buckthorn (*Rhamnus cathartica*), and Manitoba maple. **Ground Cover:** includes Canada goldenrod (*Solidago canadensis*), herb-Robert (*Geranium robertianum*), avens (*Geum spp*), and dame's rocket (*Hesperis matronalis*).	• Tree cover > 60 % (FO). • Coniferous trees > 25 % and deciduous trees > 25 % of canopy cover (M). • White pine with dominant species varieties (2).
TERRESTRIAL-CULTURAL			
CUM	Cultural Meadow		
CUM1-1	Mineral Dry – Moist Old Field Meadow	**Ground Cover:** includes Canada goldenrod, awnless brome (*Bromus inermis* ssp. *inermis*), common milkweed (*Hesperis matronalis*), wild carrot (*Daucus carota*), and riverbank grape (*Vitis riparia*).	• Cultural communities (CU). • Tree cover and shrub cover < 25 % (M). • This community can occur on a wide range of soil moisture regimes (Dry-Moist). • Pioneer community resulting from, or maintained by, anthropogenic-based influences. • Dominated by grasses and forbs.
CUW	Cultural Woodland		

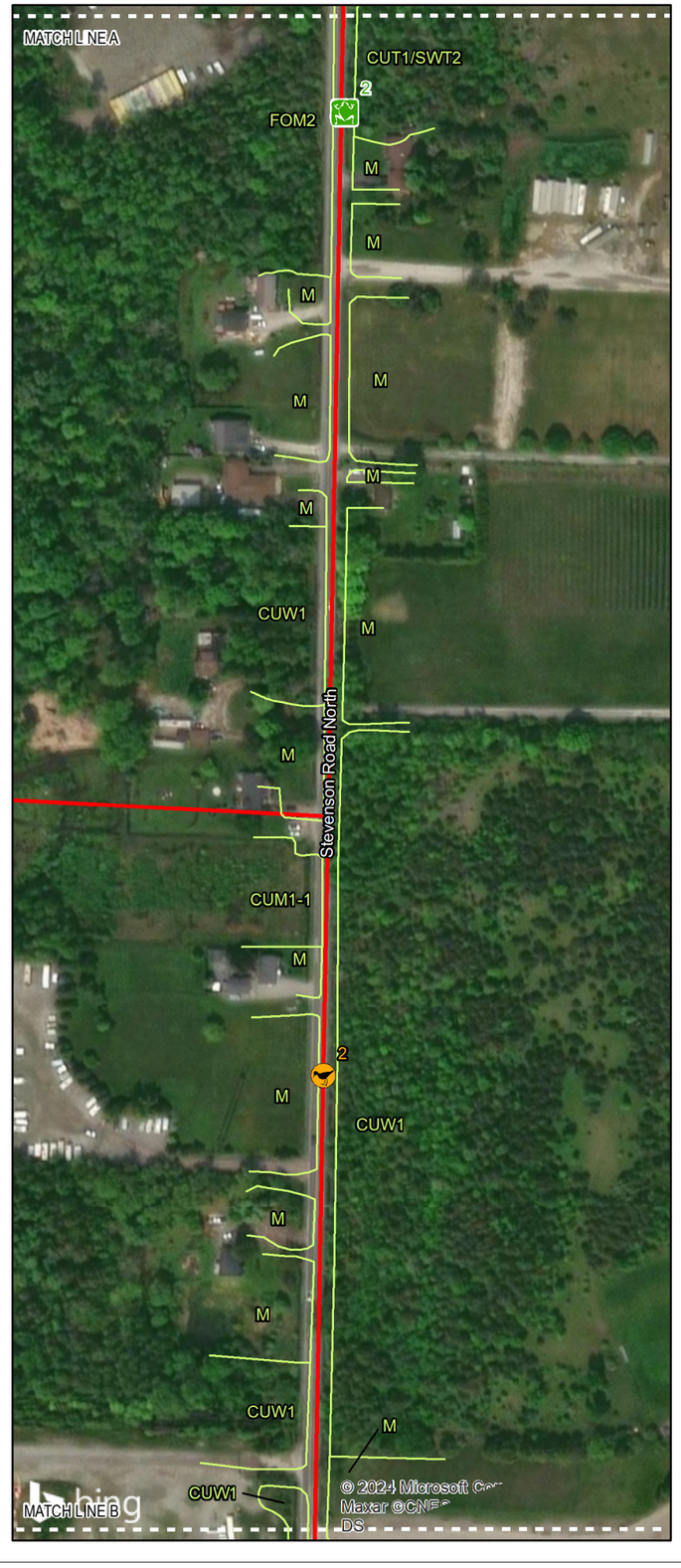
TABLE 2.
SUMMARY OF ECOLOGICAL LAND CLASSIFICATION VEGETATION COMMUNITIES

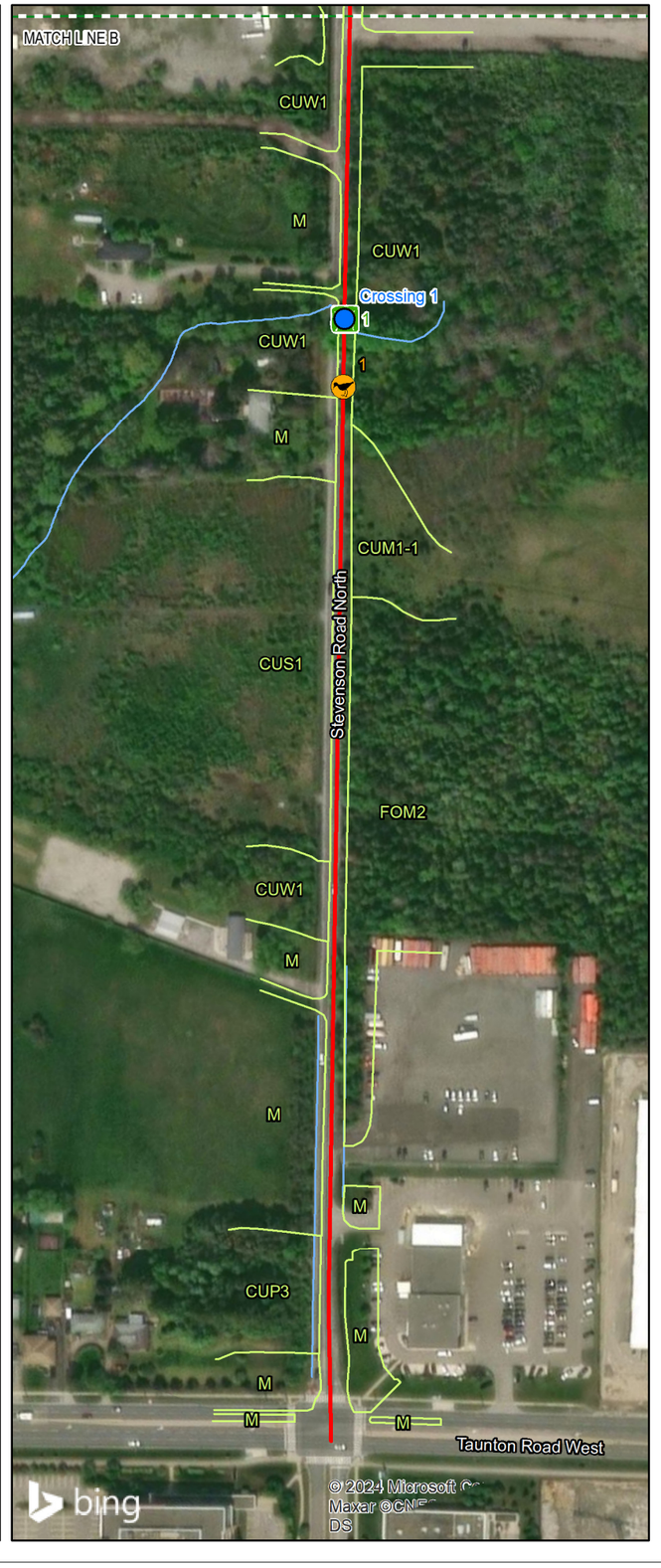
ELC Code	Vegetation Type	Species Association	Community Characteristics
CUW1	Mineral Cultural Woodland	**Canopy:** Norway spruce (*Picea abies*), trembling aspen, basswood (*Tilia americana*), Manitoba maple, and Scotch pine (*Pinus sylvestris*). **Underground:** includes common buckthorn, trembling aspen, choke cherry (*Prunus virginiana* var. *virginiana*), Tartarian honeysuckle (*Lonicera tatarica*), and staghorn sumac (*Rhus hirta*). **Ground Cover:** includes Canada goldenrod, dame's rocket, wild red raspberry (*Rubus idaeus* ssp. *strigosus*), riverbank grape, and swallow-wort (*Cynanchum rossicum*).	• Cultural communities (CU). • 25 % < tree cover < 35 % (W). • Mineral Soil (1).
CUS	Cultural Savannah		
CUS1	Mineral Cultural Savannah	**Canopy:** includes eastern white pine, black locust, Manitoba maple, and white spruce (*Picea glauca*). **Understory:** includes staghorn sumac, Tartarian honeysuckle, black locust and Manitoba maple. **Ground cover:** includes Canada goldenrod, wild carrot, Kentucky bluegrass (*Poa pratensis* ssp. *pratensis*), common milkweed, New England aster (*Symphyotrichum novae-angliae*), and awnless brome.	• Cultural communities (CU). • Tree cover > 25 % >35% (S). • Mineral soil (1).
CUP			
CUP3	Coniferous Plantation	**Canopy:** includes Norway spruce, Austrian pine (*Pinus nigra*), basswood, and Scotch pine. **Understory:** includes basswood, European mountain-ash (*Sorbus aucuparia*), common buckthorn, and basswood. **Ground Cover:** includes Kentucky bluegrass, Canada goldenrod, common dandelion (*Taraxacum officinale*) and wild carrot.	• Cultural communities (CU). • Plantation (P). • Coniferous species dominant (3).

TABLE 2.
SUMMARY OF ECOLOGICAL LAND CLASSIFICATION VEGETATION COMMUNITIES

ELC Code	Vegetation Type	Species Association	Community Characteristics
CUT1/SWT2	Mineral Cultural Thicket/Mineral Thicket Swamp	**Canopy:** includes willow species (*Salix* spp.), trembling aspen, Scotch pine, red ash (*Fraxinus pennslyvanica*), Manitoba maple, and eastern white pine. **Understory**: includes common buckthorn, willow, red-osier dogwood (*Cornus sericea* ssp. *sericea*), Manitoba maple, and Tartarian honeysuckle. **Ground cover:** includes spotted touch-me-not (*Impatiens capensis*), Canada goldenrod, purple loosestrife (*Lythrum salicara*), sedges (*Carex* spp.).	• Cultural community (CU). • Tree cover <25 %; shrub cover >25% (T). • Mineral soil (1). • • Tree or shrub cover >25% and dominated by hydrophytic shrub and tree species (SW). • Tree cover <25% hydrophytic shurbs >25% (T). • Mineral soil (2).
WETLANDS			
SWD	Deciduous Swamp		
SWD4	Mineral Deciduous Swamp	**Canopy:** willow species, red ash, Manitoba maple and trembling aspen. **Understory:** includes trembling aspen, willow, common buckthorn, and Manitoba maple. **Ground Cover:** includes purple loosestrife, sedges, spotted touch-me-knot, pale swallow-wort, and bitter nightshade (*Solanum dulcmara*).	• Tree or shrub cover >25% and dominated by hydrophytic shrub and tree species (SW). • Deciduous tree cover >75% of canopy cover (D). • Deciduous species dominant (4).





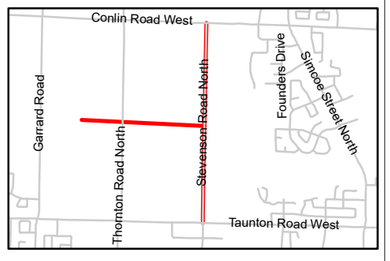


LEGEND

- Anuran Monitoring Station
- Breeding Bird Point Count Station
- Watercourse Crossing
- Drainge/Watercourse (CLOCA)
- Study Area

Vegetation Communities

- Vegetation Community Boundary
- CUM1-1 Dry-Moist Old Field Meadow Type
- CUP3 Coniferous Plantation
- CUS1 Mineral Cultural Savannah Ecosite
- CUT1 Mineral Cultural Thicket Ecosite
- CUW1 Mineral Cultural Woodland Ecosite
- FOM2 Dry-Fresh White Pine-Maple-Oak Mixed Forest Ecosite
- M Manicured
- SWD4 Mineral Deciduous Swamp Ecosite
- SWT2 Mineral Thicket Swamp Ecosite



Data Sources: LGL Limited field surveys & Ministry of Natural Resources and Forestry (LIO). Produced by LGL Limited under Licence with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2022. Contains information licenced under the Open Government Licence - Ontario.

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STEVENSON ROAD NORTH MUNICIPAL CLASS EA
EXISTING CONDITIONS

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Project:	TA9256	**Figure:**	2
Date:	December, 2024	**Prepared By:**	VLG
Scale:	1 : 2,700	**Checked By:**	JMV

2.3 Wildlife and Wildlife Habitat

Wildlife and wildlife habitat is found throughout the study area. The land uses vary from rural residential to mature forest to provincially significant wetland. This section describes the existing wildlife and wildlife habitat within the study area from both background sources and field investigations.

Background Data

Data were obtained from published data sources and unpublished information made available by CLOCA (CLOCA 2022b). Data regarding natural areas were obtained through the Ontario GeoHub published by the Ministry of Natural Resources and Forestry (MNRF) through Land Information Ontario (LIO; MNRF 2022a). In addition, species at risk data were sourced through the NHIC database (MNRF 2022b). According to background information, several species at risk have the potential to use the study area and there are several habitats of significance including a provincially significant wetland and wildlife concentration areas.

Field Investigations

Field investigations were conducted to document wildlife and wildlife habitat and to characterize the nature, extent and significance of wildlife usage within the study area on July 4, 2022 (breeding birds and general wildlife), July 5, 2022 (anuran surveys), July 11, 2022 (breeding birds, general wildlife), April 14, 2023 (anuran surveys), and May 11, 2023 (anuran surveys). Wildlife investigations were focused along the Stevenson Road North corridor and were done from the roadside. Direct observations, calls, tracks, and scat were used to record wildlife present within the study area.

The purpose of anuran surveys is to document the occurrence of frog and toad species, identify potential breeding areas, and estimate breeding population levels. Due to the timing for the start of this project, the early season anuran surveys (early and mid-spring) could not be completed in 2022 and were subsequently completed during the early and mid-spring of 2023 (see dates above). Three stations were placed throughout the study area where amphibian breeding habitat was suspected (based on aerial photo interpretation and field review).

Anuran surveys are completed in the evening between one half hour after sunset until midnight. Methodologies outlined in the Great Lakes Marsh Monitoring Program (https://www.birdscanada.org/volunteer/glmmp/index.jsp?targetpg=glmmpfrog) were used including calling index codes to estimate the abundance of frogs and toads at each station. The number of calling individuals was estimated, when possible. Call level index codes were assigned to all calling frog and toad species at each survey location as follows:

Code 1: individual calls do not overlap and calling individuals can be discretely counted;

Code 2: calls of individuals sometimes overlap, but numbers of individuals can still be estimated; and,

Code 3: overlap among calls seems continuous (full chorus), and a count estimate is impossible.

Breeding bird surveys were conducted on two dates during the 2022 breeding bird season (see above) to document breeding bird evidence (BBE) and to characterize the nature, extent and significance of breeding bird usage of the habitats within the study area. In all habitat types, survey methodology and breeding bird behaviours used as evidence of breeding success were categorized according to the Ontario Breeding Bird Atlas (Cadman *et al*., 2007). Locations of the three breeding bird survey stations are shown in **Figure 2**.

The results of the field surveys are described in the following sections.

2.3.1 Wildlife Habitat

Wildlife habitat and natural vegetation was found throughout the study area as even the residential and other private properties are bounded by natural landscape features (e.g., wetlands, watercourse valleys, forests). Natural vegetation cover is prevalent adjacent to the Stevenson Road North right-of-way providing fairly contiguous habitats for wildlife despite the presence of relatively large, developed properties with manicured yards and some agriculture. No one single community dominated the landscape (see **Figure 2**). Because of the continuity of naturally vegetated habitats, the study area includes core wildlife habitats and both local and landscape corridors for wildlife movement (CLOCA 2022b). The core wildlife habitats are mainly associated with the provincially significant wetland and associated habitats along and to the west of Stevenson Road North and with the Oshawa Creek valley to the east, including a portion that reaches Stevenson Road North on the downstream side of Crossing 2 (CLOCA 2022b). Corridors include a local wildlife corridor at the location of Crossing 1 on both sides of the roadway that continues to downstream through Goodman Creek to Taunton Road West and beyond. The largest corridor in the study area is the Iroquois Shoreline Regional Corridor which comprises much of the land to the south and north of the provincially significant wetland on the west side of Stevenson Road North and almost the entirety of the east side of the roadway including the PSW and the Oshawa Creek valley (CLOCA 2022b).

Therefore, due to the diversity of habitats and the connectivity of those habitats to one another and the regional landscape, it is likely that the entire study area is used by a wide variety of wildlife for all or parts of their life cycles. In addition, there are several

cavity trees and snags adjacent to Stevenson Road North. These habitat features provide nesting and roosting sites for cavity nesting birds and bats.

2.3.2 Fauna

Based on field observations, 46 species of wildlife (three amphibians, one reptile, 36 birds, and 6 mammals) could be verified in the study area and the majority of these recordings came from identification (through calls and sightings) of bird species with more modest numbers of other fauna identified. A summary of wildlife species documented in the study area during field investigations is presented in **Table 3**.

Herpetofauna Species

Two herpetofauna species were incidentally observed in the study area during LGL's field investigations Green Frog (*Lithobates clamitans*) and Midland Painted Turtle (*Chrysemys picta marginata*). Both specimens observed were road killed indicating that the wildlife movement corridors are active for at least herpetofaunal species. No frogs or toads were heard/observed during the single anuran survey conducted on July 5, 2022. However, a full chorus of Gray Treefrog (*Dryophytes versicolor*) was heard on the evening of May 11, 2023, at both anuran stations 2 and 3 (**Figure 2**). Spring Peeper (*Pseudacris crucifer*) was also calling at these stations during the May 11, 2023, survey. These two species were also heard calling from the Whitby-Oshawa Iroquois Beach Wetland Complex to the west of Stevenson Road North on the same evening confirming CLOCA (2022b) mention that woodland frogs occupy habitats to the west within the PSW. Because of the wetland and forest habitat present in the study area (especially to the west of Stevenson Road North) and the presence of the two calling woodland (Spring Peeper and Gray Treefrog) and the road killed aquatic (Green Frog and Midland Painted Turtle) herpetofauna species, it is likely that other individuals and additional species occupy these habitats within the study area.

Bird Species

Thirty-six species of bird were identified during field investigations within the study area. Species identified represent an assemblage found across a variety of habitat types including, anthropogenic, open-country, forest (interior, edge, etc.), and wetland/aquatic. Bird species identified were relatively evenly distributed within the study area.

No confirmed breeding of any migratory bird species was observed but a single nest belonging to an American Robin (*Turdus migratorius*) was observed adjacent to the study area under the Conlin Road West bridge over Oshawa Creek. In addition, fledged young being fed by a parent was observed within the study area for European Starling (*Sturnus vulgaris*), an exotic species. The remaining birds observed have been categorized as possible breeders, based on the BBE recorded. It is likely that several of

these species do use the habitats associated with the study area for breeding, but the evidence to exhibited by the birds during the surveys was inconclusive.

No grassland birds were recorded during the surveys and no grassland habitat was noted within the study area. One species at risk was recorded, Eastern Wood-pewee (*Contopus virens*) at two different locations in woodlands adjacent to Stevenson Road North. This species is listed as Special Concern both provincially and federally. It is discussed more in **Section 2.3.3** below.

CLOCA (2022b) reported that there is a “long-standing” Great Blue Heron (*Ardea herodias*) nesting colony within the PSW to the west of Stevenson Road North. One Great Blue Heron was observed flying over the roadway during the first breeding bird survey which indicates that this colony is likely still active. These colonies are significant wildlife habitat (MNR 2000) and it is recommended that a 200 m buffer be maintained around them. This colony is likely the same one referred to in the NHIC database (MNRF 2022b) that is listed as Colonial Waterbird Nesting Area and Mixed Wader Nesting Colony under Wildlife Concentration Areas.

Mammal Species

Six mammal species were identified during field investigations within the study area. The most common species observed were Eastern Gray Squirrel (*Sciurus carolinensis*), Eastern Chipmunk (*Tamias striatus*), and Red Squirrel (*Tamiasciurus hudsonicus*), all known to be common species in residential and natural areas. A single Eastern Cottontail (*Sylvilagus floridanus*), another common mammal around human habitation, was noted. Several species were observed as roadkill, indicating movement across the roadway within corridors. These were Raccoon (*Procyon lotor*), Eastern Gray Squirrel (in addition to the many live individuals observed), and Meadow Jumping Mouse (*Zapus hudsonius*), a nocturnal rodent.

Based on the habitat types present, several additional mammal species that prefer open country, forest, aquatic and urban habitat types may be expected to occupy areas within the lands examined. As mentioned above, there are several cavity trees and snags located along the right-of-way of Stevenson Road North that could be used by bat species, many of which are species at risk. However, no bat survey work was conducted for this project, so the presence or absence of these mammals remains unknown.

TABLE 3.
WILDLIFE SPECIES DOCUMENTED WITHIN THE STUDY AREA BY LGL

Wildlife Type	Scientific Name	Common Name	Species Status under Legislation / Local Sensitivity				Observations and BBE
			SARA	ESA	COSEWIC	Legal Status	
Herpetofauna	*Hyla versicolor*	Gray Treefrog	-	-	-	FWCA(P)	direct
	Pseudacris crucifer	Spring Peeper	-	-	-	-	direct
	Lithobates clamitans	Green Frog	-	-	-	-	roadkill
	Chrysemys picta marginata	Midland Painted Turtle	-	-	SC	FWCA(P)	roadkill
Birds	*Zenaida macroura*	Mourning Dove	-	-	-	MBCA	S
	Charadrius vociferus	Killdeer	-	-	-	MBCA	H
	Ardea herodias	Great Blue Heron	-	-	-	MBCA	X
	Melanerpes carolinus	Red-bellied Woodpecker	-	-	-	MBCA	H
	Picoides villosus	Hairy Woodpecker	-	-	-	MBCA	H
	Picoides pubescens	Downy Woodpecker	-	-	-	MBCA	S
	Colaptes auratus	Northern Flicker	-	-	-	MBCA	H
	Contopus virens	Eastern Wood-Pewee	SC	SC	SC	MBCA	S
	Empidonax traillii	Willow Flycatcher	-	-	-	MBCA	S
	Sayornis phoebe	Eastern Phoebe	-	-	-	MBCA	S
	Myiarchus crinitus	Great Crested Flycatcher	-	-	-	MBCA	S
	Tyrannus tyrannus	Eastern Kingbird	-	-	-	MBCA	S
	Vireo olivaceus	Red-eyed Vireo	-	-	-	MBCA	S
	Vireo gilvus	Warbling Vireo	-	-	-	MBCA	S
	Cyanocitta cristata	Blue Jay	-	-	-	FWCA(P)	S
	Corvus brachyhrynchos	American Crow	-	-	-	-	S
	Stelgidopteryx serripennis	Northern Rough-winged Swallow	-	-	-	MBCA	X
	Poecile atricapillus	Black-capped Chickadee	-	-	-	MBCA	S
	Sitta canadensis	Red-breasted Nuthatch	-	-	-	MBCA	S

TABLE 3.
WILDLIFE SPECIES DOCUMENTED WITHIN THE STUDY AREA BY LGL

Wildlife Type	Scientific Name	Common Name	Species Status under Legislation / Local Sensitivity				Observations and BBE
			SARA	ESA	COSEWIC	Legal Status	
	Sitta carolinensis	White-breasted Nuthatch	-	-	-	MBCA	H
	Troglodytes aedon	House Wren	-	-	-	MBCA	S
	Turdus migratorius	American Robin	-	-	-	MBCA	S
	Dumetella carolinensis	Gray Catbird	-	-	-	MBCA	S
	Sturnus vulgaris	European Starling	-	-	-	-	FY
	Bombycilla cedrorum	Cedar Waxwing	-	-	-	MBCA	S
	Spinus tristis	American Goldfinch	-	-	-	MBCA	S
	Geothlypis trichas	Common Yellowthroat	-	-	-	MBCA	S
	Setophaga ruticilla	American Redstart	-	-	-	MBCA	S
	Setophaga petechia	Yellow Warbler	-	-	-	MBCA	S
	Spizella passerina	Chipping Sparrow	-	-	-	MBCA	S
	Melospiza melodia	Song Sparrow	-	-	-	MBCA	S
	Cardinalis cardinalis	Northern Cardinal	-	-	-	MBCA	S
	Passerina cyanea	Indigo Bunting	-	-	-	MBCA	S
	Agelaius phoeniceus	Red-winged Blackbird	-	-	-	-	S
	Quiscalus quiscula	Common Grackle	-	-	-	-	H
	Molothrus ater	Brown-headed Cowbird	-	-	-	-	S
Mammals	*Sciurus carolinensis*	Eastern Gray Squirrel	-	-	-	FWCA(G)	direct, roadkill
	Tamias striatus	Eastern Chipmunk	-	-	-	FWCA(P)	direct
	Tamiasciurus hudsonicus	Red Squirrel	-	-	-	FWCA(F)	direct
	Zapus hudonius	Meadow Jumping Mouse	-	-	-	-	roadkill
	Sylvilagus floridanus	Eastern Cottontail	-	-	-	FWCA(G)	direct

TABLE 3.
WILDLIFE SPECIES DOCUMENTED WITHIN THE STUDY AREA BY LGL

Wildlife Type	Scientific Name	Common Name	Species Status under Legislation / Local Sensitivity				Observations and BBE
			SARA	ESA	COSEWIC	Legal Status	
	Procyon lotor	Northern Raccoon	-	-	-	FWCA(F)	roadkill

SARA – federal *Species at Risk Act*:
END - Endangered
THR – Threatened
SC - Special Concern

ESA - *Endangered Species Act, 2007*
END – Endangered
THR – Threatened
SC - Special Concern

Observations:
Direct - species observed via sight, sound, or sign during field investigations
Roadkill – dead animals that likely were hit by vehicles observed during field investigations and identified to species

COSEWIC (Committee on the Status of Endangered Wildlife in Canada)
SC – Special Concern

Legal Status:
MBCA - *Migratory Birds Convention Act*
FWCA - *Fish and Wildlife Conservation Act*
(P) Protected species (G) Game species (F) Furbearing mammals

BBE (Breeding Bird Evidence:
Observed: X – species observed during its breeding season, but not in suitable nesting habitat
Possible: H – species observed in suitable nesting habitat during its breeding season
S – singing male or adult producing other sounds associated with breeding in suitable nesting habitat during the species' breeding season
Confirmed: FY – recently fledged young

2.3.3 Species at Risk

The single reptile and one of the three amphibians recorded from the study area are protected under the *Fish and Wildlife Conservation Act* (FWCA). The other two amphibians are not protected by legislation. Thirty recorded species of bird are protected under the *Migratory Birds Convention Act* (MBCA) and one bird species is protected under the FWCA. Five bird species are not afforded any legislative protection. Five of the six mammal species recorded are afforded protection under the FWCA (see **Table 3**).

Of the 46 wildlife species recorded within the study area, none are regulated under the Ontario *Endangered Species Act, 2007* (ESA) or the federal *Species at Risk Act* (SARA). A screening of the study area on the NHIC database (MNRF 2022b) was undertaken to determine if species at risk have been previously recorded in the general study area. Several species at risk records were found on the database.

Two species at risk were recorded within the study area during field investigations. Eastern Wood Pewee (*Contopus virens*) was recorded from two locations during the breeding bird surveys and a road-killed Midland Painted Turtle (*Chrysemys picta marginata*) was observed along the road shoulder within the vicinity of the natural features adjacent to the roadway near Crossing 2. More details are provided below.

Eastern Wood Pewee (*Contopus virens*)
The Eastern Wood Pewee is listed on the Species at Risk in Ontario (SARO) List as 'Special Concern'; however, this species in not regulated and consequently does not receive habitat protection under the ESA. Eastern Wood Pewee is a forest species, typically associated with forest openings, clearing or edges. As noted above, two Eastern Wood Pewee were identified in wooded habitats along Stevenson Road North during the breeding bird surveys.

Midland Painted Turtle (*Chrysemys picta marginata*)
This species is not listed as a species at risk under the Ontario's ESA or Canada's SARA. However, it is considered Special Concern by COSEWIC. Therefore, it is discussed here. A single road killed individual was observed in the northern part of the Stevenson Road North corridor. It was likely a female searching for a place to nest, but this cannot be confirmed.

Snapping Turtle (*Chelydra serpentina)*
The Snapping Turtle (SC provincially and federally) is an aquatic species that needs water to carry out its life history processes. It was not observed within the study area

during field investigations and there is not habitat within or adjacent to the Stevenson Road North right-of-way.

Wood Thrush (*Hylocichla mustelina*)
This species (SC provincially, THR federally) prefers mature deciduous and mixed woodlands. It was not observed during breeding bird surveys.

Barn Swallow (*Hirundo rustica*)
Barn Swallow (SC provincially and federally, THR under SARA) forages for insects over open habitats. They were not observed during any field investigations conducted for this project.

Eastern Meadowlark (*Sturnella magna*)
A grassland bird, this species (THR provincially and federally) was not observed during any field investigations conducted for this project. Likewise, grassland habitat was not observed.

Bobolink (*Dolichonyx oryzivorus*)
A grassland bird, this species (THR provincially and federally) was not observed during any field investigations conducted for this project. Likewise, grassland habitat was not observed.

Little Brown Myotis (*Myotis lucifugus*)
This species (END provincially and federally) was once a very common bat species in Ontario, but has been impacted by a novel fungal disease. It is frequently found roosting in the attics of human-made buildings, including those which are currently occupied. Any of the houses in the area could be suitable, although they will likely not be directly impacted by the project. This species will also roost in cavities in mature trees. There are mature trees with cavities and snags associated with the natural areas adjacent to the right-of-way of Stevenson Road North that could potentially provide habitat for this species.

Tri-colored Bat (*Perimyotis subflavus*)
Tri-colored Bat (END provincially and federally) uses leaf clumps, squirrel nests or other similar structures in trees. There are mature trees with cavities and snags associated with the natural areas adjacent to the right-of-way of Stevenson Road North that could potentially provide habitat for this species.

Northern Myotis (*Myotis septentrionalis*)
This species (END provincially and federally) roosts in tree cavities and exfoliating bark of trees, typically within closed forest. There are mature trees with cavities and snags associated with the natural areas adjacent to the right-of-way of Stevenson Road North that could potentially provide habitat for this species.

TABLE 4.
WILDLIFE SPECIES AT RISK SUMMARY

Scientific Name	Common Name	Location (s)	ESA	SARA	Last Observed Date	Preferred Habitat*	Potential Habitat in Study Area	Species Confirmed in Study Area
Contopus virens	Eastern Wood Pewee	In the vicinity of the Bailey Creek bridge.	SC	-	July 11, 2022	Forest species, typically associated with forest openings, clearing or edges.	Forest and forest edges were identified as habitat for the species. However, forested areas within the study area are limited in size/distribution. Only limited habitat suitable to support this species identified within the study area.	Yes
Chrysemys picta marginata	Midland Painted Turtle	Roadkill in north portion of Stevenson Road North right-of-way (ROW)	-	-	July 11, 2022	Wetlands and shallow waterbodies with basking sites and organic substrates.	Open water wetlands or slow-moving watercourses to the west in PSW.	Yes

TABLE 4.
WILDLIFE SPECIES AT RISK SUMMARY

Scientific Name	Common Name	Location (s)	ESA	SARA	Last Observed Date	Preferred Habitat*	Potential Habitat in Study Area	Species Confirmed in Study Area
Chelydra serpentina	Snapping Turtle	Not recorded	SC	SC	unknown	Wetlands and shallow waterbodies with organic substrates and dense aquatic vegetation.	Open water wetlands or slow-moving watercourses to the west in PSW and potentially to east in Oshawa Creek.	No
Hylocichla mustelina	Wood Thrush	Not recorded	SC	THR	unknown	Mature deciduous or mixed forest.	Potentially larger tracts of forest to west or north.	No
Hirundo rustica	Barn Swallow	Not recorded	SC	THR	unknown	Open habitats near water within proximity to structures on which to nest.	Open fields or farmland to west of Stevenson Road North.	No
Sturnella magna	Eastern Meadowlark	Not recorded	THR	THR	unknown	Pastures, hayfields, meadows, old fields with tall grasses.	Farmland to west of Stevenson Road North.	No

TABLE 4.
WILDLIFE SPECIES AT RISK SUMMARY

Scientific Name	Common Name	Location (s)	ESA	SARA	Last Observed Date	Preferred Habitat*	Potential Habitat in Study Area	Species Confirmed in Study Area
Dolichonyx oryzivorus	Bobolink	Not recorded	THR	THR	Unknown	Pastures, hayfields, meadows, old fields with tall grasses.	Farmland to west of Stevenson Road North.	No
Myotis lucifugus	Little Brown Myotis	Not recorded	END	END	n/a	Roosts in natural and human structures. Large dead trees that protrude above canopy in relatively open areas.	Forests with snags to east and west of Stevenson Road North.	No

TABLE 4.
WILDLIFE SPECIES AT RISK SUMMARY

Scientific Name	Common Name	Location (s)	ESA	SARA	Last Observed Date	Preferred Habitat*	Potential Habitat in Study Area	Species Confirmed in Study Area
Perimyotis subflavus	Tri-colored Bat	Not recorded	END	END	n/a	Roosts in foliage, in clumps of old leaves, hanging moss, or squirrel nests. Feeds over aquatic areas with an affinity to large-bodied water and likely roosts close to these	Forests within Oshawa Creek valley to east of Stevenson Road North	No

TABLE 4.
WILDLIFE SPECIES AT RISK SUMMARY

Scientific Name	Common Name	Location (s)	ESA	SARA	Last Observed Date	Preferred Habitat*	Potential Habitat in Study Area	Species Confirmed in Study Area
Myotis septentrionalis	Northern Myotis	Not recorded	END	END	n/a	Roosts in hollows, crevices, and under loose bark of mature trees. Roosts may be in main trunk or large branch of either living or dead trees.	Forests to east and west of Stevenson Road North	No

*Preferred habitat is based on a review of secondary sources; however, these species may be found in other habitats.

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2.5 Designated Natural Areas

Designated natural areas include areas identified for protection by the Ontario Ministry of Natural Resources and Forestry (OMNRF) and upper and lower tier municipalities. Natural areas within the study area were screened for any designations within various local, regional, and provincial policies, the results of which are noted in the following sections.

Areas of Natural and Scientific Interest (ANSIs)

There are no Areas of Natural and Scientific Interest (ANSI) within and up to 120 m beyond the study area.

Provincially Significant Wetlands (PSWs)

A portion of the Whitby-Oshawa Iroquois Beach Provincially Significant Wetland (PSW) is adjacent to the Stevenson Road North right-of-way (ROW). The wetland adjacent to the Stevenson Road North ROW is part of a larger PSW complex that extends beyond the study area. The location of the PSWs within the study area are presented on **Figure 3.**

Greenbelt Act

The Greenbelt Plan was established under Section 3 of the *Greenbelt Act* in 2005 and took effect on December 16, 2004. An updated and revised Greenbelt Plan was released by the Ministry of Municipal Affairs in 2017. The Greenbelt Plan area is comprised of several plan areas including the Niagara Escarpment Plan area, Oak Ridges Moraine Conservation Plan area, Parkway Belt West Plan area, and the Greenbelt Plan 'Protected Countryside' and 'Urban River Valley'.

The study area crosses the Greenbelt Plan 'Urban River Valley' at the intersection of Stevenson Road North and Conlin Road West. The location of the Greenbelt Plan 'Urban River Valley' designation within the study area is presented on **Figure 3**.

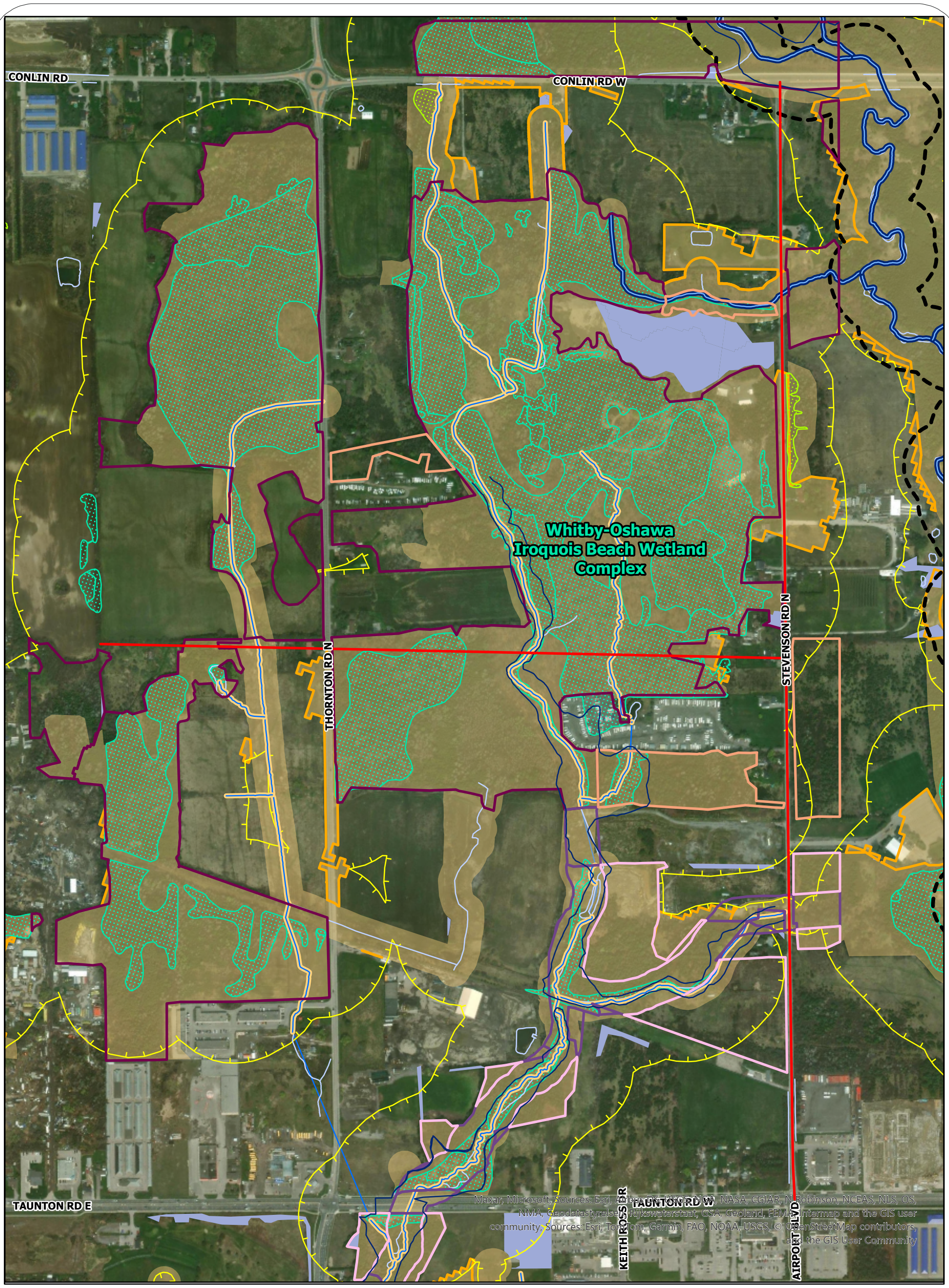
City of Oshawa Official Plan

The City of Oshawa Official Plan (2024) identifies a portion of the lands adjacent to the Stevenson Road North ROW as a component of the City of Oshawa Natural Heritage System and Natural Heritage/ Hydrologic Features Outside of the Natural Heritage System. The limits of the Natural Heritage System are presented on **Figure 3**.

Central Lake Ontario Conservation Authority (CLOCA)

The valleylands and wetlands associated with the watercourses in the study area are regulated areas under Ontario Regulation 41/25 (which replaced CLOCA's Ontario Regulation 42/06 Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses). A permit will be required from CLOCA for

development within these regulated areas. In addition, the land designations shown under the City of Oshawa's Official Plan online mapping coincide with CLOCA's land use designations. These regulated areas and land use designations within the study area are presented on **Figure 3.**



STEVENSON ROAD NORTH MUNICIPAL CLASS EA - Natural Heritage Features

- Study Area
- Regional Floodlines (CLOCA)
- Regulated Area (CLOCA)
- Natural Heritage/Hydrologic Features Outside NHS (CLOCA/Oshawa)
- Targeted Terrestrial Natural Heritage System (CLOCA)
- Natural Heritage System (CLOCA/ Oshawa)
- Core Wildlife Habitat Network
- Local Wildlife Habitat Network
- Regional Wildlife Habitat Network
- Secondary Wildlife Habitat Network
- Unevaluated Wetland (LIO)
- Provincially Significant Wetland (LIO)
- Urban River Valley Greenbelt Designation (LIO)
- CLOCA Watercourse/Drainage
- Watercourse (LIO)

ARA Watercourse Thermal Regime (LIO)

- Cold Water
- Cool Water
- Unknown
- Warm Water

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Project	TA9256	**Figure**	3
Date	December, 2024	**Prepared By**	VLG
Scale	1:6,500	**Verified By**	JMV

3.0 PROJECT DESCRIPTION

As stated above the study is being undertaken for improvements of Stevenson Road North from Taunton Road West to Conlin Road in the City of Oshawa, Ontario. The project involves the full road reconstruction and urbanization of Stevenson Road North within the existing City Right-of-Way, the addition of a multi-use pedestrian pathway on the east side, and the addition of turning lanes at the intersection of Stevenson Road North and Taunton Road West.

Full urbanization will move all surface runoff emanating from the roadway from roadside ditches into a storm sewer system. Discharge flow patterns will remain the same and discharge points will have oil-grit separators (OGS) for quality control. Water quantity will remain at pre-development levels at the discharge points. Further opportunities for quality controls will be explored during detailed design. The culvert at Crossing 1 will be removed and upstream flows (very small area with no defined channel) will be moved into the storm sewer system. The water will discharge and be directed along the same flow path toward Goodman Creek as currently exists. The 16 m long culvert at Crossing 2 will be replaced with a longer (25 m) culvert of the same diameter (a concrete pipe is currently proposed) to accommodate the road urbanization. The storm sewer outlet will be installed at this location with an OGS for water quality treatment before discharge into the watercourse.

New linear infrastructure (300 mm watermain, 450 mm sanitary sewer) is also proposed to be installed under the roadway. These pipes are to be designed in consultation Durham Region during detailed design.

4.0 IMPACT ASSESSMENT AND ENVIRONMENTAL PROTECTION

4.1 Aquatic Habitats and Communities

The reconstruction of Stevenson Road North has the potential to result in impacts to aquatic habitat only at Crossing 2, where the tributary of Oshawa Creek crosses the roadway. Effects on this aquatic feature related to the proposed road reconstruction could include:

temporary disruption or permanent loss of site-specific habitat;

temporary changes to water quality; and,

changes in water temperature.

The federal *Fisheries Act* protects fish and fish habitat through a determination of the potential for Harmful Alteration, Disruption or Destruction (HADD) to fish or fish habitat. A HADD is not expected to result from the project as the existing culvert is perched and

flow is intermittent. As a result, the tributary of Oshawa Creek at Crossing 2 is indirect fish habitat only and any culvert works completed for this project will maintain flows to downstream direct fish habitat in Oshawa Creek. However, indirect impacts during construction and due to potential increases in site runoff could occur.

The water feature at Crossing 1 has no defined channel and there is no evidence of any flows coming from the upstream (east) side of the roadway, except some potential runoff from the roadside ditch. As such, this feature at this crossing does not constitute fish habitat.

Further details regarding works, net environmental effects. and site-specific mitigation proposed at the crossing can be found in the sections below.

4.1.1 Temporary Disruption or Permanent Loss of Site-Specific Habitat

The proposed road works along Stevenson Road North have some potential to result in the permanent loss of localized indirect fish habitat due to the culvert extensions needed to accommodate the road platform widening at Crossing 2.

To reduce the potential for a HADD, the following environmental protection measures will be implemented:

work areas will be delineated with construction fencing to minimize the area of disturbance;

appropriate sediment control structures will be installed prior to and maintained during construction to prevent entry of sediments into the watercourse;

if dewatering measures are to be employed, effluent will be treated prior to discharge to receiving watercourse;

good housekeeping practices related to materials storage/stockpiling, equipment fuelling/ maintenance, etc. will be implemented during construction; and,

if necessary, disturbed riparian areas will be vegetated and/or covered with an erosion control blanket as quickly as possible to stabilize the banks and minimize the potential for erosion and sedimentation.

These environmental protection measures will greatly reduce the potential adverse effects to the indirect fish habitat resulting from construction activities at Crossing 2.

4.1.2 Temporary Change to Water Quality

The construction associated with the proposed rehabilitation of Stevenson Road North has the potential to alter water quality through on-site erosion of exposed materials and the subsequent impairment of the receiving watercourse water quality with sediments and other contaminants.

Changes to water quality will be mitigated through the isolation of the work areas behind deployed and maintained erosion and sediment controls, and the treatment of effluent from dewatering prior to its release. To improve storm water quality, runoff will be treated by OGS units installed prior to water outletting to watercourses/drainage features. Additional water quality treatment will be explored during detailed design. In addition, all exposed areas should be vegetated as quickly as possible once the work is completed.

The implementation of these mitigation measures should eliminate potential changes to water quality to the receiving watercourses.

4.1.3 Changes in Water Temperature

The thermal regime of a receiving waterbody/watercourse may be altered by storm water runoff or removal of riparian vegetation that shades the watercourse. In the summer, runoff can become superheated through contact with paved surfaces, which, when discharged to a receiving watercourse can result in thermal shock, thereby injuring or killing aquatic organisms. Coldwater or coolwater streams are usually considered more sensitive to changes in water temperature than warmwater streams.

It is expected that there will be no significant increase in temperature as a result of the proposed works as long as appropriate mitigation (see above) is implemented.

4.2 Vegetation and Vegetation Communities

The proposed improvements to Stevenson Road North have the potential to result in impacts to vegetation and vegetation communities. Effects on vegetation related to these modifications could include:

displacement of / disturbance to vegetation and vegetation communities; and,

displacement of rare, threatened or endangered vegetation or significant vegetation communities.

4.2.1 Displacement and/or Disturbance to Vegetation Communities/Vegetation

Clearing of vegetation will be required to accommodate the proposed improvements to Stevenson Road North. Impacts associated with the proposed improvements to Stevenson Road North will result in the removal of 2.24 ha of naturalized and/or planted lands, including cultural vegetation communities and manicured areas. A total of 1.83 ha of anthropogenically influenced lands will be removed as a result of the proposed improvements. In additional, a total of 0.41 of forest and wetland communities will be removed. Table 5 provides a summary of the total area of vegetation communities that will be removed to accommodate the improvements to Stevenson Road North.

TABLE 5.
SUMMARY OF IMPACTS TO VEGETATION COMMUNITIES

Vegetation Community	Total Area (ha) to be Impacted
Dry-Moist Old Field Meadow (CUM1-1)	0.32
Coniferous Plantation (CUP3)	0.03
Mineral Cultural Savannah (CUS1)	0.09
Mineral Cultural Thicket/Mineral Swamp Thicket (CUT1/SWT2)	0.1
Mineral Cultural Woodland (CUW1)	0.64
Dry-Fresh White Pine-Maple-Oak Mixed Forest (FOM2)	0.39
Mineral Deciduous Swamp (SWD4)	0.02
Manicured (M)	0.65
Total	**2.24**

Cultural Vegetation Communities

The proposed improvements to Stevenson Road North will result in the removal of approximately 1.18 ha of cultural vegetation communities including: cultural meadow, coniferous plantation, cultural savannah, and cultural thicket. In general, impacts to these communities will result in the removal of a narrow swath adjacent to the existing Steveson Road North ROW. Overall, impacts resulting in the loss of vegetation within these cultural communities are considered to be minor. Cultural meadow communities typically persist in areas that are regularly disturbed, and as a result, generally contain a high proportion of invasive and non-native plant species that are tolerant of these conditions. Cultural vegetation communities are widespread throughout Ontario and the loss of a portion of these vegetation communities is not anticipated to have any negative impacts to the remaining cultural meadows within the study area.

Naturalized Vegetation Communities

A total of 0.39 ha and 0.02 ha of mixed forest and deciduous swamp will be removed, respectively, as a result of the proposed improvements to Stevenson Road North.

Impacts to the mixed forest and deciduous swamp communities will include the removal of a small portion of the community adjacent to the existing ROW creating a new forest edge. New forest edges are exposed to greater potential for non-native and invasive species infiltration further into the forest, and as such, implementation of a forest management plan in accordance with the TRCA guidelines is recommended. Recommended forest edge management measures are outlined in **Section 4.2.3**.

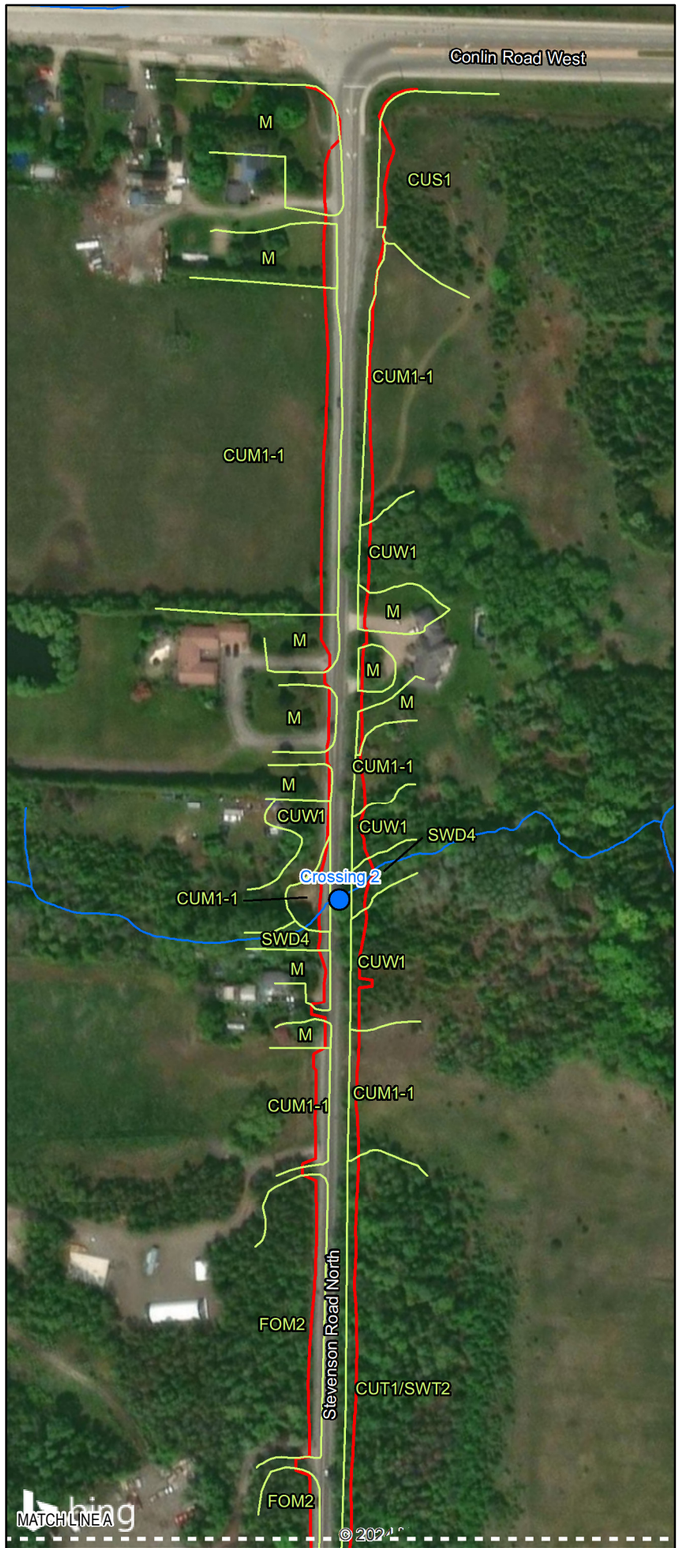
All of the forest and wetlands communities located within the study area are widespread throughout Ontario and the loss of a small portion along the edge of these vegetation communities is not expected to have any negative impacts to the remaining communities provided forest edge management is implemented.

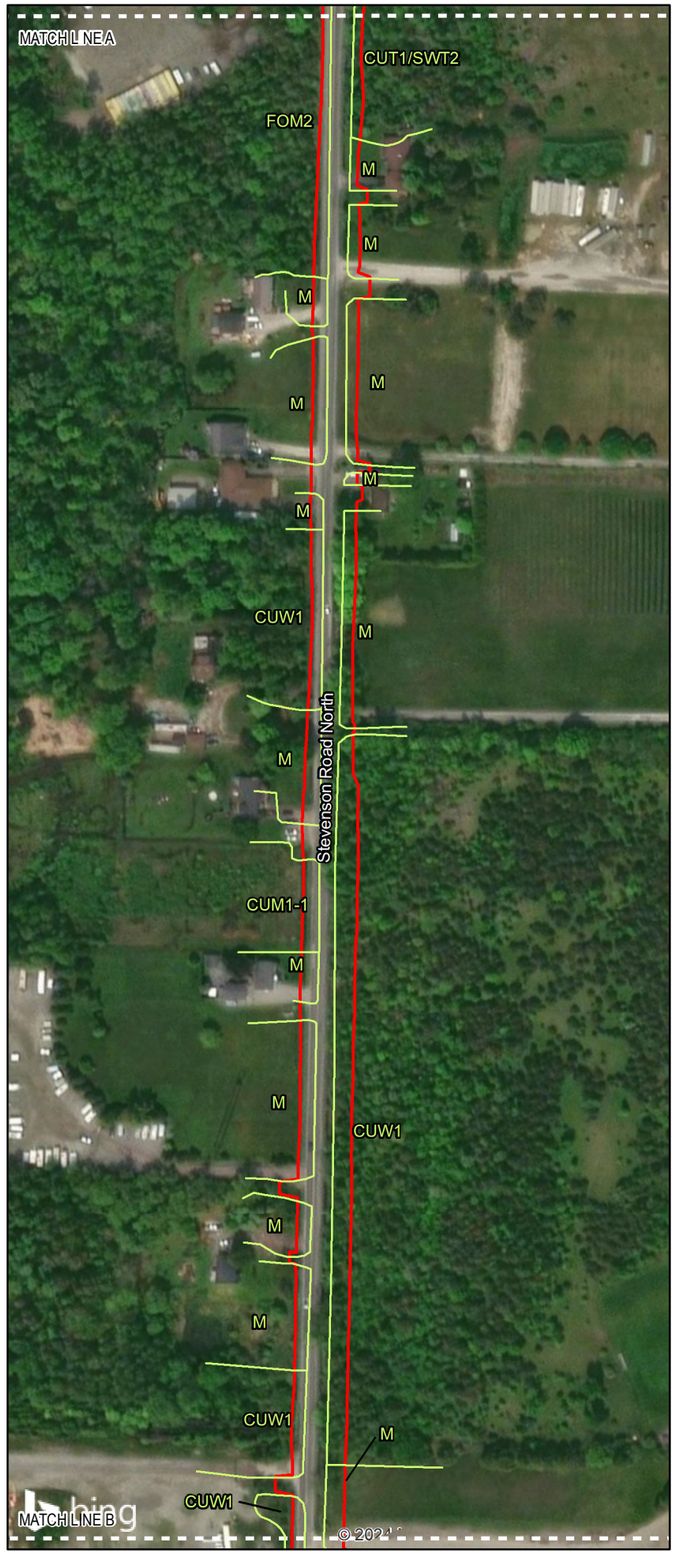
Human Influenced Lands

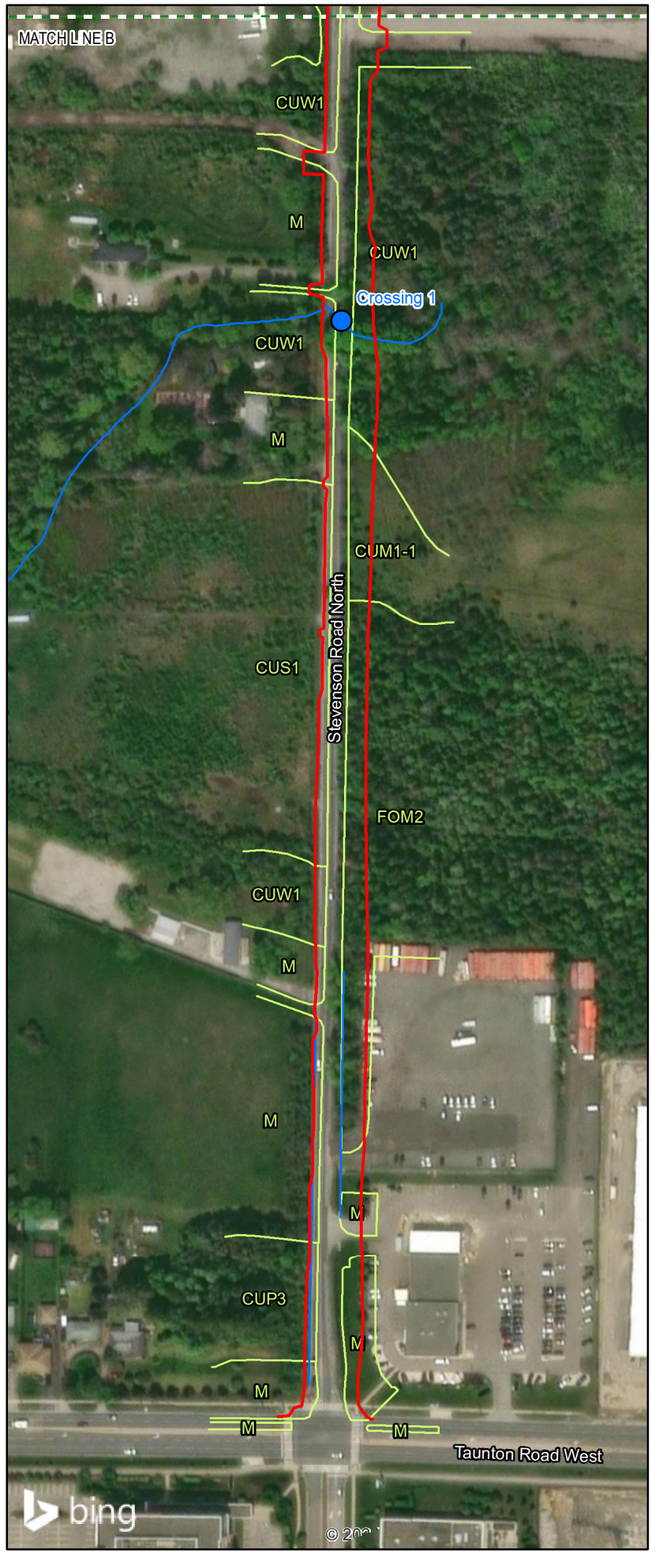
As noted in **Table 5**, a total of 0.65 ha of manicured lands will be removed. The overall significance of the impact to these lands is considered low.

4.2.2 Displacement of Rare, Threatened or Endangered Vegetation of Significant Vegetation

All of the vegetation communities identified within the study area are considered to be widespread and common in Ontario and secure globally. No plant species that are regulated under the Ontario *Endangered Species Act, 2007* or the Canada *Species at Risk Act* were observed during LGL's botanical investigation. In addition, no plant species that are provincially ranked as "critically imperilled" to "vulnerable" (S1 to S3) were observed within the study area. As a result, there will be no impacts on rare, threatened, or endangered vegetation and vegetation communities.







LEGEND

- Watercourse Crossing
- Drainage/Watercourse (CLOCA)
- ELC Community
- Proposed Grading Limit

CUM1-1	Dry-Moist Old Field Meadow Type
CUP3	Coniferous Plantation
CUS1	Mineral Cultural Savannah Ecosite
CUT1	Mineral Cultural Thicket Ecosite
CUW1	Mineral Cultural Woodland Ecosite
FOM2	Dry-Fresh White Pine-Maple-Oak Mixed Forest Ecosite
M	Manicured
SWD4	Mineral Deciduous Swamp Ecosite
SWT2	Mineral Thicket Swamp Ecosite

0 30 60 90 120 m

N

STEVENSON ROAD NORTH MUNICIPAL CLASS EA

ELC IMPACTS

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Project:	TA9256	**Figure:**	4
Date:	November, 2024	**Prepared By:**	VLG
Scale:	1:2,700	**Checked By:**	JMV

4.2.3 Forest Edge Management

The following forest edge management measures should be implemented in accordance with TRCA (2004). Where new forest edges are exposed, forest management techniques should be implemented to mitigate the associated impacts to the forest communities. As part of the Forest Edge Management, mitigation measures will include, but not be limited to the following:

Planting of appropriate native trees, shrubs and ground flora shall be undertaken as soon as possible following vegetation removals. Plantings along the disturbed forest edges will provide a protective buffer. Newly exposed forest edges become exposed to a greater potential for aggressive and invasive species infiltration further into the forest interior causing greater impacts. Micro-habitat conditions are also altered due to a greater incident of light penetrating further into the forest resulting in decreased soil moisture and increased windthrow. Plant species used within the buffer shall be somewhat similar to those in the adjacent habitat and be non-invasive in nature.

Grading within areas where edges will be newly created shall be designed to meet existing grades a minimum of 3 m away from the tree drip-line.

Compaction of soils on lands immediately adjacent to the newly exposed forest edge will be minimized to the extent possible. Construction activities can result in cut roots, and soil compaction due to re-grading and fill placement. Cut tree roots can reduce a tree's capacity to uptake and transfer water and nutrients, and soil compaction can result in a decrease in air spaces within the soil which can reduce the infiltration capacity of the soil, limits soil oxygen and limits root penetration. Decompaction efforts and methodology shall be site specific. Where decompaction is required, it shall extend to a minimum depth of approximately 25 cm.

Drainage patterns adjacent to newly created edges shall be maintained to avoid changes in soil moisture, this is especially important around wetland areas and forest communities with substrates that maintain increased moisture capacity.

A plan must be in place to immediately mitigate the spread/invasion of aggressive plant species.

A monitoring plan must be developed to ensure that the newly planted material survives and fulfils the intended function and to ensure that the inadvertent spread of aggressive or non-native plant species is appropriately managed.

4.3 Wildlife and Wildlife Habitat

The reconstruction of Stevenson Road North has the potential to result in the displacement of and disturbance to wildlife and wildlife habitat.

Effects on wildlife related to these modifications may include:

displacement of wildlife and wildlife habitat;

disturbance to wildlife from noise, light, and visual intrusion;

potential impacts to migratory birds; and,

displacement of rare, threatened or endangered wildlife and significant wildlife habitat.

4.3.1 Displacement of Wildlife and Wildlife Habitat

Works associated with the Stevenson Road North reconstruction will take place within a relatively small footprint mainly within the existing road ROW. As such, most of the area affected will be within areas previously disturbed and along the edges of more natural habitats. Most of these habitats are cultural in nature (see **Section 4.2**), but some are natural/semi-natural. The cultural meadow habitats, cultural plantation, and manicured areas associated with residences or other buildings are relatively low-quality wildlife habitat, the cultural savannahs and thickets likely host a moderate wildlife assemblage, and the wetland and forest communities are generally higher quality habitats. In general, however, there is good connectivity to more natural habitats to the east and west of Stevenson Road North and most of these habitat types, regardless of their quality along the roadway are expected to positively contribute to the wildlife assemblage identified within the lands examined.

Because infringement into the natural areas is mainly along the edge of the above-mentioned natural heritage features and infringes only a small distance into the features, removal of vegetation to accommodate the road reconstruction is not expected to have any significant impact on wildlife and/or wildlife habitat using the area. Displacement of species at risk habitat is not anticipated (see **Section 4.3.3**).

Vegetation removals along Stevenson Road North should occur outside of the breeding bird window (see **Section 4.3.2**), to minimize disturbance to birds and other wildlife species utilizing habitats within the study area.

An analysis of vegetation removal per vegetation (wildlife habitat) community is presented in **Section 4.2** (above).

4.3.2 Fragmentation of Wildlife Habitat and Wildlife Passage

Wildlife movement or passage corridors are likely present in the study area given the presence of road killed wildlife. No new barriers to wildlife passage will occur as a result of the proposed works. The potential for wildlife passage through the existing culvert (Crossing 2) will remain but will be longer due to the road urbanization. Construction duration and disturbance in the vicinity of natural habitats within the study area should be minimized to the extent possible. Fragmentation of wildlife habitat and impacts on wildlife passage through the study area are expected to be minimal. However, opportunities for additional crossing structures for wildlife should be explored during detailed design, especially for small wildlife groups such as amphibians and reptiles.

4.3.3 Disturbance to Wildlife from Noise, Light and Visual Intrusion

Noise, light and visual intrusion may alter wildlife activities and patterns. In human-influenced settings, such as the study area, wildlife has become acclimatized to anthropogenic conditions and only those fauna that are tolerant of human activities remain. Minor edge effect to natural areas may occur as the proposed project will result in an increase in noise, light, and visual intrusion, especially during construction. Given that wildlife is acclimatized to the presence of the existing human habitation and road traffic, the tolerance of the wildlife assemblage to human activities and the limited zone of influence of the proposed works, disturbance to wildlife from noise, light and visual intrusion will have no significant adverse effects.

4.3.4 Potential Impacts to Migratory Birds

As identified above (**Section 2.3.2**), numerous bird species listed under the Migratory Birds Convention Act (MBCA) were identified within the study area. The MBCA prohibits the killing, capturing, injuring, taking or disturbing of migratory birds (including eggs) or the damaging, destroying, removing or disturbing of nests. While migratory insectivorous and non-game birds are protected year-round, migratory game birds are only protected from March 10 to September 1. The study area lands fall within Environment Canada's Nesting Zone C2 (Nesting Period: end of March – end of August). Consequently, to comply with the requirements of the MBCA, it is recommended that disturbance, clearing, or disruption of vegetation where birds may be nesting should be completed outside the window of April 1 to August 31 to avoid the breeding bird season for the majority of the bird species protected under the act. In the event that these activities must be undertaken from April 1 to August 31, a nest screening survey will be conducted by a qualified avian biologist. If an active nest is

located, a mitigation plan shall be developed and provided to Environment Canada – Ontario Region for review prior to implementation.

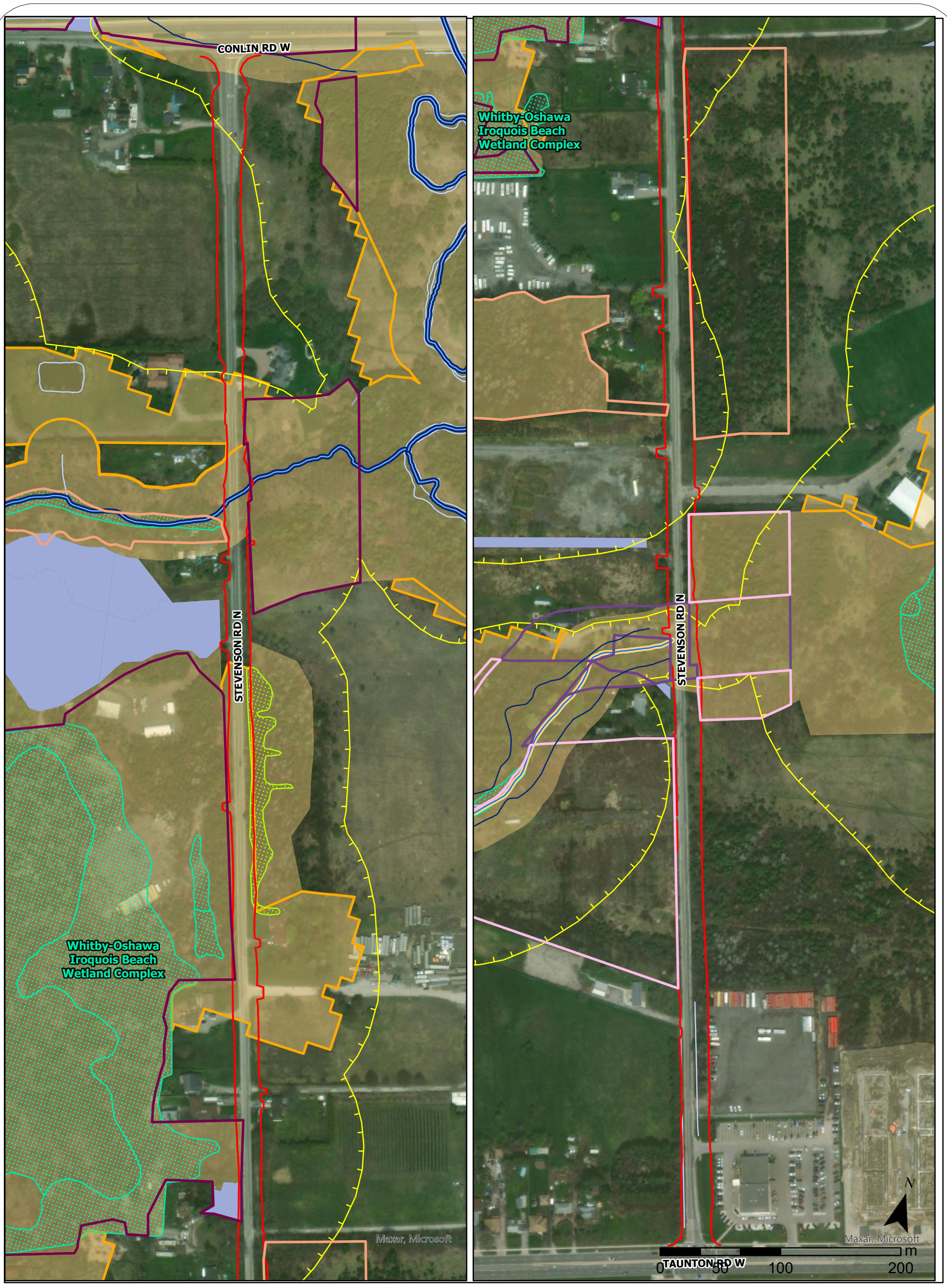
4.3.5 Displacement of Rare, Threatened or Endangered Wildlife or Significant Wildlife Habitat

Background data and LGL surveys conducted during 2022 and 2023 indicated seven species at risk that have been previously identified and/or have been found to be present within the vicinity of the study area (discussed in **Section 2.3.3**). Two of these species (Midland Painted Turtle and Eastern Wood Pewee) were observed during the field investigations. The Midland Painted Turtle that was found road-killed was most likely a female that was searching for a nesting site earlier in the spring or, possibly, the year before, as it was not a “fresh” specimen, but rather consisted of fragments of shell material. Suitable habitat for this species potentially exists in the PSW or ponds to the west of Stevenson Road North. Similarly, these habitats could potentially provide habitat for Snapping Turtle, as could Oshawa Creek to the north and east. No SAR field birds (Eastern Meadowlark, Bobolink) were observed and no suitable habitat for this species exists within or within the vicinity of the study area, but there are potential habitats to the east and west of Stevenson Road North in agricultural fields (if these fields are fallow or hayfields). Suitable habitat for Wood Thrush and Eastern Wood Pewee can be found within the forest and forest edge habitat, respectively, adjacent to the properties along Stevenson Road North. Suitable habitat for Barn Swallow exists to the east of Stevenson Road North along the Oshawa Creek valley. Three species of SAR bats, although not listed in species accounts in background information, have the potential to use the forests and forest edges, particularly dead trees and snags, that are situated adjacent to the roadway.

The likelihood of the project having a negative effect on species at risk is low because the overall footprint of the project is small and infringement into natural habitats is minimal. The only potential effects could be on Eastern Wood Pewee and the SAR species of bats through infringement into forest edge habitat and/or removal of dead trees/snags. Because of the unlikelihood of adverse effects on species at risk, and because Eastern Wood Pewee is listed as Special Concern, and bats were not reported from either background information or field surveys, permitting requirement under the ESA is anticipated; however, consultation with the MECP during the detail design phase is warranted. Follow-up field surveys may be required during detailed design to further assess presence/absence and potential habitat function of lands within the study area, especially for SAR bat species.

4.4 Designated Natural Areas

As noted in **Section 2.4**, there are portions of a Provincially Significant Wetland located within the study area. There are also natural heritage areas of both the City of Oshawa Official Plan and CLOCA land designations that are situated along Stevenson Road North within the study area. In addition, there is a small area designated as Urban River Valley under the Greenbelt Plan at the north end of the study area and much of the Stevenson Road North study area lies within the Regulated Area of CLOCA. Portions of these areas (with the exception of the PSW, which will not be directly affected by the proposed road works) will be affected to accommodate the road improvements (**Figure 3**). Edge management should be implemented along all natural area edges created by the project to ensure encroachment is minimized. Consultation with CLOCA will be necessary during detail design to determine whether compensation for the loss of the natural areas is warranted.



STEVENSON ROAD NORTH MUNICIPAL CLASS EA - Natural Heritage Impacts

- Proposed Grading Limit
- Regional Floodlines (CLOCA)
- Regulated Area (CLOCA)
- Natural Heritage/Hydrologic Features Outside NHS (CLOCA/Oshawa)
- Targeted Terrestrial Natural Heritage System (CLOCA)
- Natural Heritage System (CLOCA/ Oshawa)
- Core Wildlife Habitat Network
- Local Wildlife Habitat Network
- Regional Wildlife Habitat Network
- Secondary Wildlife Habitat Network
- Unevaluated Wetland (LIO)
- Provincially Significant Wetland (LIO)
- Urban River Valley Greenbelt Designation (LIO)
- CLOCA Watercourse/Drainage
- Watercourse (LIO)

ARA Watercourse Thermal Regime (LIO)

- Cold Water
- Cool Water
- Unknown
- Warm Water

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Project	TA9256	**Figure**	5
Date	December, 2024	**Prepared By**	VLG
Scale	1:3,000	**Verified By**	JMV

5.0 PERMITS AND APPROVALS DURING DETAIL DESIGN

5.1 Fisheries Act

As discussed above in **Section 4.1**, the proposed works are likely to cause a HADD at the tributary of Oshawa Creek at Crossing 2. However, because the watercourse is indirect fish habitat and there will be a change to the footprint of the culvert due to its replacement with a longer pipe, DFO review will be necessary once the design is finalized. Therefore, it is recommended that a DFO request for review is completed and submitted during detailed design.

5.2 Species At Risk Act

The works proposed along Stevenson Road North will not affect any species listed under Schedule 1 of SARA. During detailed design, if any additional species at risk are encountered (unlikely), consultation with DFO and MECP regarding the works proposed may need to be undertaken to determine whether a permit is required (SARA, at this location, applies to aquatic species only).

5.3 Endangered Species Act

No species regulated under the ESA will be affected by the proposed project. Further detailed studies are recommended during detailed design to ascertain the presence/absence of SAR bats along the Stevenson Road North corridor as several snags/dead trees were noted along the roadway during 2022 field work. If required, the necessary permit(s) will be secured during detailed design.

5.4 Ontario Regulation 41/24

Based on a review of CLOCA mapping, portions of the proposed of the Stevenson Road North study area are subject to Ontario Regulation 41/24 (previously CLOCA's Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses). A permit from the CLOCA, pursuant to O. Reg. 41/24, will be secured during detail design.

6.0 REFERENCES

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APPENDIX A
PHOTOGRAPHIC RECORD

PROJECT #TA9256
July 2022

PHOTO APPENDIX
Crossing 1

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Facing south at Crossing 1. Note there is no "dip" in the road indicating a lack of a valley or floodplain.

Upstream (east) end of culvert. Note no defined channel and terrestrial vegetation within roadside ditch.

Upstream end of culvert facing downstream (west). Note small size and very dry characteristics.

Facing southwest across road toward downstream end of culvert. Note lack of valley or floodplain.

Downstream facing upstream (northeast) at downstream end of culvert. Note terrestrial vegetation.

Downstream facing downstream (west) from culvert. Note terrestrial vegetation, lack of defined channel, and lack of valley or floodplain.

PROJECT #TA9256
July 2022

PHOTO APPENDIX
Crossing 2

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Facing north at Crossing 1. Note there is a "dip" in the road indicating the presence of a valley or floodplain.

Upstream (west) end of culvert. Note no defined channel within a small cattail marsh.

Upstream end of culvert facing downstream (northeast). Note dry conditions, lack of substrates within culvert, and lack of evidence of high flows.

Downstream (east) end of culvert facing downstream. Note presence of a valley.

Downstream facing upstream (southwest) at downstream end of culvert. Note concrete debris and perched condition.

Downstream facing downstream (northeast) from downstream of culvert. Note dense wetland vegetation, lack of defined channel, and valley/floodplain.

APPENDIX B
VASCULAR PLANT LIST

Appendix B.
Vascular Plant List

	Scientific Name	Common Name	GRank	SRank	MNR	COSEWIC	Durham	CUM1-1	CUP3	CUS1	CUT1/SWT2	CUW1	FOM2	SWD4
	DRYOPTERIDACEAE	**WOOD FERN FAMILY**												
	Onoclea sensibilis	sensitive fern	G5	S5			X							X
	PINACEAE	**PINE FAMILY**												
*	*Picea abies*	Norway spruce	G?	SE3			X		X			X		
	Picea glauca	white spruce	G5	S5			X			X	X			
*	*Pinus nigra*	Austrian pine	G?	SE2			X		X				X	
	Pinus strobus	eastern white pine	G5	S5			X			X	X		X	
*	*Pinus sylvestris*	scotch pine	G?	SE5			X		X		X	X	X	
	CUPRESSACEAE	**CEDAR FAMILY**												
	Thuja occidentalis	eastern white cedar	G5	S5			X			X			X	
	RANUNCULACEAE	**BUTTERCUP FAMILY**												
*	*Ranunculus acris*	tall buttercup	G5	SE5			X						X	
	Ranunculus recurvatus var. *recurvatus*	hooked buttercup	G5	S5			X							X
	Thalictrum dioicum	early meadow-rue	G5	S5			X						X	
	ULMACEAE	**ELM FAMILY**												
	Ulmus americana	white elm	G5?	S5			X					X	X	
	JUGLANDACEAE	**WALNUT FAMILY**												
	Juglans nigra	black walnut	G5	S4			U					X	X	
	FAGACEAE	**BEECH FAMILY**												
	Quercus macrocarpa	bur oak	G5	S5			U			X				
	CHENOPODIACEAE	**GOOSEFOOT FAMILY**												

Appendix B.
Vascular Plant List

	Scientific Name	Common Name	GRank	SRank	MNR	COSEWIC	Durham	CUM1-1	CUP3	CUS1	CUT1/SWT2	CUW1	FOM2	SWD4
*	*Chenopodium album* var. *album*	lamb's quarters	G5T5	SE5				X						
	TILIACEAE	**LINDEN FAMILY**												
	Tilia americana	basswood	G5	S5			X		X			X		X
	CUCURBITACEAE	**GOURD FAMILY**												
	Echinocystis lobata	prickly cucumber	G5	S5			X		X				X	
	SALICACEAE	**WILLOW FAMILY**												
	Populus deltoides	cottonwood											X	
	Populus tremuloides	trembling aspen	G5	S5			X				X	X	X	X
*	*Salix fragilis*	crack willow	G?	SE5			X							X
	Salix sp.	willow		?							X		X	X
	BRASSICACEAE	**MUSTARD FAMILY**												
*	*Alliaria petiolata*	garlic mustard	G5	SE5			X					X	X	
*	*Hesperis matronalis*	dame's rocket	G4G5	SE5			X					X	X	
	GROSSULARIACEAE	**GOOSEBERRY FAMILY**												
	Ribes cynosbati	prickly gooseberry	G5	S5			X						X	
	ROSACEAE	**ROSE FAMILY**												
	Fragaria virginiana ssp. *virginiana*	scarlet strawberry	G5T?	SU			X		X		X	X		
	Geum canadense	white avens	G5	S5			X						X	
*	*Geum urbanum*	wood avens	G5	SE2								X	X	
	Prunus virginiana var. *virginiana*	choke cherry	G5T?	S5			X					X	X	
	Rubus idaeus ssp. *strigosus*	wild red raspberry	G5T	S5			X					X	X	

Appendix B.
Vascular Plant List

	Scientific Name	Common Name	GRank	SRank	MNR	COSEWIC	Durham	CUM1-1	CUP3	CUS1	CUT1/SWT2	CUW1	FOM2	SWD4
*	*Sorbus aucuparia*	European mountain-ash	G5	SE4			X		X				X	
	FABACEAE	**PEA FAMILY**												
*	*Lotus corniculatus*	bird's-foot trefoil	G?	SE5			X	X						
*	*Melilotus alba*	white sweet-clover	G?	SE5			X	X		X				
*	*Robinia pseudo-acacia*	black locust	G5	SE5			X			X			X	
*	*Trifolium pratense*	red clover	G?	SE5			X	X						
*	*Vicia cracca*	tufted vetch	G?	SE5			X	X		X				
	LYTHRACEAE	**LOOSESTRIFE FAMILY**												
*	*Lythrum salicaria*	purple loosestrife	G5	SE5			X				X			X
	ONAGRACEAE	**EVENING-PRIMROSE FAMILY**												
	Circaea lutetiana ssp. *canadensis*	yellowish enchanter's nightshade	G5T5	S5			X						X	
	Oenothera biennis	common evening-primrose	G5	S5			X	X						
	CORNACEAE	**DOGWOOD FAMILY**												
	Cornus racemosa	red panicled dogwood	G5?	S5			R2					X	X	
	Cornus sericea ssp. *sericea*	red-osier dogwood	G5	S5			X				X			
	RHAMNACEAE	**BUCKTHORN FAMILY**												
*	*Rhamnus cathartica*	common buckthorn	G?	SE5			X		X	X	X	X	X	X
	VITACEAE	**GRAPE FAMILY**												
	Parthenocissus vitacea	inserted Virginia-creeper	G5	S5			X			X		X	X	
	Vitis riparia	riverbank grape	G5	S5			X	X	X	X	X	X	X	
	ACERACEAE	**MAPLE FAMILY**												

Appendix B.
Vascular Plant List

	Scientific Name	Common Name	GRank	SRank	MNR	COSEWIC	Durham	CUM1-1	CUP3	CUS1	CUT1/SWT2	CUW1	FOM2	SWD4
	Acer negundo	Manitoba maple	G5	S5			X			X	X	X	X	X
*	*Acer platanoides*	Norway maple	G?	SE5			X					X		
	Acer saccharum var. *saccharum*	sugar maple	G5T?	S5			X			X		X	X	
	ANACARDIACEAE	**SUMAC FAMILY**												
	Rhus hirta	staghorn sumac	G5	S5			X			X		X		
	GERANIACEAE	**GERANIUM FAMILY**												
*	*Geranium robertianum*	herb-Robert	G5	SE5			X						X	
	BALSAMINACEAE	**TOUCH-ME-NOT FAMILY**												
	Impatiens capensis	spotted touch-me-not	G5	S5			X				X			X
	APIACEAE	**PARSLEY FAMILY**												
*	*Daucus carota*	wild carrot	G?	SE5			X	X	X	X	X	X	X	
	ASCLEPIADACEAE	**MILKWEED FAMILY**												
	Asclepias syriaca	common milkweed	G5	S5			X	X		X				
*	*Cynanchum rossicum*	swallow-wort	G?	SE5			X				X	X	X	X
	SOLANACEAE	**POTATO FAMILY**												
*	*Solanum dulcamara*	bitter nightshade	G?	SE5			X				X			X
	BORAGINACEAE	**BORAGE FAMILY**												
*	*Echium vulgare*	blueweed	G?	SE5			X	X						
	PLANTAGINACEAE	**PLANTAIN FAMILY**												
*	*Plantago lanceolata*	ribgrass	G5	SE5			X	X		X				
*	*Plantago major*	common plantain	G5	SE5			X	X						
	OLEACEAE	**OLIVE FAMILY**												

Appendix B.
Vascular Plant List

	Scientific Name	Common Name	GRank	SRank	MNR	COSEWIC	Durham	CUM1-1	CUP3	CUS1	CUT1/SWT2	CUW1	FOM2	SWD4
	Fraxinus americana	white ash	G5	S5			X						X	
	Fraxinus pennsylvanica	red ash	G5	S5			X		X	X	X	X		X
	SCROPHULARIACEAE	**FIGWORT FAMILY**												
*	*Verbascum thapsus*	common mullein	G?	SE5			X	X						
	RUBIACEAE	**MADDER FAMILY**												
	Galium aparine	cleavers	G5	S5			U							X
	CAPRIFOLIACEAE	**HONEYSUCKLE FAMILY**												
*	*Lonicera tatarica*	Tartarian honeysuckle	G?	SE5			X			X	X	X	X	
*	*Viburnum lantana*	bending wayfaring-tree	G?	SE2			X		X					
	DIPSACACEAE	**TEASEL FAMILY**												
*	*Dipsacus fullonum* ssp. *sylvestris*	wild teasel	G?T?	SE5			X	X		X				
	ASTERACEAE	**ASTER FAMILY**												
*	*Arctium minus*	common burdock	G?T?	SE5			X	X		X				
	Aster ericoides var. *ericoides*	white heath aster	G5T?	S5				X						
	Aster lanceolatus ssp. *lanceolatus*	tall white aster	G5T?	S5			X				X			
*	*Cichorium intybus*	chicory	G?	SE5			X	X	X	X	X	X		
*	*Cirsium arvense*	Canada thistle	G?	SE5			X	X		X				
	Euthamia graminifolia	flat-topped bushy goldenrod	G5	S5			X	X		X		X	X	
	Solidago canadensis	canada goldenrod	G5	S5			U	X	X	X	X	X	X	X
*	*Sonchus arvensis* ssp. *arvensis*	field sow-thistle	G?T?	SE5			X	X	X	X	X	X		X

Appendix B.
Vascular Plant List

	Scientific Name	Common Name	GRank	SRank	MNR	COSEWIC	Durham	CUM1-1	CUP3	CUS1	CUT1/SWT2	CUW1	FOM2	SWD4
	Symphyotrichum novae-angliae	New England aster	G5	S5			X	X		X			X	
*	*Taraxacum officinale*	common dandelion	G5	SE5			X	X	X			X		
*	*Tussilago farfara*	coltsfoot	G?	SE5			X					X	X	X
	CYPERACEAE	**SEDGE FAMILY**												
	Carex sp.	sedge									X		X	X
	POACEAE	**GRASS FAMILY**												
*	*Bromus inermis* ssp. *inermis*	awnless brome	G4G5T?	SE5			X	X	X			X		
*	*Dactylis glomerata*	orchard grass	G?	SE5			X			X				
*	*Digitaria sanguinalis*	large crabgrass	G5	SE5			X	X						
*	*Elymus repens*	quack grass	G?	SE5			X	X						
	Phalaris arundinacea	reed canary grass	G5	S5			X			X	X			X
*	*Phleum pratense*	timothy	G?	SE5			X	X		X				
	Poa compressa	Canada blue grass	G?	S5			X	X						
	Poa pratensis ssp. *pratensis*	Kentucky bluegrass	G5T	S5			X	X	X	X				
	TYPHACEAE	**CATTAIL FAMILY**												
	Typha latifolia	broad-leaved cattail	G5	S5			X			X				X
	LILIACEAE	**LILY FAMILY**												
*	*Asparagus officinalis*	garden asparagus	G5?	SE5			X				X			

*Non-native species
X present
Refer to **Appendix C** for species rank definitions.

APPENDIX C
ACRONYMS AND DEFINITIONS USED IN SPECIES LISTS

Species Status

GRANK	**Global Rank**
Global ranks are assigned by a consensus of the network of Conservation Data Centres, scientific experts, and The Nature Conservatory to designate a rarity rank based on the range-wide status of a species, subspecies or variety. The most important factors considered in assigning global ranks are the total number of known, extant sites world-wide, and the degree to which they are potentially or actively threatened with destruction. Other criteria include the number of known populations considered to be securely protected, the size of the various populations, and the ability of the taxon to persist at its known sites. The taxonomic distinctness of each taxon has also been considered. Hybrids, introduced species, and taxonomically dubious species, subspecies and varieties have not been included.	
Short Form	**Definition**
G1	**Extremely rare;** usually 5 or fewer occurrences in the overall range or very few remaining individuals; or because of some factor(s) making it especially vulnerable to extinction.
G2	**Very rare;** usually between 5 and 20 occurrences in the overall range or with many individuals in fewer occurrences; or because of some factor(s) making it vulnerable to extinction.
G3	**Rare to uncommon**; usually between 20 and 100 occurrences; may have fewer occurrences, but with a large number of individuals in some populations; may be susceptible to large-scale disturbances.
G4	**Common**; usually more than 100 occurrences; usually not susceptible to immediate threats.
G5	**Very common**; demonstrably secure under present conditions.
GH	Historic, no records in the past 20 years.
GU	Status uncertain, often because of low search effort or cryptic nature of the species; more data needed.
GX	Globally extinct. No recent records despite specific searches.
?	Denotes inexact numeric rank (i.e. G4?).
G	A "G" (or "T") followed by a blank space means that the NHIC has not yet obtained the Global Rank from The Nature Conservancy.
G?	Unranked**,** or, if following a ranking, rank tentatively assigned (e.g. G3?).
Q	Denotes that the taxonomic status of the species, subspecies, or variety is questionable.
T	Denotes that the rank applies to a subspecies or variety.

SRANK	**Provincial Rank**
Provincial (or Sub-national) ranks are used by the Ontario Ministry of Natural Resources Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities. These ranks are not legal designations. Provincial ranks are assigned in a manner similar to that described for global ranks, but consider only those factors within the political boundaries of Ontario. By comparing the global and provincial ranks, the status, rarity, and the urgency of conservation needs can be ascertained. The NHIC evaluates provincial ranks on a continual basis and produces updated lists at least annually.	
Short Form	**Definition**
S1	**Critically Imperiled** in Ontario because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation.
S2	**Imperiled** in Ontario because of rarity due to very restricted range, very few populations (often 20 or fewer occurrences) steep declines or other factors making it very vulnerable to extirpation.
S3	**Vulnerable** in Ontario due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
S4	**Apparently Secure**—Uncommon but not rare; some cause for long-term concern due to declines or other factors.
S5	**Secure**—Common, widespread, and abundant in Ontario.
SX	**Presumed Extirpated** – Species or community is believed to be extirpated from Ontario.
SH	**Possibly Extirpated** – Species or community occurred historically in Ontario and there is some possibility that it may be rediscovered.
SNR	**Unranked**—Conservation status in Ontario not yet assessed
SU	**Unrankable**—Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
SNA	**Not Applicable** —A conservation status rank is not applicable because the species is not a suitable target for conservation activities.
S#S#	**Range Rank** —A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).

COSEWIC	**Committee on the Status of Endangered Wildlife in Canada**
The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assesses the national status of wild species that are considered to be at risk in Canada.	
Status	**Definition**
Extinct (X)	A wildlife species that no longer exists.
Extirpated (XT)	A wildlife species no longer existing in the wild in Canada, but occurring elsewhere.
Endangered (E)	A wildlife species facing imminent extirpation or extinction.
Threatened (T)	A wildlife species likely to become endangered if limiting factors are not reversed.
Special Concern (SC)	A wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.

Not at Risk (NAR)	A wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances.
Data Deficient (DD)	A category that applies when the available information is insufficient (a) to resolve a wildlife species' eligibility for assessment or (b) to permit an assessment of the wildlife species' risk of extinction.

COSSARO/OMNR	Committee on the Status of Species at Risk in Ontario/Ontario Ministry of Natural Resources
The Committee on the Status of Species at Risk in Ontario (COSSARO)/Ontario Ministry of Natural Resources (OMNR) assesses the provincial status of wild species that are considered to be at risk in Ontario.	
Status	**Definition**
Extinct (EXT)	A species that no longer exists anywhere.
Extirpated (EXP)	A species that no longer exists in the wild in Ontario but still occurs elsewhere.
Endangered (Regulated) (END–R)	A species facing imminent extinction or extirpation in Ontario which has be regulated under Ontario's *Endangered Species Act*.
Endangered (END)	A species facing imminent extinction or extirpation in Ontario which is a candidate for regulation under Ontario's *Endangered Species Act*.
Threatened (THR)	A species that is at risk of becoming endangered in Ontario if limiting factors are not reversed.
Special Concern (SC)	A species with characteristics that make it sensitive to human activities or natural events.
Not at Risk (NAR)	A species that has been evaluated and found to be not at risk.
Data Deficient (DD)	A species for which there is insufficient information for a provincial status recommendation.

Species Status under Federal Legislation

MBCA	Migratory Birds Convention Act
The Canada *Migratory Birds Convention Act* provides for the protection of migratory birds in Canada and the United States. The provisions of this Act are implemented through the Migratory Bird Regulations. Bird species that are regulated under the *Migratory Birds Convention Act* are noted in the applicable species lists.	

SARA	Species at Risk Act
The Canada *Species at Risk Act* provides a framework for actions across Canada to ensure the survival of wildlife species and the protection of our natural heritage. It sets out how to decide which species are a priority for action and what to do to protect a species. It identifies ways governments, organizations and individuals can work together, and it establishes penalties for a failure to obey the law. Regulated species are listed in Schedules 1, 2 and 3 of the Act.	
Schedule 1 SARA (1)	Species that are currently covered under the Act.
Schedule 2 SARA (2)	Species that are endangered or threatened that have not been re-assessed by COSEWIC for inclusion on Schedule 1.
Schedule 3 SARA (3)	Species that are of special concern that have not yet been re-assessed by COSEWIC for inclusion on Schedule 1.

Species Status under Provincial Legislation

ESA	**Endangered Species Act**
The Ontario *Endangered Species Act* provides for the conservation, protection, restoration and propagation of species of fauna and flora of the Province of Ontario that are threatened with extinction. Regulated species are listed in Ontario Regulation 338.	

Schedule No.	**Short Form**	**Status**
Schedule 1 ESA (1)	EXT	The species of flora and fauna listed in Schedule 1 are declared to be threatened with extinction.
Schedule 2 ESA (2)	EXP	The species of flora and fauna listed in Schedule 2 are declared to be extirpated.
Schedule 3 ESA (3)	END	The species of flora and fauna listed in Schedule 3 are declared to be endangered.
Schedule 4 ESA (4)	THR	The species of flora and fauna listed in Schedule 4 are declared to be threatened.
Schedule 5 ESA (5)	SC	The species of flora and fauna listed in Schedule 5 are declared to be special concern.

FWCA	**Fish and Wildlife Conservation Act**
The Ontario *Fish and Wildlife Conservation Act* outlines the restrictions for hunting, trapping and fishing; handling of live wildlife; sale, purchase and transport of wildlife; and, licences that can be secured under the Act. Under Schedules 1 to 11 of the Act, wildlife are grouped for the purpose of regulating these species. These schedules are further defined below. Note: where there is a conflict between this Act and the Ontario *Endangered Species Act*, the provision with the most protection will prevail (s. 2 of the *Fish and Wildlife Conservation Act*).	

Schedule No.	**Short Form**	**Status**
Schedule 1	Furbearing – M	The species of fauna listed in Schedule 1 are declared to be furbearing mammals.
Schedule 2	Game – M	The species of fauna listed in Schedule 2 are declared to be game mammals.
Schedule 3	Game – B	The species of fauna listed in Schedule 3 are declared to be game birds.
Schedule 4	Game – R	The species of fauna listed in Schedule 4 are declared to be game reptiles.
Schedule 5	Game – A	The species of fauna listed in Schedule 5 are declared to be game amphibians.
Schedule 6	Specially Protected – M	The species of fauna listed in Schedule 6 are declared to be specially protected mammals.
Schedule 7	Specially Protected – R	The species of fauna listed in Schedule 7 are declared to be specially protected birds (raptors).
Schedule 8	Specially Protected – B	The species of fauna listed in Schedule 8 are declared to be specially protected birds (other than raptors).
Schedule 9	Specially Protected – R	The species of fauna listed in Schedule 9 are declared to be specially protected reptiles.

FWCA	**Fish and Wildlife Conservation Act**	
The Ontario *Fish and Wildlife Conservation Act* outlines the restrictions for hunting, trapping and fishing; handling of live wildlife; sale, purchase and transport of wildlife; and, licences that can be secured under the Act. Under Schedules 1 to 11 of the Act, wildlife are grouped for the purpose of regulating these species. These schedules are further defined below. Note: where there is a conflict between this Act and the Ontario *Endangered Species Act*, the provision with the most protection will prevail (s. 2 of the *Fish and Wildlife Conservation Act*).		
Schedule No.	**Short Form**	**Status**
Schedule 10	Specially Protected – A	The species of fauna listed in Schedule 10 are declared to be specially protected amphibians.
Schedule 11	Specially Protected – I	The species of fauna listed in Schedule 11 are declared to be specially protected invertebrates.

BSC	**Bird Studies Canada**
The Bird Studies Canada *Conservation Priorities for the Birds of Southern Ontario* (1999), based on work completed by Bird Studies Canada, the Canadian Wildlife Service and the MNR identifies bird species of high conservation priority. This list was prepared to assist municipalities in identifying significant natural heritage features, through using the information regarding the presence of birds of conservation priority in their municipality. Birds of conservation priority have been noted (BSC) in the appropriate species lists.	